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Clear Creek Integrated Restoration Project

Final Environmental Impact Statement

Volume 2: Appendices B, C, D, E, F, G, H, I, J, K, and L

Moose Creek Ranger District, Nez Perce–Clearwater National Forest

Idaho County, Idaho

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Appendix B

Clear Creek Roadwork

Clear Creek Road Work

Road decommissioning practices vary depending on the road location and the risk of road failure. Roads that have moderate to high risk of failure, that are near fish bearing streams or are being used by unauthorized vehicles will require full decompaction and natural slope recontour. All roads with stream crossings or other watershed concerns will be recontoured including stream grade channel restoration. Roads identified in this project not meeting the above criteria may be abandoned. Abandoned roads have no stream crossings, are well vegetated, are resistant to surface erosion and are not prone to mass failure.

Each road used for timber haul in accordance with this project will be either reconditioned or reconstructed based on the existing condition of the roadway.

Reconditioning roads consists of standard maintenance, such as road blading, brushing, removal of small cutslope failures, applying rock in wet areas and removal of obstructions such as rocks and trees. Reconditioning also includes maintenance of existing culverts.

Road reconstruction improves the roadway. This includes replacing and installing new culverts for cross drains and live water culverts, placement of rock surfacing, placement of roadway fill and installation of new signs or gates. Other activities include installation of drainage dips, road blading, brushing and removal of obstructions.

The definitions for road reconstruction and road reconditioning above do not include all activities that can be completed under each classification; these definitions are for informational purposes only.

Reconditioning and reconstruction is based on the current condition of the roadway. As the project continues, road failures or different access may require the type of work and roads requiring work to change. This is an approximation of road work for the Clear Creek project.

Below is a list of road work for this project.

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
Decommission - 13.2 Miles				
1106H	Stinking Water	0.78	Decommission end of road	Watershed
1114	Upper Clear Creek	1.70	Decommission from Junction 1114-C to Junction of the 77774	Watershed
1114C	Upper Clear Spur 2	0.17	Decommission end of road	Watershed
9705B	Kay Ridge South	0.94	Decommission	Watershed
9706B	Solo Ridge	0.78	Decommission	Watershed
9730J	Cougar Spur J	0.36	Decommission end of road after use in sale	Watershed

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
9734A	Upper Middle Fk Spur A	0.12	Decommission from ridge point to end of draw	Watershed
9735A	Upper Solo Spur A	0.23	Decommission after use in sale	Watershed
77742		0.32	Decommission	Watershed
77742A		0.57	Decommission	Watershed
77742B		0.11	Decommission	Watershed
77756		0.82	Decommission end of road	Watershed
77770		0.73	Decommission	Watershed
77773		0.86	Decommission	Watershed
77773A		0.11	Decommission	Watershed
77774B		0.46	Decommission	Watershed
77777A		0.30	Decommission	Watershed
77779		0.17	Decommission	Watershed
77780		0.15	Decommission	Watershed
77781		1.11	Decommission	Watershed
77783		0.66	Leave landing at beginning of road	Watershed
77786		0.12	Decommission end of road	Watershed
77789A		0.61	Decommission	Watershed
77799		1.00	Leave landing at beginning of road	Watershed
Recondition - 48.8 Miles				
284	Elk City Wagon Road	5.00	Recondition	Sale Haul Route
284-M	Tenmile Cabin	0.72	Recondition	Sale Haul Route
284-N	Horse Corral	0.50	Recondition	Sale Haul Route
286-B	Lookout Tree Pit	0.20	Recondition	Sale Haul Route
286-H	Lonesome Pine	0.30	Recondition	Sale Haul Route
286-I	Pine Knob Ridge	1.15	Recondition	Sale Haul Route
286-M	Upper Kay Cr	1.30	Recondition	Sale Haul Route
464	Boundary Ridge Rd	1.00	Recondition	Sale Haul Route
470	Swiftwater	1.00	Recondition	Sale Haul Route
650-A	Mule Point	1.09	Recondition	Sale Haul Route
650-B	Little Mule	0.39	Recondition	Sale Haul Route
650-G	Soaring Falcon	1.00	Recondition	Sale Haul Route

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
650-H	Hoodoo Falls	1.60	Recondition	Sale Haul Route
650-H1	Hoodoo Jump	1.05	Recondition	Sale Haul Route
650-I	Tiny Tim	0.30	Recondition	Sale Haul Route
650-I1	Raven Pit	0.22	Recondition	Sale Haul Route
650-L	Peg Leg Jim	0.22	Recondition	Sale Haul Route
650-M	Mad Mike	0.47	Recondition	Sale Haul Route
1106-A	West Branch	0.30	Recondition	Sale Haul Route
1106-F1	High West Fork	0.75	Recondition	Sale Haul Route
1106-I	Happy Hoodoo	1.07	Recondition	Sale Haul Route
1106-L	Flying Falcon	0.75	Recondition	Sale Haul Route
1106-M	Howdy Doody	0.20	Recondition	Sale Haul Route
1129	Hamby Loop	1.43	Recondition	Sale Haul Route
1160	Rabbit Cr	2.82	Recondition	Sale Haul Route
1160-F	Little Rabbit	0.34	Recondition	Sale Haul Route
1160-F1	Short Rabbit	0.10	Recondition	Sale Haul Route
1855-A	S. Fk. Clear Cr Rd A	0.77	Recondition	Sale Haul Route
1855-B	S. Fk. Clear Cr Rd B	0.15	Recondition	Sale Haul Route
1855-C	S. Fk. Clear Cr Rd C	0.09	Recondition	Sale Haul Route
1855-E	S. Fk. Clear Cr Rd E	0.59	Recondition	Sale Haul Route
9409-B	Kay Creek West Spur B	0.50	Recondition	Sale Haul Route
9441	Wall Creek	0.50	Recondition	Sale Haul Route
9441-A	Bald Eagle	1.21	Recondition	Sale Haul Route
9441-A1	Red Hawk	0.20	Recondition	Sale Haul Route
9441-A2	Stage Pit	0.35	Recondition	Sale Haul Route
9482	South Fk Clear Creek	1.12	Recondition	Sale Haul Route
9482-B	No Muddy Water	0.65	Recondition	Sale Haul Route
9483	China Point	1.56	Recondition	Sale Haul Route
9700	Trail 183 Ridge	1.10	Recondition	Sale Haul Route
9700-A	Trail 183 Spur A	0.27	Recondition	Sale Haul Route
9700-B	Trail 183 Spur B	0.43	Recondition	Sale Haul Route
9700-B1	Trail 183 Spur B1	0.27	Recondition	Sale Haul Route
9707	Webers Finale	0.56	Recondition	Sale Haul Route
9712	Pine Knob	0.82	Recondition	Sale Haul Route

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
9712-A	Pine Knob Spur	0.31	Recondition	Sale Haul Route
9730-A	Cougar Spur A	0.24	Recondition	Sale Haul Route
9730-B	Cougar Spur B	0.70	Recondition	Sale Haul Route
9730-E	Cougar Spur E	0.50	Recondition	Sale Haul Route
9730-H	Cougar Spur H	0.41	Recondition	Sale Haul Route
9730-K	Cougar Knob	0.35	Recondition	Sale Haul Route
9734	Upper Middle Fork	1.12	Recondition	Sale Haul Route
9734-A	Upper Middle Fk Spur A	0.29	Recondition	Sale Haul Route
9735-A	Upper Solo Spur A	0.22	Recondition	Sale Haul Route
9737	Tall Center	0.68	Recondition	Sale Haul Route
9737-A	Tall Center Spur A	0.44	Recondition	Sale Haul Route
9740	Middle Fk Clear Cr Spur	0.84	Recondition	Sale Haul Route
77742		0.32	Recondition	Sale Haul Route
77744		0.62	Recondition	Sale Haul Route
77745		0.71	Recondition	Sale Haul Route
77748		0.17	Recondition	Sale Haul Route
77755		0.40	Recondition	Sale Haul Route
77755-A		0.35	Recondition	Sale Haul Route
77755-B		0.37	Recondition	Sale Haul Route
77755-B2		0.25	Recondition	Sale Haul Route
77757		0.40	Recondition	Sale Haul Route
77784		0.59	Recondition	Sale Haul Route
77784-A		0.29	Recondition	Sale Haul Route
77786		0.60	Recondition	Sale Haul Route
77789		0.60	Recondition	Sale Haul Route
77789-A1		0.20	Recondition	Sale Haul Route
77790		0.40	Recondition	Sale Haul Route
Reconstruction - 119.8 Miles				
286	Tahoe	24.10	Reconstruction - includes culvert replacement	Sale Haul Route/ Watershed/Traffic
286N	Kay Creek East	0.60	Reconstruction - includes culvert replacement	Sale Haul Route

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
650	West Fork Clear Creek	15.45	Reconstruction - includes culvert replacement	Sale Haul Route/ Watershed/Traffic
650A1	Black Mule	0.59	Reconstruction	Sale Haul Route
650C	Lost Mule	1.28	Reconstruction	Sale Haul Route
650C1	Red Mule	0.55	Reconstruction	Sale Haul Route
650F	Nesting Falcon	0.90	Reconstruction	Sale Haul Route
1106	Sears Creek	20.22	Reconstruction - includes culvert replacement	Sale Haul Route/Watershed
1106F	Pole Corral	2.76	Reconstruction	Sale Haul Route
1106H	Stinking Water	1.10	Reconstruction	Sale Haul Route
1106I1	Sad Sack	0.52	Reconstruction	Sale Haul Route
1106J	West West Branch	1.47	Reconstruction	Sale Haul Route
1114	Upper Clear Creek	4.50	Reconstruction - includes culvert replacement	Sale Haul Route
1114C	Upper Clear Spur 2	0.48	Reconstruction	Sale Haul Route
1129D	Brown Springs	1.20	Reconstruction	Sale Haul Route
1160D (Sec. 1)	Pack Mule	1.50	Reconstruction - from sale unit to Road 1160, install and remove culvert at West Fork Clear Creek	Sale Haul Route
1160D (Sec. 2)	Pack Mule	0.80	Reconstruction - from 1160-D1 to end of road	Sale Haul Route
1855	Lytle Cow Camp	9.91	Reconstruction - includes culvert replacement	Sale Haul Route/Watershed
1855D	S. Fork Clear Cr. Rd D	0.69	Reconstruction	Sale Haul Route
1855F	Cowboy Joe	1.01	Reconstruction	Sale Haul Route
1899A	Pine Cone	1.75	Reconstruction	Sale Haul Route
9409	Kay Creek West	1.86	Reconstruction	Sale Haul Route
9442	Voodoo Bill	2.38	Reconstruction	Sale Haul Route
9442A	Chicken Hawk	0.80	Reconstruction	Sale Haul Route
9703	Middle Fork Spur	0.43	Reconstruction	Sale Haul Route
9705	Kay Ridge Spur	2.20	Reconstruction	Sale Haul Route
9730	Cougar Ridge	6.40	Reconstruction	Sale Haul Route
9730D	Cougar Spur D	0.75	Reconstruction	Sale Haul Route

Road Number	Road Name	Miles	Proposed Road Work	Reason For Work
9730J	Cougar Spur J	1.28	Reconstruction	Sale Haul Route
9731	Lost Ridge	2.50	Reconstruction	Sale Haul Route
9732	Upper Clear Creek Spur	1.97	Reconstruction	Sale Haul Route
9732-A	Spur West	2.43	Reconstruction	Sale Haul Route
9735	Upper Solo	1.62	Reconstruction	Sale Haul Route
77755B1		0.29	Reconstruction	Sale Haul Route
77758		0.35	Reconstruction	Sale Haul Route
77772		0.43	Reconstruction	Sale Haul Route
77774		1.80	Reconstruction	Sale Haul Route
77774A		0.46	Reconstruction	Sale Haul Route
77785		0.47	Reconstruction	Sale Haul Route

Note: Total mileage of road is included even if only a section is proposed for reconstruction

Appendix C

Proposed Site-Specific Forest Plan Amendment—Soils

Proposed Site-Specific Forest Plan Amendment—Soils

NEZ PERCE NATIONAL FOREST

LAND AND RESOURCE MANAGEMENT PLAN

AMENDMENT NO. 41 (PROPOSED)

SITE-SPECIFIC AMENDMENT TO SOIL QUALITY STANDARD #2

FOR THE CLEAR CREEK PROJECT AREA

The purpose of this amendment is to allow vegetation activities in areas that currently exceed Forest Plan soil quality standard #2.

The Nez Perce National Forest soil quality standards (Forest Plan II-22) apply to lands in the Clear Creek project area. Soil quality standard #2 currently reads as follows:

> *A minimum of 80 percent of any activity area shall not be detrimentally compacted, displaced, or puddled upon completion of activities. This direction does not apply to permanent recreation facilities and other permanent facilities such as system roads.*

The following amendment is proposed, specific to the Clear Creek project area:

> *Where detrimental soil conditions from past activities affect 15 percent or less of the activity area, a cumulative minimum of 85 percent of the activity area shall not be detrimentally compacted, displaced, or puddle upon completion of activities.*
>
> *Where detrimental soil conditions from past activities affect more than 15 percent of the activity area, the cumulative detrimental soil disturbance from project implementation and past activities shall not exceed the conditions prior to the planned activity and shall provide a net improvement in soil quality.*

This guidance is taken from R1 soil quality guidelines found in R1 Supplement No. 2500-99-1 of Forest Service Manual 2500 - Watershed and Air Management.

ANALYSIS OF FACTORS

Soil Standard #2 (Forest Plan II-22) would be amended with a site specific Forest Plan Amendment for the Clear Creek project area on the Moose Creek Ranger District. The amendment would allow vegetation treatments and soil improvement activities to proceed in areas with extensive pre-existing detrimental soil conditions. The amendment takes into account the amount of existing detrimental soil disturbance, and allows the flexibility to achieve multiple resource objectives while showing an upward trend in net soil conditions.

Timing: The amended Soil Standard #2 would be effective until the Forest Plan is revised or amended. The Nez Perce National Forest Plan is scheduled for revision in 2013. The temporal scope of the amendment is therefore limited.

Location and Size: The propose Forest Plan amendment would affect implementation of activities only in the Clear Creek project area. The project area is about 43,730 acres, and is

located in Township 30, 31, 32 North, Ranges 5 and 6 East, Boise Principle Meridian. The project area represents less than 2 percent of the total 2,274,146 acres of National Forest System land in the Nez Perce National Forest. The size of area affected is therefore limited.

Proposed activities in the Clear Creek project include soil remediation to achieve a net improvement in proposed treatment units with past soil disturbance. Soil improvement actions can increase water infiltration, increase soil productivity, reduce potential for weed invasion, and stabilize bare slopes. Actions include decompacting soils, recontouring to slope, and adding organic matter, including large woody material. These activities would establish a quicker improving trend for soil conditions; advancing tree growth and vegetation establishment.

Goals, Objectives, and Outputs: The Forest Plan goal for soils is to maintain soil productivity and minimize any irreversible impacts to soil resource. The Forest Plan objective for soils is to maintain soil productivity and minimize soil erosion through the application of best management practices, careful riparian area management, use of fish/water quality drainage objectives, and soil and water resource improvement projects.

This amendment is fully consistent with the goals and objectives of the Nez Perce Forest Plan. Because the amendment would: impose a standard to maintain soil productivity and allow activities to restore areas with considerable pre-existing detrimental soil disturbance. These activities would respond directly and indirectly to the Forest Plan goal and objective for soils. The activities would not inhibit achievement of the Forest Plan goal/objective. This amendment would allow a net improvement in soil condition in the units treated with prior impacts.

This is a site-specific amendment to the Forest Plan soil quality standard #2 for lands in the Clear Creek project area. This site-specific amendment would allow the Clear Creek project to proceed despite the fact that several proposed units currently exceed the 20% compacted, displaced, or puddle soils standard.

The soils analysis in the Clear Creek project area found that some units harvested in the 1960 to 1980s using ground based and jammer logging systems, have compacted or displaced soils over more than 20% of the harvested area. Proposed activities for the Clear Creek project include soil remediation activities to achieve a net improvement in proposed vegetation management units. In order to enter these units under the Clear Creek project, an amendment to soil quality standard #2 is needed.

Management Perspective: Amendment of Forest Plan Soil Standard #2 is specific or applicable only to the Clear Creek activity area. This amendment does not apply to activities occurring outside the Clear Creek project area. The proposed change would occur on less than 2 percent of the Forest, therefore there would be no measurable change to goods and service produced in the total forest panning unit (2,274,146 acres, Forest) prior to completion of the Forest Plan revision.

This direction does not apply to permanent recreation facilities and other permanent facilities such as system roads. This amendment would make the Forest Plan standard consistent with Regional soil quality guidelines (USDA 1999).

PURPOSE AND NEED OF AMENDMENT

PURPOSE

The purpose of this amendment is to allow activities to occur on areas with greater than 20 percent detrimental soil disturbance.

NEED

Past harvest activities have altered soils conditions in the Clear Creek project area. The current Forest Plan standards and the Forest Service Region1 soil quality guidelines provide direction to maintain soil productivity. The proposed amendment would change Forest Plan standard #2, allowing for activities to occur on areas with greater than 20% soil detrimental disturbance, as long as soil improvement activities are implemented.

Based on the current condition a project specific Forest Plan amendment is needed for Alternatives B, C and D to allow for harvest activities to occur on three units of the Clear Creek project.

DIRECT, INDIRECT AND CUMULATIVE IMPACT OF AMENDMENT

DIRECT AND INDIRECT EFFECTS

NO ACTION ALTERNATIVE

Alternative A would not amend the Forest Plan. Soil conditions in three units of the Clear Creek project area would remain detrimentally disturbed. No soil improvement activities would occur.

ACTION ALTERNATIVES

Alternatives B, C and D are evaluated in this analysis, and would require a Forest Plan amendment for soil standard #2. These alternatives would not adjust the goals, objectives, or outputs as described in the Forest Plan. This amendment would allow the Clear Creek project to proceed despite the fact that three of the proposed units currently exceed the 20% compacted, displaced, or puddle soils standard.

The amendment would allow vegetation treatments and soil improvement activities to proceed in areas with extensive pre-existing detrimental soil conditions. The amendment takes into account the amount of existing detrimental soil disturbance, and allows the flexibility to achieve multiple resource objectives while showing an upward trend in net soil conditions.

Proposed activities in the Clear Creek project include soil remediation to achieve a net improvement in proposed treatment units with past soil disturbance. Soil improvement objectives are to increase water infiltration, increase soil productivity, reduce potential for weed invasion, and stabilize bare slopes. Actions include decompacting soils, recontouring to slope, and adding organic matter, including large woody material. These activities would establish a quicker improving trend for soil conditions; advancing tree growth and vegetation establishment.

This site specific amendment applies to the Clear Creek project area. The amended Soil Standard #2 would be effective until the Forest Plan is revised or amended. The Nez Perce

National Forest Plan is scheduled for revision in 2013. The temporal scope of the amendment is therefore limited.

This amendment would make the Forest Plan standard consistent with Regional soil quality guidelines (USDA 1999).

CUMULATIVE EFFECTS

There are no cumulative effects with the proposed amendment to the Forest Plan. The amendment is project specific and limited in time.

APPLICATION OF FSM 1926.51 DIRECTIVES NOT SIGNIFICANT CRITERIA

The determination of whether this proposed amendment is significant was done using the process in the Forest Service Planning Handbook, 1926.51 (http://www.fs.fed.us/emc/nfma/index5.html). The handbook states changes to the land management plan that are not significant can result from four specific situations. This forest-wide amendment is compared to those situations below:

Table 6. Soils Amendment Criteria Considered

Changes to the land management plan that are not significant	Alternative B, C, and D Forest Plan Soil standard #2 - Amendment
1. Actions that do not significantly alter the multiple use goals and objectives for long-term land and resource management.	The objectives set forth in the Forest Plan for soils would not be altered. The goal to maintain soil productivity and minimize any reversible impacts to the soil resource would still be met.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.	The proposed amendment does not alter the multiple-use goals and objectives for long-term land and resource management. The amendment only affects the analysis for this project. It is a project specific amendment that would have no effect to Forest Plan objectives or outputs.
3. Minor changes in standards and guidelines.	This amendment would only apply to the Clear Creek project. All other soil goals and standards would apply to this project. This amendment alters soil standard #2 to be consistent with regional soil guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.	Future projects would follow the current Forest Plan standard. This amendment would not adjust management area boundaries or management prescriptions in future analyses.

CONCLUSION—SIGNIFICANCE/NON-SIGNIFICANCE

The preliminary determination is that the adoption of this amendment to the Nez Perce National Forest Plan, soil standard #2, is not significant. This conclusion is based on consideration of the four factors identified in the Forest Service Planning handbook, 1926.51 and review of the Forest Plan. This amendment is fully consistent with the current Forest Plan goals and standards and Region 1 soil quality guidance.

Appendix D

Proposed Site-Specific Forest Plan Amendment—Old Growth

Proposed Site-Specific Forest Plan Amendment—Old Growth

NEZ PERCE NATIONAL FOREST

LAND AND RESOURCE MANAGEMENT PLAN

AMENDMENT NO. 42 (PROPOSED)

SITE-SPECIFIC AMENDMENT TO APPENDIX N

FOR THE CLEAR CREEK PROJECT AREA

The purpose of this amendment is to replace the Forest Plan Appendix N definitions of old growth with the definitions found in Old Growth Forest Types of the Northern Region (Green, et al., 1992, errata corrected 02/05, 12/07, 10/08, 12/11). The Green et al. definitions are regarded as the "best available science" for the classification of old growth at the site-specific level.

This nonsignificant amendment is site-specific, and would apply only to the Clear Creek Integrated Restoration Project action alternatives. This amendment would not apply to any activities or projects outside the project area.

This amendment would not change the Forest Plan objective for MA 20, which is to maintain viable populations of old-growth-dependent wildlife species. "At least 10 percent of the forested acres across the Forest that are suitable old-growth habitat will be managed as old-growth habitat. This acreage will be distributed across the Forest in a way which assures that at least 5 percent of the forested acres within major prescription watersheds of 6,000 to 10,000 acres will be managed as old-growth habitat." (USDA-FS 1987, page II-6).

Adopting the definitions for old growth found in Green et al. (1992) that define successional stages, stratification by habitat types, and other site conditions would help refine our interpretation of the old growth characteristics described in Appendix N of the Forest Plan.

Additionally, adoption of this amendment would ensure consistent terminology and analysis. Old growth determination is done through data collection in accordance with Region One stand exam protocols that correlate to the definitions found in Green et al (1992).

LITERATURE CITED:

Green, Pat; Joy, John; Sirucek, Dean; Hann, Wendell; Zack, Art; Naumann, Bob. 1992. Old-Growth Types of the Northern Region. U.S Department of Agriculture, Forest Service, Northern Region. (errata corrected 02/05, 12/07, 10/08, 12/11).

USDA Forest Service. 1987. Nez Perce National Forest Plan, as amended. Grangeville, ID: U.S. Department of Agriculture, Forest Service, Nez Perce National Forest.

TABLE 1 NORTHERN IDAHO ZONE OLD GROWTH TYPE CHARACTERISTICS *(2/05 errata edit)*

DESCRIPTION		MINIMUM CRITERIA			ASSOCIATED CHARACTERISTICS						
OLD GROWTH TYPE	HABITAT TYPE GROUP	MINIMUM AGE OF LARGE TREES	MINIMUM NUMBER TPA/DBH	MINIMUM BASAL AREA (FT^2/AC)	DBH VARIA-TION 2/	PERCENT DEAD/ BROKEN TOP 1/	PROB-ABILITY OF DOWN WOODY 2/	PER-CENT DECAY 1/	NUMBER CANOPY LAYERS 3/	SNAGS ≥9" DBH 1/	NUMBER OF SAMPLES
1 - PP, DF, L	A,B	150	8 ≥ 21"	40	M	0 - 30	L - M	0-8	SNGL/MLT	0 - 13	815
2 – LP	B,C,D,E,G,H,I,J,K	120	10 ≥ 13"	60	M	0-19	M	2-13	SNGL/MLT	1 - 37	875
3 - Y	C,C1, G1	150	3 ≥ 21"	80	M	7 - 10	H	9-34	SNGL/MLT	5	26
4A - DF, GF, L, SAF, WP, PP	C, C1,D,E	150	10 ≥ 21"	80	M	3 - 28	M	2 –33	SNGL/MLT	7 - 35	2,938
4B - DF,GF, L, WH, WP, PP	F,G,G1,H,I	150	10 ≥ 21"	120 / 80 (4)	M - H	0 - 22	M - H	1- 41	SNGL/MLT	0 - 33	8,069
5 – SAF,MAF	F,G, G1,H,I	150	10 ≥ 17"	80	H	5 - 36	H	5-28	MULTIPLE	6 - 36	4,275
6 – WBP	I, J, K	150	5 ≥ 13"	60 / 40 (5)	M	0 - 17	M	6-17	SNGL/MLT	11 - 42	43
7 – C	F,G,G1	150	10 ≥ 25" (6)	120	M	5 - 36	L - H	6-55	SNGL/MLT	6 - 47	5,865
8 – DF,L, SAF,MAF,WP	J	150	10 ≥ 17"	60	M	1 - 14	M - H	1-15	SNGL/MLT	3 - 40	890
9 – SAF,MAF	K	150	5 ≥ 13"	40	H	21 - 23	M	13-35	MULTI	11 - 13	26

1/ These values are not minimum criteria. They are the range of means for trees ≥9" DBH across plots within forests, forest types, or habitat type groups.

2/ These are not minimum criteria. They are Low, Moderate, and High probabilities of abundant large down woody material or variation in diameters based on stand condition expected to occur most frequently.

3/ Not a minimum criteria. Number of canopy layers can vary within an old growth type with age, relative abundance of different species and successional stage.

4/ In Old Growth Type 4B, 120 ft^2 applies to habitat type groups F, G, and G1, and 80 ft^2 of basal area applies to habitat type groups H & I.

5/ In whitebark pine forest type, 60 ft^2 of basal area applies to habitat type groups I and J, and 40 ft^2 applies to habitat type group K.

6/ In Old Growth Type 7, the 25" minimum DBH only applies to cedar trees; old trees of other species are evaluated with a minimum DBH appropriate for that species on these habitat types (21" for DF, GF, L, WH, WP, PP; and 17" for SAF, MAF)

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Appendix C - Chief's Definition and Action Plan

10/11/89

POSITION STATEMENT ON
NATIONAL FOREST OLD GROWTH VALUES

The Forest Service recognizes the many significant values associated with old growth forests, such as biological diversity, wildlife and fisheries habitat, recreation, aesthetics, soil productivity, water quality, and industrial raw material. Old growth on the National Forests will be managed to provide the foregoing values for present and future generations. Decisions on managing existing old growth forests to provide these values will be made in the development and implementation of forest plans These plans shall also provide for a succession of young forests into old growth forests in light of their depletion due to natural events or harvest.

Old growth forests encompass the late stages of stand development and are distinguished by old trees and related structural attributes. These attributes, such as tree size, canopy layers, snags, and down trees, generally define forests that are in an old growth condition. The specific attributes vary by forest type. Old growth definitions are to be developed by forest type or type groups for use in determining the extent and distribution of old growth forests.

Where goals for providing old growth values are not compatible with timber harvesting, lands will be classified as unsuitable for timber production. Where these goals can be met by such measures as extending the final harvest age well beyond the normal rotation or by using silvicultural practices that maintain or establish specific old growth values, lands will be classified as suitable for timber production. In making these determinations, consideration shall be given to the extent and distribution of old growth on National Forest lands that are Congressionally or administratively withdrawn from timber harvest, as well as adjacent ownerships.

Old growth values shall be considered in designing the dispersion of old growth. This may range from a network of old growth stands for wildlife habitat to designated areas for public visitation. In general, areas to be managed for old growth values are to be distributed over individual National Forests with attention given to minimizing the fragmentation of old growth into small isolated areas. Old growth on lands suitable for timber production and not subject to extended rotations is to be scheduled for harvest to establish young stands which more fully utilize potential timber productivity and also meet other resource objectives.

Regions with support from Research shall continue to develop forest type old growth definitions, conduct old growth inventories, develop and implement silvicultural practices to maintain or establish desired old growth values, and explore the concept of ecosystem management on a landscape basis. Where appropriate, land management decisions are to maintain future options so the results from the foregoing efforts can be applied in subsequent decisions. Accordingly, field units are to be innovative in planning and carrying out their activities in managing old growth forests for their many significant values.

Appendix E

Soils Design Criteria Summary

Soils Design Criteria Summary

Table 1. Soil design criteria summary for Clear Creek harvest units

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
101	63	10	Yes	Reuse	Yes		
102	178		Yes		Yes	Yes	
103	118		Yes			Yes	
104	57	5	Yes	Reuse			
105	18						
106	15						
107	10					Yes	Yes
108	31	3				Yes	
109	158		Yes		Yes	Yes	
110	24		Yes			Yes	
111	5						
112	21		Yes			Yes	
113	47		Yes		Yes	Yes	
114	48		Yes		Yes	Yes	
115	1						
116	10				Yes		
117	4				Yes		Yes
118	8				Yes		
119	64	3	Yes		Yes		
120	41	3	Yes		Yes		
121	11		Yes		Yes		
122	77	2	Yes		Yes		
123	120	5	Yes	Reuse	Yes	Yes	
124	25	7	Yes		Yes	Yes	
125	78		Yes		Yes		

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
126	70		Yes		Yes		
127	11						
128	52		Yes		Yes		
129	53		Yes		Yes		
130	47		Yes		Yes		
131	32		Yes				
132	3	3					
133	17	4	Yes	Reuse	Yes		
134	17	4	Yes	Special	Yes		
135	34	10	Yes	Special	Yes		
136	49		Yes		Yes		
137	6						
138	5						
139	89		Yes		Yes		
140	31		Yes		Yes		
141	35		Yes		Yes		
142	29		Yes		Yes	Yes	Yes
145	100		Yes		Yes		
146	5						
147	16	5	Yes	Special	Yes		
148	38		Yes				Yes
149	51		Yes				
150	146		Yes		Yes		
152	36		Yes		Yes		
153	13						
154	49		Yes				
155	101		Yes		Yes	Yes	

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
156	73						
157	19						
158	9						
159	102		Yes		Yes		
160	115		Yes		Yes	Yes	
201	4	10		Reuse			Yes
202	28	16		Trending Positive			Yes
203	21	13	Yes	Special			Yes
204	55	12		Reuse			Yes
205	110	16	Yes	Trending Positive			Yes
206	77	5	Yes	Reuse			Yes
207	30		Yes		Yes		
208	30	13	Yes	Special	Yes		Yes
209	2	17		Trending Positive			Yes
210	3	17		Trending Positive	Yes		Yes
211	13	13		Reuse	Yes		Yes
212	17	18	Yes	Trending Positive	Yes		Yes
213	8	13	Yes	Reuse			
214	103	16	Yes	Trending Positive	Yes		Yes
215	4	9	Yes	Reuse	Yes		Yes
216	5	7		Reuse	Yes		Yes
217	41	13	Yes	Special	Yes	Yes	
218	146	7	Yes	Reuse	Yes		

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
219	22	16	Yes	Trending Positive	Yes		
220	26	13	Yes	Special	Yes		Yes
221	26	7	Yes	Reuse	Yes		Yes
222	70	9	Yes	Reuse	Yes		Yes
223	2				Yes		
224	38	1	Yes		Yes	Yes	
225	60	13	Yes	Special	Yes		Yes
226	28		Yes		Yes	Yes	Yes
227	15		Yes			Yes	Yes
228	210	7	Yes	Reuse	Yes		
229	50	12	Yes	Special	Yes		
230	197	19	Yes	Trending Positive			
231	39	16		Trending Positive	Yes		
232	21	9	Yes	Reuse	Yes		
233	12	11	Yes	Special	Yes		Yes
234	173	17	Yes	Trending Positive	Yes	Yes	
235	74	9	Yes	Reuse	Yes		
236	38	12	Yes	Special	Yes		Yes
237	37	16		Trending Positive	Yes		
238	49	8		Reuse	Yes		
301	170	16		Trending Positive			
304	160	22		Trending Positive	Yes		Yes
305	4	8		Special			Yes

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
306	60	13		Special			Yes
307	327	7	Yes	Reuse	Yes		
309	276	13	Yes	Special			Yes
310	24	7			Yes		Yes
311	30	11		Reuse	Yes		
315	162	13	Yes	Special	Yes		Yes
316	189	9		Reuse			Yes
317	78	12	Yes	Special	Yes	Yes	Yes
318	64	16		Trending Positive	Yes		Yes
319	57	18	Yes	Trending Positive	Yes		Yes
320	214	22	Yes	Trending Positive	Yes		Yes
322	16	4	Yes				Yes
323	75	9	Yes	Reuse	Yes		Yes
324	355	18	Yes	Trending Positive	Yes		Yes
327	89	4			Yes		
329	103	8	Yes	Reuse	Yes		
330	33	7		Reuse	Yes		Yes
331	27	7		Reuse	Yes		Yes
332	15	11		Reuse	Yes		Yes
333	49	16	Yes	Trending Positive	Yes		
335	26	7	Yes	Special	Yes		
337	57	6		Reuse	Yes		
340	30	7	Yes	Reuse	Yes		
341	142	13	Yes	Special	Yes		

Unit[ab]	Acres Alt. C max acres	Current DSD (%) (field survey 2012)	Temp Road	Design criteria to meet Regional Standard 15% DSD	Subsurface erosion hazard on tractor ground	Landslide prone acres to be excluded from harvest	Down wood material design criteria
343	13	8		Special			Yes
344	11	22	Yes	Trending Positive	Yes		Yes
345	117	19	Yes	Trending Positive	Yes	Yes	Yes
346	38	7	Yes		Yes		Yes
347	98	9	Yes	Reuse	Yes		Yes
348	43	9	Yes	Special	Yes		Yes
349	53	10		Reuse	Yes		Yes
350	23	16		Trending Positive	Yes		Yes
351	21	10	Yes	Special	Yes		Yes
352	13	13	Yes	Reuse			
354	8	17		Trending Positive	Yes		Yes
355	8				Yes		
356	96	13	Yes	Reuse	Yes		Yes
357	54	12	Yes	Special	Yes		
358	277	18	Yes	Trending Positive	Yes		Yes
373	27	13	Yes	Special	Yes		Yes
501	28	8		Reuse			Yes
502	16		Yes				
503	5	3					
504	11		Yes		Yes		
505	197		Yes		Yes	Yes	
506	30	2					Yes

[a]Unit 329 added to Alternatives C and D
[b]Units 203, 343, 351 dropped from Alternative D

Appendix F

Wildlife

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Section 1—Wildlife List for Analysis

WILDLIFE CONSIDERED FOR THE CLEAR CREEK PROJECT

Table W1 lists Nez Perce National Forest (NPNF) TES, sensitive species and management indicator species that may occur in the project area boundary. Additional columns display if suitable habitat is present and/or would be affected in the project area for the associated species. Another column displays if the animal is known to be in the project area, and the determination column shows if the proposed project actions are likely to affect the species or habitat.

Species highlighted in gray are analyzed in detail in the wildlife section of Chapter 3 in the DEIS or FEIS. Species non-highlighted were dropped from detailed study if: 1) habitat (and therefore the species) is not present; 2) habitat is protected by regulations, policies, laws, or project design criteria; or 3) no activities are proposed in suitable habitats such that there would be no effect; effects would be improbable; or the effects would be immeasurable.

Table W1 lists the following species: endangered (E), threatened (T), proposed (P), candidate (C), sensitive (S), and management indicator species (MIS) that the Clearwater portion of the national forest must evaluate for each project. A yes (Y) or no (N) indicates how this project would affect each species.

Species Name	Status	Habitat Present in PA	Habitat Affected	Known Occurrence	Determination
Canada Lynx (Lynx canadensis)	*T*	*Y*	*Y*	**N*	*NLAA*
American Peregrine Falcon (Falco peregrinus anatum)	*S*	*N*	*N*	*N*	*NI*
Bald Eagle (Haliaeetus leucocephalus)	*S, MIS*	*N*	*N*	*N*	*NI*
Black-backed woodpecker (Picoides arcticus)	*S*	*Y*	*Y*	*Y*	*MIIH*
Black Swift (Cypseloides niger)	*S*	*N*	*N*	*N*	*NI*
Common Loon (Gavia immer)	*S*	*N*	*N*	*N*	*NI*
Coeur d'Alene salamander (Plethodon idahoensis)	*S*	*N*	*N*	*N*	*NI*
Flammulated Owl (Otus flammeolus)	*S*	*Y*	*Y*	*N*	*MIIH*
Fisher (Martes pennant)	*S*	*Y*	*Y*	*Y*	*MIIH*

Species Name	Status	Habitat Present in PA	Habitat Affected	Known Occurrence	Determination
Fringed Myotis (Myotis thysanodes)	*S*	*Y*	*Y*	*N*	*MIIH*
Gray Wolf (Canis lupus)	*S, MIS*	*Y*	*Y*	*Y*	*MIIH*
Harlequin Duck (Histrionicus histrionicus)	*S*	*N*	*N*	*N*	*NI*
Long-billed curlew (Numenius americanus)	*S*	*N*	*N*	*N*	*NI*
Long-eared myotis (Myotis evotis)	*S*	*Y*	*Y*	*Y*	*MIIH*
Long-legged myotis (Myotis volans)	*S*	*Y*	*Y*	*Y*	*MIIH*
North American Wolverine (Gulo gulo luscus)	*S*	*Y*	*N*	*N*	*MIIH*
Mountain Quail (Oreortyx pictus)	*S*	*Y*	*Y*	*N*	*MIIH*
Pygmy Nuthatch (Sitta pygmaea)	*S*	*Y*	*Y*	*Y*	*MIIH*
Ringneck snake (Diadophis punctatus)	*S*	*Y*	*Y*	*N*	*MIIH*
Townsend's big-eared bat (Corynorhinus townsendii)	*S*	*N*	*N*	*N*	*NI*
Western Toad (Bufo boreas)	*S*	*Y*	*Y*	*N*	*MIIH*
White-headed woodpecker (Picoides albolarvatus)	*S*	*N*	*N*	*N*	*NI*
Bighorn Sheep (Ovis canandensis)	*MIS*	*N*	*N*	*N*	*NI*
Rocky Mountain Elk (Cervas elaphus)	*MIS*	*Y*	*N*	*Y*	
Grizzly Bear (Ursus arctos horribillis)	*MIS*	*Y*	*N*	*Unknown*	*currently unoccupied status*

Species Name	Status	Habitat Present in PA	Habitat Affected	Known Occurrence	Determination
Northern Goshawk (Accipiter gentilis)	*MIS*	*Y*	*Y*	*Y*	
Pileated Woodpecker (Dryocopus pileatus)	*MIS*	*Y*	*Y*	*Y*	
American Marten (Martes Americana)	*MIS*	*Y*	*Y*	*N*	
Shiras Moose (Alces Alces)	*MIS*	*Y*	*Y*	*N*	

* Not seen since 1999. Determinations: NLAA= may affect, but is not likely to adversely affect individuals or their habitat; NE= no effects; NI= no impacts; MIIH= may impact individuals or their habitats, but not likely to result in a trend to federal listing or a reduced viability for the population or species.

SPECIES DROPPED FROM DETAILED ANALYSIS

Not all management indicator species (MIS) and Forest sensitive species or their habitats occur in the analysis area. Species unlikely to be present due to insufficient habitat and species unaffected by proposed activities include: American peregrine falcon, bald eagle, bighorn sheep, black swift, common loon, Coeur d' Alene salamander, harlequin duck, long-billed curlew, Townsend's big-eared bat, white-headed woodpecker, and grizzly bear. These species will not be considered in detail in this assessment.

BALD EAGLE

Eagle nesting activity in Clear Creek is highly unlikely because of its great distance from the nearest three large river systems (Middle Fork Clearwater River, South Fork Clearwater River, and Selway River) that provide primary foraging habitat. Winter roosting is possible, but highly improbable because of distance (over 2 miles) from the river systems. Infrequent, sporadic foraging may occur in Clear Creek as eagles search upland areas for prey. This species was dropped from detailed analysis because it is unlikely to use habitats in the analysis area and the project would have ***no impact*** on bald eagles.

BIGHORN SHEEP

This species is a Nez Perce National Forest management indicator species and sensitive species and an Idaho species of greatest conservation need (IDFG 2005). There is no suitable habitat in the analysis area, therefore the proposed activities would have ***no impact*** on this species and it was dropped from detailed study.

BLACK SWIFT

This species is a Nez Perce National Forest sensitive species and an Idaho species of greatest conservation need (IDFG 2005). The black swift is a neotropical migratory bird that nests in moist cliff environments, preferring high elevation mountains. Nests are built on cliff ledges, near or behind waterfalls or in shallow caves. Riparian habitats would be protected by implementing Forest Plan Amendment 20 (PACFISH) and no suitable habitat is known to occur in the project area. The proposed activities would have ***no impact*** on this species and it was dropped from detailed study.

COEUR D' ALENE SALAMANDER

The Clear Creek analysis area is too far from the Clearwater and Selway river corridors to expect Coeur d' Alene salamander occurrence in streams, seeps, or springs in the analysis area. Potential habitat features are present in the analysis area, but the lack of connectivity with occupied habitat may preclude their occurrence. All riparian habitats are protected in no harvest riparian habitat conservation areas by implementing Forest Plan Amendment 20 (PACFISH). Because of the improbability of occurrence and high levels of habitat protection, the project would have ***no impact*** this species and it was dropped from detailed analysis.

COMMON LOON

This species is a Nez Perce National Forest sensitive species. It is found in pond and lake environments. Riparian habitats would be protected by implementing Forest Plan Amendment 20 (PACFISH) and no suitable pond or lake habitat occurs in the project area. The proposed activities would have ***no impact*** on this species and it was dropped from detailed study.

GRIZZLY BEAR

Despite numerous studies of this area and many reported bear observations, there were no verifiable sightings of grizzly bears in the last 60 years until an adult male grizzly bear was mistakenly killed by a black bear hunter in September 2007 in the northern mountains of the Bitterroot Ecosystem.

In November 2000, the U.S. Fish and Wildlife Service (FWS) published a Record of Decision (ROD) for a Final Environmental Impact Statement to reintroduce bears in the Bitterroot Ecosystem. The preferred alternative selected in the ROD called for establishment of a nonessential experimental population of grizzlies in the Bitterroot ecosystem under section 10(j) of the Endangered Species Act. The decision was to reintroduce grizzly bears only into the Selway-Bitterroot Wilderness Area unless it was later determined that reintroduction in the Frank Church-River of No Return Wilderness also was appropriate. The State of Idaho sued to block the plan.

The Service is now reevaluating this Record of Decision and is proposing a "No Action" alternative. The U.S. Fish and Wildlife Service proposes to concentrate recovery efforts and resources on existing grizzly bear populations in the lower 48 states and to withdraw its plan to reintroduce grizzly bears into the Bitterroot ecosystem of Idaho and Montana. Public comment on this proposal was received but there has not been a final decision. If the No Action alternative is selected, grizzly bears would not be reintroduced into the Bitterroot ecosystem.

The analysis area falls within the Bitterroot Grizzly Bear Experimental Population Area but outside the Recovery Area. The Bitterroot Grizzly Bear Recovery Area consists of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness. The Recovery Area is located within the Experimental Population Area, and is the area where grizzly bear recovery would be emphasized.

Because the FWS is re-considering grizzly reintroduction into the Bitterroot ecosystem, pending State of Idaho litigation if implementation of a reintroduction program is proposed, and since there has been only one verifiable grizzly sighting in the Clearwater basin in the last 60 years, the grizzly will not be further considered in detail in this analysis.

HARLEQUIN DUCK

Harlequin summer habitat is not expected to be present in Clear Creek based on the descriptive features of occupied breeding, nesting, and brood rearing habitat found in Idaho, and from prior surveys in the Lochsa, Selway, and South Fork Clearwater rivers. This project implements Forest Plan Amendment 20 (PACFISH). For these reasons, the project would have ***no impact*** on this species and it was not analyzed in detail.

LONG-BILLED CURLEW

Long-billed curlews nest in open short-grass or mixed-prairie habitat with level or slightly rolling topography and in general avoid areas of trees, high-density shrubs, and tall, dense grasses. The non-forested areas in the analysis are limited and do not provide suitable habitat for this species. This project would have ***no impact*** on this species; therefore it was dropped from detailed study.

PEREGRINE FALCON

This species is a Nez Perce National Forest sensitive species and an Idaho species of greatest conservation need (IDFG 2005). Peregrine falcons nests on ledges on steep cliff faces. The Clear Creek analysis area does not have any potential habitat features suitable for peregrine nesting, nor does the extensive forest cover provide much open hunting habitat preferred by peregrines. In the absence of suitable nesting cliffs, proposed activities would have ***no impact*** on this species and it was dropped from detailed study.

TOWNSEND'S BIG-EARED BAT

Townsend observations have been confirmed on both the Clearwater and Moose Creek Ranger Districts. Romin and Bosworth (2010) found this bat just northeast of the analysis area on the Moose Creek Ranger District along the Selway River in the vicinity of Goddard Creek.

Perkins (1992) surveyed some of the most suitable hibernacula and maternity/nursery roost sites on the Nez Perce Forest during summer and winter without finding any recent evidence or presence of Townsend's big-eared bat on the Forest. He suggested that their occurrence on the forest is peripheral and does not involve reproductive activities. The probable occurrence of this bat outside the Salmon and Snake River riparian areas is extremely low and initial population indicators suggest less than 10 on the Forest (Perkins).

Because the analysis area does not have cave habitat, it is unlikely that Townsend's big-eared bats use snags as day or night roosting habitat or forage in the area. For this reason, they were dropped from detailed analysis and the project would have ***no impact*** on this bat.

WHITE-HEADED WOODPECKER

This species is a Nez Perce National Forest sensitive species and an Idaho species of greatest conservation need (IDFG 2005). White-headed woodpeckers prefer open-canopy mature to old growth ponderosa pine forests. Recorded observations on the Nez Perce Forest are found in the Salmon River sub-basin.

There are no potentially suitable habitat patches that meet the minimum area (148 acres) recommended for nesting habitat in the analysis area. In fragmented tracts of habitat such as those found in Clear Creek, home range size per pair could be up to 800 acres (Dixon 1995). It is doubtful white-headed woodpecker would occur in Clear Creek based on their habitat need for extensive areas of primarily mature and old growth ponderosa pine forest and mixed co-dominant ponderosa pine/Douglas fir forest. For this reason, the project would have ***no impact*** on white-headed woodpecker and it was dropped from detailed study.

Section 2—Canada Lynx

CLEAR CREEK INTEGRATED RESTORATION PROJECT
Northern Rockies Lynx Management Direction

Standards & Guidelines Consistency Evaluation Table for Project

Specific Activities

Notes:

(1) For those areas identified as occupied lynx habitat in the *Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement* (USDA Forest Service et al. 2006), management direction are the standards and guidelines displayed below. As stated in the ROD (p. 29) unoccupied forests should consider this management direction.

(2) Where superscript numbers ([43]) appear, refer to the Glossary definitions on pages 11-15.

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
All Management Practices and Activities (ALL) The following objectives, standards and guidelines apply to management projects in lynx habitat in lynx analysis units (LAU) and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use.	
Standard[43] ALL S1 New or expanded permanent developments[33] and vegetation management projects[48] must maintain[26] habitat connectivity[16] in an LAU[21] and/or linkage area[22].	*LAU 30 is an isolated polygon that has no linkage areas to other LAUs, according to Figure 1-1 of the 2007 NRLMD The closest adjacent LAU is about 1.8 miles south. Closest actual habitat from LAU 30 is about 4 miles south. No new or expanded developments are proposed. Habitat connectivity would be maintained in the LAU, as vegetation treatments would occur on less than 1.5% of the LAU.*
Guideline[15] ALL G1 Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways[18] or forest highways[12] across federal land. Methods could include fencing, underpasses or overpasses.	*No such activities would occur with this project.*
Standard LAU S1 Changes in LAU[21] boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.	*Not applicable to this project.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Vegetation Management Projects (VEG) The following objectives, standards and guidelines apply to vegetation management projects in lynx habitat in lynx analysis units (LAU). With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments like mineral operations, ski runs, roads and the like. None of the objectives, standards, or guidelines apply to linkage areas.	
Standard VEG S1 – Stand initiation structural stage limits Standard VEG S1 applies to all vegetation management[48] projects that regenerate[37] timber, except for fuel treatment[13] projects within the wildland urban interface (WUI) [49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI, see guideline VEG G10. **The Standard:** Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages[44] limit disturbance in each LAU as follows: If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.	*Two WUI boundaries intersect LAU 30: one in the north, the other in the eastern section of the LAU. All but one 4-acre unit of the proposed harvest units are located in the northern WUI.* *At this time, only 11.7% of lynx habitat in the LAU 30 is currently unsuitable or in the stand initiation structural stage. The acres converted to a stand initiation structural stage for the project alternative include 246 acres (1.2%) of regeneration harvest. No landscape burning occurs within the LAU. The project complies with Standard VEG S1 and is well below the 30% Threshold.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Standard VEG S2 – Limits on regeneration from timber mgmt. projects Standard VEG S2 applies to all vegetation management[48] projects that regenerate[37] timber, except for fuel treatment[13] projects within the wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Timber management projects shall not regenerate[37] more than 15 percent of lynx habitat on NFS lands in an LAU in a ten-year period.	*Lynx habitat lies in the WUI. At this time, only 0.2% of LAU 30 has been regenerated in the past 10 years. This project alternative would regenerate 246 acres; bringing the total to 1.3% regeneration. The project complies with Standard VEG S2 and is well below the 15% Threshold for regeneration in the past 10 years.*
Guideline VEG G11 – Denning habitat Denning habitat[6] should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees ("jack-strawed" piles). If denning habitat appears to be lacking in the LAU, then projects should be designed to retain some coarse woody debris[4], piles, or residual trees to provide denning habitat[6] in the future.	*Treatments (82 acres of regeneration) are proposed in 'modeled' lynx denning habitat. However, stand exams show this is in grand fir or Douglas-fir dominated overstories, and not mixed density ES, SAF, & LPP. Therefore, no treatments would occur in field verified lynx denning habitat.* *Vegetation treatments are not planned in the spruce-fir community or areas with an abundance of dead, down woody material. Treatments are proposed in dry community types made up of Douglas fir, ponderosa pine and grand fir. As a project design measure, harvest units will retain large down logs.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
<u>Standard VEG S5 – Precommercial thinning limits</u> Standard VEG S5 applies to all precommercial thinning[35] projects, except for fuel treatment[13] projects that use precommercial thinning as a tool within the wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Precommercial thinning projects that reduce snowshoe hare habitat, may occur from the stand initiation structural stage[44] until the stands no longer provide winter snowshoe hare habitat only: 1. Within 200 feet of administrative sites, dwellings, or outbuildings; or 2. For research studies[38] or genetic tree tests evaluating genetically improved reforestation stock; or 3. Based on new information that is peer reviewed and accepted by the regional levels of the Forest Service and FWS, where a written determination states: a) that a project is not likely to adversely affect lynx; or b) that a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat; or 4. For conifer removal in aspen, or daylight thinning[5] around individual aspen trees, where aspen is in decline; or 5. For daylight thinning of planted rust-resistant white pine where 80% of the winter snowshoe hare habitat[50] is retained; or 6. To restore whitebark pine.	*No precommercial thinning would occur in lynx habitat in this project alternative.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
<u>Standard VEG S6 – Multi-storied stands & snowshoe hare horizontal cover</u> Standard VEG S6 applies to all vegetation management[48] projects that regenerate[37] timber, except for fuel treatment[13] projects within the wildland urban interface (WUI)[49] as defined by HFRA, subject to the following limitation: Fuel treatment projects within the WUI[49] that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 may occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). For fuel treatment projects within the WUI[49] see guideline VEG G10. **The Standard:** Vegetation management projects that reduce snowshoe hare habitat in multi-story mature or late successional forests[29] may occur only: 1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or 2. For research studies[38] or genetic tree tests evaluating genetically improved reforestation stock; or 3. For incidental removal during salvage harvest[41] (e.g. removal due to location of skid trails). (NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).	*There would be no harvest in mature- or late-successional, multi-story hare habitat. Vegetation treatments are not planned in the spruce-fir community or areas with dense horizontal cover. Treatments are proposed in dry community types made up of Douglas fir, ponderosa pine and grand fir.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline VEG G1 – Lynx habitat improvement Vegetation management[48] projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority should be given to stem-exclusion, closed-canopy structural stage[44] stands for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat[50] should be near denning habitat[6].	*Regeneration harvest, prescribed burning (site prep), and planting in LAU 30 would recruit a high density of conifers near denning habitat. Tree retention would occur within all units to provide for future woody material.* *This proposed alternative would convert 246 acres to a stand initiation structural stage. This is 1.2% of the LAU.*
Guideline VEG G4 – Prescribed Fire Prescribed fire[34] activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.	*Prescribed fire associated with site preparation would not create permanent travel routes. No firebreaks are proposed in lynx habitat.*
Guideline VEG G5 – Habitat for alternate prey species Habitat for alternate prey species, primarily red squirrel[36], should be provided in each LAU.	*Habitat for alternate prey would remain available in mature- and old-growth forest in the LAU.*
Guideline VEG G10 – Fuel treatments in the WUI Fuel treatment projects in the WUI [49] as defined by HFRA[17, 48] should be designed considering standards VEG S1, S2, S5, and S6 to promote lynx conservation.	*About 94% of the project area lies in the rural Salmon-Clearwater WUI. All but one unit (4 acres) proposed in this project are located in LAU 30 and the WUI. Fuel treatments are planned as site preparation for tree planting. Summer forage for snowshoe hares should be available to potential lynx from 2-25 years after the planned burns.*
Livestock Management (GRAZ) The following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAU). They do not apply to linkage areas.	

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline GRAZ G1 – Livestock grazing and openings In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.	*Not applicable to this project. None of these actions would occur in the LAU.*
Guideline GRAZ G2 – Livestock grazing and aspen In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.	*Not applicable to this project*
Guideline GRAZ G3 – Livestock grazing and riparian areas & willow carrs In riparian areas[40] and willow carrs[3], livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.	*Not applicable to this project.*
Guideline GRAZ G4 – Livestock grazing and shrub-steppe habitats In shrub-steppe habitats[42], livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs[21], to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.	*Not applicable to this project*
Human Use Projects (HU) The following objectives and guidelines apply to human use projects, such as special uses (other than grazing), recreation management, roads, highways, mineral and energy development, and in lynx habitat in lynx analysis units (LAU), subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.	

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline HU G1 – Ski area expansion & development, inter-trail islands When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris[4], so winter snowshoe hare habitat[49] is maintained.	*Not applicable to this project*
Guideline HU G2 – Ski are expansion & development, foraging habitat When developing or expanding ski areas, foraging should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.	*Not applicable to this project*
Guideline HU G3 – Recreation developments Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat[23].	*No recreational developments are in or planned to be in the LAU.*
Guideline HU G4 – Mineral & energy development For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.	*No such developments are occurring or planned in the LAU.*
Guideline HU G5 – Mineral & energy development, habitat restoration For mineral and energy development sites and facilities that are closed, a reclamation plan that restores[39] lynx habitat should be developed.	*Not applicable to this project*
Guideline HU G6 – Roads, upgrading Methods to avoid or reduce effects to lynx should be used in lynx habitat when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.	*Met–Existing roads in or to access the LAU would be improved for harvest activities, but not to levels 4 or 5. None of these would be upgraded to a level to increase traffic speeds, or to increase volumes beyond the need to haul out product.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline HU G7 – Roads, locations New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity[16]. New permanent roads and trails should be situated away from forested stringers.	*Met–No new permanent roads would be constructed.*
Guideline HU G8 – Roads, brushing Cutting brush along low-speed[25], low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.	*Met.*
Guideline HU G9 – Roads, new On new roads built for projects, public motorized use should be restricted. Effective closures should be provided in road designs. When the project is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.	*Met–All new roads are temporary and will be decommissioned in 1-5 years. In addition, another 13.8 miles of road (outside the LAU) would be decommissioned for soil concerns.*
Guideline HU G10 – Roads, ski area access When developing or expanding ski areas and trails, access roads and lift termini to maintain and provide lynx security[10] habitat.	*Not applicable to this project.*
Guideline HU G11 – Snow compaction Designated over-the-snow routes, or designated play areas, should not expand outside baseline areas of consistent snow compaction1, unless designation serves to consolidate use and improve lynx habitat. This is calculated on an LAU basis, or on a combination of immediately adjacent LAUs. This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline.	*Does not apply to this project.*

Northern Rockies Lynx Management Direction	Is direction applicable to this project and has it been met (Yes or No; Met or Not Met)? Where direction is applicable but has not been met, explain the reason(s).
Guideline HU G12 – Winter access for non-recreation SUP & mineral & energy development Winter access for non-recreation special uses, and mineral and energy exploration and development, should be limited to designated routes[8] or designated over-the-snow routes[7].	*Met–Does not apply to this project.*
Linkage Areas (Link) The following objective, standard and guidelines apply to all projects within linkage areas, subject to valid existing rights.	*Met–No linkage areas defined in figure 1 of the NRLMD in this part of the Nez Perce Forest.*
Standard LINK S1 – Highway or forest highway construction in linkage areas When highway[18] or forest highway[12] construction or reconstruction is proposed in linkage areas[22], identify potential highway crossings.	*See above.*
Guideline LINK G1 – Land exchanges NFS lands should be retained in public ownership.	*Met.*
Guideline LINK G2 – Livestock grazing in shrub-steppe habitats Livestock grazing in shrub-steppe habitats[42] should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages[28], similar to conditions that would have occurred under historic disturbance regimes.	*Not applicable–No such habitat.*

Glossary

[1] *Areas of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall. These can be areas or linear routes, and are generally found in near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction will be determined based on the area or miles used in 1998 to 2000.

[2] *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social and economic components of an area. (LCAS)

[3] *Carr* – Deciduous woodland or shrub land occurring on permanently wet, organic soil. (LCAS)

[4] *Course woody debris* – Any piece(s) of dead woody material, e.g., dead boles, limbs, and large root masses on the ground or in streams. (LCAS)

[5] *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees and brush inside a given radius around a tree.

[6] *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat – the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth[24] forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.

[7] *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the-ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps) or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged in 1998 to 2000.

[8] *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.

[9] *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings and roads; campgrounds require roads, picnic tables and toilet facilities.

[10] *Security habitat (lynx)* – Security habitat amounts to places in lynx habitat that provide secure winter bedding sites for lynx in highly disturbed landscapes like ski areas. Security habitat gives lynx the ability to retreat from human disturbance. Forest structures that make human access difficult generally discourage human activity in security habitats. Security habitats are most effective if big enough to provide visual and acoustic insulation and to let lynx easily move away from any intrusion. They must be close to winter snowshoe hare habitat. (LCAS)

[11] *Fire use* – Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)

[12] *Forest highway* – A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency and Federal Highway Administration.

[13] *Fuel treatment* – A fuel treatment is a management action that reduces the threat of ignition and fire intensity or rate of spread, or is used to restore fire-adapted ecosystems.

[14] *Goal* – A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)

[15] *Guideline* – A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)

[16] *Habitat connectivity (lynx)* – Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors. (LCAS)

[17] *HFRA (Healthy Forests Restoration Act)* - Public Law 108-148, passed in December 2003. The HFRA provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. (Modified from Forest Service HFRA web site.)

[18] *Highway* – The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

[19] *Horizontal cover* – Horizontal cover is the visual obscurity or cover provided by habitat structures that extend to the ground or snow surface primarily provided by tree stems and tree boughs, but also includes herbaceous vegetation, snow, and landscape topography. Horizontal cover was measured by John Squires et al. (pers. com.) in Northwestern Montana according to the following methodology:

> "A canvas cover-board (2 m x 0.5 m) was erected 10 m from plot center in 4 directions (forward track, back track, and at 2, 90° angles) was read to directly measure horizontal cover. The cover board was divided into 4, 0.5 meter blocks and each block was further dividend into quarters. At each reading, technicians estimated horizontal cover by 10% class at each of the 4 heights; these 4 estimates were then averaged for an overall estimate of that reading." (According to Squires via pers. com., cover measured during the summer period averaged approximately 65% while at den sites it was measured at roughly 85%. During the winter period cover was measured at 45% while at winter kill sites it was slightly greater than 50%.)

[20] *Isolated mountain range* – Isolated mountain ranges are small mountains cut off from other mountains and surrounded by flatlands. On the east side of the Rockies, they are used for

analysis instead of sub-basins. Examples are the Little Belts in Montana and the Bighorns in Wyoming.

[21] *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual lynx, from about 25 to 50 square miles (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

[22] *Linkage area* – A linkage area provides connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where basins, valleys or agricultural lands separate blocks of lynx habitat, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

[23] *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat is generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (LCAS)

[24] *Lynx habitat in an unsuitable condition* –Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire or certain vegetation management projects can create unsuitable conditions. Vegetation management projects that can result in unsuitable habitat include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

[25] *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low volume is a seasonal average daily traffic load of less than 100 vehicles per day.

[26] *Maintain* – In the context of this amendment, maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

[27] *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most level 4 roads have double lanes and aggregate surfaced. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience. Normally, roads are double-lane and paved, but some may be aggregate surfaced with the dust abated.

[28] *Mid-seral or later* – Mid-seral is the successional stage in a plant community that's the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.

[29] *Multi-story mature or late successional forest* – This stage is similar to the *old multistory structural stage (see below)*. However, trees are generally not as old and decaying trees may be somewhat less abundant.

[30] *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)

[31] *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)

[32] *Old growth* – Old growth forests generally contain trees that are large for their species and site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags and logs, and a developed and often patchy understory.

[33] *Permanent development* – A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds and many special use developments would be considered permanent developments.

[34] *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term replaces management ignited prescribed fire. (NWCG)

[35] *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)

[36] *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.

[37]*Regeneration harvest* – The cutting of trees and creating an entire new age class; an even-age harvest. The major methods are clearcutting, seed tree, shelterwood, and group selective cuts (Helms 1998).

[38] *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research applies to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.

[39] *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)

[40] *Riparian area* – An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation. (LCAS)

[41] *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.

[42] *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.

[43] *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.

[44] *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)

[45] *Stem exclusion structural stage* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)

[46] *Timber management* – Timber management consists of growing, tending, commercially harvesting and regenerating crops of trees.

[47] *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A low to moderately dense uneven-aged overstory develops, with some small shade-tolerant trees in the understory. (Oliver and Larson, 1996)

[48] *Vegetation management projects* – Vegetation management projects change the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire and timber harvest. For the purposes of this amendment, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

[49] *Wildland urban interface (WUI)* - The area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the WUI is the area 0.5 mile from the boundary of an at-risk community or within 1.5 miles of the boundary of an at-risk community. The WUI could also include areas if the terrain is steep, or there is a nearby road or ridge top that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA. For full text see HFRA § 101.)

[50] *Winter snowshoe hare habitat* – Winter snowshoe hare habitat consists of places where young trees or shrubs grow dense – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so hares can browse on the bark and small twigs (Ruediger et al. 2000). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stage.

Appendix G

Target Stands for Multiple Objectives

Nez Perce and Clearwater National Forests

Target Stands for Multiple Objectives

By Habitat Type Groups

COMPILED JANUARY 2013

VERSION 1.0

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Appendix A: SVS Images for Example Target Stands

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I. Interdisciplinary Target Stands

INTRODUCTION

Development of the target stand condition at all phases of stand development is an integral part of silvicultural prescriptions. Site-specific target stands are designed to articulate the desired vegetative condition at the fine scale to meet multiple objectives for a stand. Target stands are inherently based upon interdisciplinary objectives and desired conditions across multiple scales. There is a need for the silviculturist, interdisciplinary team, and line officer to have focused discussions to gain a common understanding of what the target condition is at multiple scales. Only then can the existing condition be compared to the desired condition, allowing the team to develop ecologically sound management alternatives. This work ultimately provides the information to build a site-specific silvicultural prescription.

Forest-wide Integrated Target Stands are needed to provide a consistent basis for the development of project-specific target stands. These target stands are organized by logical habitat type groupings and incorporate appropriate ranges of values to capture potential variability. Investing the time to develop a target stands package that integrates multiple resources provides valuable information and a common starting vision for silviculturists and interdisciplinary team members alike.

At the watershed assessment or project analysis scale, the Forest-wide target stands provide the basis for development of desired conditions and project-specific target stands. However, this process first requires a description of the desired vegetative condition at the mid to broad scale, or defining the *Target Landscape*. Once the landscape level desired condition has been defined, the spatial placement and desired condition of treatment areas follows by starting with Forest-wide integrated target stands. The team must determine whether refinement or variations are needed to address project-specific desired conditions. This process as documented in the NEPA analysis and decision provides the basis for the silviculturist to develop site-specific detailed silvicultural prescriptions for project implementation.

The Forest strategy for completion of a Forest-wide target stand package is to utilize existing interdisciplinary teams and existing project analysis data over time. As a habitat type group becomes emphasized in a project, that team will address the target stand for that group. Thus far, several interdisciplinary teams have developed *Forest-wide integrated target stands* for the most common habitat type groups. Several target stands still need to be developed. This document provides a summary of the considerations for development of target landscapes along with the methodology and results for the interdisciplinary target stands developed thus far. This information should be utilized when developing landscape assessments, NEPA proposals, and as a starting point for both project-specific desired condition discussions and site-specific prescriptions. Future versions of this document will incorporate additional target stands and variations as they are developed.

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TARGET LANDSCAPE CONSIDERATIONS

A *Target Landscape* is determined by the quantity and distribution (range) of habitat conditions as comprised of age, size, species and historic range of variability. In other words, the Target Landscape is the desired mosaic of vegetation conditions where natural disturbance regimes help to define habitats (1930 Lewinski).

Classification systems are necessary to group sites and/or vegetation together based on key factors such as site capability, existing vegetation, physical site qualities, etc. The Clearwater Forest has typically used Landtype Associations (LTA) to classify areas. Clearwater LTA's base the distribution targets primarily on soil and water attributes. The Nez Perce primarily uses Vegetation Response Units (VRU's) which classify areas based on vegetative components, fire, vegetation and wildlife attributes. Based on these groupings, both sides of the Forest describe desired species, size, and age class (as determined by relative size and past disturbance regimes and patterns such as fire, insects/disease, and management) to define target landscapes. Target landscape definitions avoid defining stand specific attributes such as trees per acre and snags per acre. In projects across both Forests, it is possible to also use habitat type groupings to further describe target landscapes.

Table 1: LTA and VRU Comparison

Ecosection Setting	LTA (Clearwater)	VRU (Nez Perce
Bitterroot Breaklands	Groups 1,2 & 3	
Bitterroot Uplands	Groups 4 & 5	
Bitterroot Subalpine	Groups 6, 7 & 8 north of Lochsa River	
Idaho Batholith Breaklands		3, 8, 12 & 16
Idaho Batholith Uplands		4, 6, 7 , 10 & 17
Idaho Batholith Subalpine	Groups 6, 7 & 8 south of Lochsa River	1, 2, 5 & 9

In defining target landscapes, consider starting with the Forest Plan Revision basis (3 very large landscapes) which define distribution of only species and size; use these to identify target landscapes for the analysis area. Consider then using the appropriate LTA's/VRU's and/or habitat type groups to tier down target landscapes for the analysis area.

INTEGRATED TARGET STANDS

Target stands are used to achieve the landscape level *Desired Future Condition* (DFC). Target stands are management units used to describe stand development through time. The target stand does not prescribe treatments, but simply represents the desired condition at various phases of stand development. For Forest-wide target stands, this desired condition was built by framing objectives for each resource relative to site capability and natural disturbance regimes. The need to treat a given stand at any stage of development would be determined at the project scale by comparing the existing to desired condition.

This target stand package does not include consideration of specific Forest Plan Management Area guidance, or other location factors that would inform desired conditions such as wildland urban interface (WUI) or roadless

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areas; specific area emphases and regulatory guidance would be applied at the project level. The Forest-wide target stands were built to include a range of values that would encompass the spectrum of possible management emphases. If interdisciplinary teams encounter situations that are outside the range of variability represented in existing Forest-wide target stands, new project-specific or Forest-wide variations may be developed as appropriate.

The elements used in target stand tables are those of importance to multiple resources. For example, vegetation management relies heavily on species composition and structure. Wildlife management relies heavily on tree composition and structure, snags, snag recruitment and large woody debris. Soil and water management rely on large woody debris and debris recruitment. Fire and fuel management rely on elements such as canopy base height, ladder fuels, and crown bulk density. All resources have some need to provide for forest restoration and resiliency through time. Some elements of the target stands, wildlife and fuels in particular, are shown with qualitative values. The narrative descriptions with each stand define what those qualitative elements represent. Integrating target stand components based on habitat characteristics will take care of most wildlife species. Some species that are emphasized for each target stand when they are of particular importance.

Generally, tree retention elements are assumed to be met across the whole stand, including the retention provided in untreated portions of the stand such as riparian areas. The distribution of individual trees and clumps is described generically for each target stand. If more specific distribution patterns or evenness are required, it should be described as such or refined clearly in the NEPA and site specific prescriptions. Vegetation management should be done at the landscape scale, with individual stands contributing to a desired mosaic of conditions. In some cases it may be appropriate to describe variable tree retention across larger scales than the individual stand. Some considerations for this are included in the narratives for each target stand, but should also be discussed in detail at the project scale.

The following steps represent the process for using target stands in a NEPA project:

1. Define ***Target Landscapes***: IDT members to discuss, understand and accept these as delineated
2. Determine ***Existing Condition*** (EC) of each Target Landscape
3. Determine ***Departure*** of the existing condition from the target landscape; where these is significant departure there is opportunity for treatment.
4. Define ***Areas of Concern***: Understand/Apply screens (i.e. Old Growth, Riparian Areas, Sensitive Soils)
    a. Visuals and Fire could be considered but are more adaptive; these components may trigger additional analysis and/or process but do not define separate target landscapes or target stands; use these to aid in further refinement of areas of opportunity
5. Assign generalized ***Target Stands*** to areas of opportunity
6. Develop integrated, detailed, stand specific prescriptions for treatment areas; the objective of these is to move the areas needing treatment closer to the target stand objectives

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II. Forest-Wide Objectives

The Nez Perce Clearwater Forest Plan Revision, Planning Set of Documents (2010) and the Analysis of the Management Situation (2003) summarize the following needs to maintain terrestrial sustainability and desired conditions. These needs provide the framework for target stand objectives. **An important next step for subsequent versions of this target stand document are to further integrate with Forest Plan revision efforts** to ensure target stands are consistent with the desired conditions specified in the final documentation.

- Increase the amount of forests dominated by shade-intolerant, fire-adapted, relatively drought-tolerant, potentially long-lived tree species (western white pine, ponderosa pine, western larch, whitebark pine);
- Decrease the amount of forests dominated by shade-tolerant, fire-intolerant, and drought-intolerant tree species (grand fir, western hemlock, western red cedar); and also decrease the amount of forests dominated by shorter-lived shade intolerant tree species (primarily Douglas-fir);
- Increase the amount of forests within the seedling/sapling, large size class, and also old growth forests ;
- Decrease the amount of forests within the small and medium size classes;
- Increase patch size in the large size class and also old growth, decreasing fragmentation of these forests;
- Increase patch size in the seedling/sapling size class, except where recent wildfires created large patches;
- Wildland fire is used to manage vegetation, where appropriate. Social concerns limit the scale of managed fire short of historic levels;
- Reduce Hazardous fuels. National Forest System lands within the wildland urban interface (WUI) are the highest priority for fuel treatment activities to reduce the threat of extreme fire behavior and to provide fuel conditions that allow for safe and effective initial attach, especially within the community protection zone as defined and characterized in county community wildfire protection plans.
- For wildlife habitat, a variety of seral stages distributed across the landscape are desired to provide interior habitat, patch connectivity, and resiliency in the long-term. Habitats are well distributed both spatially and over time in patch sizes similar to those that occurred historically as a result of natural disturbance regimes such as fires, insects, and diseases. Large, contiguous habitat blocks provide for decreased fragmentation and increased connectivity, especially those with interior habitat conditions.
- The shrub/seedling/sapling stages are maintained within the desired vegetation condition, providing habitat for species such as large ungulates and a variety of bird species. Dense and immature stands susceptible to drought and damage or destruction from insects, pathogens, and wildfire are reduced while providing habitat for a wide range of wildlife species. Late seral/old forest structures are increased, including large residual trees throughout all biophysical settings providing wildlife habitat for species such as fisher, pygmy nuthatch, pileated woodpecker, and boreal owl.

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III. Methodology

For each of the Forest-wide integrated target stands, and interdisciplinary approach was used. The team included a silviculturist, line officer, wildlife biologist, soils scientist, and fuels specialist. The team was assigned based on existing projects that included habitat type groups of interest. Habitat type groups were discussed, and example stand data selected to represent the group. Over the course of several meetings, the applicable ecological objectives for each stand and each phase of development for the stand was discussed and FVS runs conducted to show expected succession or results of treatments over time. Team members also reviewed literature relative to their resource to inform proposed values for target stand elements. Team members also reviewed conditions in the field and examples of treatments to gain a common understanding of the metrics used to describe target stands.

IV. Habitat Type Groups

The Nez Perce and Clearwater Forest use a Forest habitat type grouping developed in 1997 (revised 2005). These groups are based upon species composition, site potential, and natural fire regime. The groups are meaningful for a wide range of analysis and provide the basis for target stands. However for several groups, subgroups are recognized for variations. This split does not discount the validity of the use of the broader groups for resource analyses, but is important to reflect accurate species compositions in the target stand. Another common habitat type grouping used in Region 1 is presented in Green et al (1992). These groupings are used for old growth analysis, and also provide meaningful groupings of habitat types. These groups were compared with the Nez/CLW groupings for consistency. In most cases the groupings are fairly similar. The goal of the Forest-wide target stands package is a target stand for 5 coarse groupings of the 11 Nez/CLW habitat type groups, with additional variations for climax types and species of interest (notably lynx).

To date, several of the groups of highest interest to ongoing projects have been developed. The Cool and Wet/Moist Subalpine Fir Group had two variations developed, including a lynx habitat emphasis stand. The Mixed Conifer Moist Group was also developed which represents some of the most productive forests and where white pine restoration is often emphasized. Most recently, the Moderate Warm/Dry group was developed which is common on the Nez Perce forests and represents mixed conifer areas where seral species such as ponderosa pine and western larch are of particular importance. Variations were developed for this group to split apart drier, Douglas-fir climax sites from more moist, grand-fir climax sites. There are several homework items pending for all developed target stands before they are considered final, as described in the narrative for each.

As of Version 1.0 of this document, the Warm/Dry and Cool/Cold Dry Upper Subalpine groups have not yet been addressed. These are both high priority to complete. The Warm/Dry group represents unique dry ponderosa pine breakland areas that are often an emphasis for fuel management and pine restoration. The Cool/Cold Dry Upper Subalpine Group contains whitebark pine restoration opportunities, which are of particular interest due to its listing as a sensitive species.

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Table 2: Habitat Type Grouping for Forest-wide Integrated Target Stands

Nez/CLW (1997) Habitat Type Groups and Descriptions		Habitat Types	Green 1992 Habitat Type Group	Nez/CLW Target Stands
1 – Warm & Dry	Dry & open PP/DF w/ bunchgrass. Hot, low elev, W/S asp. Fire interval 5-25 yrs, low sev. PP & dry DF climax.	130, 140, 141, 142, 160, 161, 162, 210, 220, 230, 311, 321	A & B	**WARM/DRY** *(not yet developed)*
2 – Mod. Warm & Dry	Open PP/DF w/ grass & brush. Low elev, some high on S/W asp. Fire interval 5-50 years, low & mod. PP, DF, & some GF climax. Split by DF or GF climax.	170, 171, 172, 190, 250, 260, 261, 262, 263, 280, 281, 282, 283, 310, 292, 312, 313, 320, 322, 323, 324, 330, 340, 350, 360, 370 = **2a**	A & B	**MOD WARM/DRY** Var. 1: DF climax Var 2: GF climax
		505, 506, 507, 508 = **2b**	D & E	
3 – Mod Warm & Mod Dry	Variable; transition dry to moist. PP, DF, WL, LP, GF. Fire int. 15-50 yrs, mod-sev. Split by DF or GF climax.	290, 291, 293 = **3a**	D	
		510, 511, 512, 515, 590, 591, 592, 523 = **3b**		
4 – Mod. Warm & Moist	Drier asp at mid elev; diverse conifer spp. Fire interval 50-200 yrs. GF climax types.	516, 517, 518, 519, 520, 521, 522, 524, 525, 526, 529	C, C1	**MIXED CONIFER MOIST**
5 – Mod. Cool & Moist	Upland cedar/hemlock w/ high diversity (THPL, TSHE, PSME, PIEN, ABGR, PICO, TSME, LAOC, PIMO). Fire variable, intervals 50-200 years. WC, WH climax.	530, 531, 532, 533, 534, 535, 545, 546, 547, 548, 555, 565, 570, 571, 572, 573, 574, 575, 576, 577,	G, G1	
6 – Mod. cool & Wet	Forested riparian, long fire interval 50-250+. PP, DF, GF, WC climax.	540, 541, 542, 550, 560	F	
7 – Cool & Moist	High diversity, fire interval >120 years. WL, DF, WP, ES, LP, AF, GF possible. AF, ES, WH climax types.	420, 421, 422, 460, 461, 462, 470, 579, 620, 621, 622, 623, 624, 625, 660, 661, 662, 670, 671, 673, 680, 682, 685, 686, 687, 740	I	**COOL & WET/MOIST SUBALPINE FIR** Var 1: Lynx habitat Var 2: Non-lynx
8 – Cool & Wet	Very wet, forested riparian; fires 90-150+. ES, AF, MH climax types.	410, 440, 480, 610, 630, 635, 636, 637, 650, 651, 652, 653, 654, 655, 675, 677	H	
9 – Cool & Mod. Dry	Cool/drier AF types. Fire interval 50-130 years, low to moderate. LP, DF, WL seral. LP stand replaces. ES, AF, LP climax types.	450, 640, 663, 690, 691, 693, 710, 712, 720, 750, 790, 791, 792, 780, 910, 920, 930, 950	J K	**COOL/COLD DRY UPPER SUBALPINE** Var 1: Whitebark pine restoration Var 2: Non-WBP *(not yet developed)*
10 – Cold & Moist to Mod. Dry	Upper elevation; WB, LP, MH, AF, ES, and AL common. Fire interval 35-300+ years, variable types. AF, AF-WB, MH, LP climax.	820, 830, 831, 832, 672, 674, 692, 694, 730, 731, 732, 733, 676, 681, 840, 841, 842, 711, 713, 925, 940	I, J, K	
11 – Cold Near Timberline	Timberline, WB, MH, AF, ES, and AL. Fire interval 35-300+ yrs. WB, AL climax types.	850, 860, 870	K	

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V. Warm/Dry Target Stand (Habitat Group 1)

Description

This target stand is not yet developed. Currently no stand exam data is available for habitat types in this group. These sites are characterized by very dry ponderosa pine or Douglas-fir climax forests with bunchgrass understories and a high frequency, low severity fire regime. These areas often lie at low elevations, at the transition from forested to open savannah or grassland communities. These sites are more often targeted for fuels or ecosystem prescribed fire treatments rather than commercial timber projects.

Objectives

Applicable objectives for this group are likely to include ponderosa pine restoration, grass forage production, and open forest conditions consistent with the frequent historic fire regime. These types may be particularly sensitive to changing climate conditions in terms of potential timber suitability.

Table 3: Warm Dry Target Stand – Vegetation

Table 4: Warm Dry Target Stand – Wildlife Integration

Table 5: Warm Dry Target Stand – Soils, Fire, and Natural Disturbance Integration

VI. Moderately Warm/Dry Habitat Type Groups 2 and 3

Description

These habitat type groups cover the transition from dry to moist, including ponderosa pine and Douglas-fir climax habitat types and more moist grand fir climax types with grass or shrub understories. A wide diversity of species composition is possible, including ponderosa pine and Douglas-fir on the drier sites and western larch, grand fir, subalpine fir, Engelmann spruce, and lodgepole pine on the moistest sites. Fire intervals are generally from 5 to 50 years from low to moderate severity.

Objectives & Discussion

- Variations should be built to split the dry sites (DF habitat type) from the moist sites (GF habitat types).
- Both variations should include an appropriate mix of seral species and generally a 2-storied condition. An emphasis on promoting ponderosa pine and western larch is assumed, although the precise proportion achievable would vary by site. On the grand fir sites in particular, there will be components of lodgepole pine, subalpine fir, grand fire, and/or Engelmann spruce to some extent.
- To promote resiliency, it is desirable to limit the susceptibility to bark beetles and root.
- The moister end of the group would provide habitat for pileated, fisher, goshawk, 3-toeds, black-backed, and elk hiding cover. The dry end would emphasize flammulated owl habitat. Elk winter range is provided at the seedling stages for both groups.
- 50-75 year natural fire return intervals, so our example stand data has missed 1 or 2 fires – this is the most common reason why stands we encounter in this type are in an undesirable condition relative to forest structure, insects/disease, and seral species composition.
- For tree retention, clumpy is desirable and clumps should be a minimum of 2-4 trees.
- The tree size for overstory retention values are the desired condition – if there are not that many large trees available, the biggest available would be the priority to leave.
- We used a "natural" FVS run with no disturbance to get an idea of potential old growth conditions.
- A typical regeneration event in these types would be a natural moderate severity fire, or a shelterwood (DF-dominated) or group selection (PP-dominated) for a 2 aged stand.
- We used Bollenbacher et al 2009 for snag sizes; and considered Green et al 1992 concerning old forest.
- Reference Reynolds (1992) for goshawk habitat at a large scales; target stand conditions fit within them.
- Due to root disease, we assume that no more than 30% Douglas-fir composition is achievable in the moist grand-fir group.
- *Pending Validation:*
    - A narrative will be developed to further explain the qualitative fire/fuels elements
    - The team will review more stands in the field to verify metrics; in particular the number of overstory retention trees is of interest to review.
    - Additional FVS gaming should be done to incorporate more accurate root disease results.
    - The soils scientist and timber specialist need to review the tables.

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a. Variation 1: Douglas-fir Climax (Habitat Type Groups 2a, 3a)

Table 6: Mod Warm/Dry Douglas-fir Climax Target Stand – Vegetation

Moderately Warm/Dry Habitat Type groups 2a, 3a: Douglas-fir climax types. 1-2 storied											
Stage		**Vegetation Structure**						**Downed Wood**		**Snags/Acre 20'+**	
Developmental	**Structural**	**Age**	**Trees per Acre & Composition**	**BA/ac**	**Average dbh**	**Height**	**Canopy Closure**	**Lg. wood 20"+/ac**	**Tons/ac CWD**	***20"+***	***15-19.9"***
Stand Initiation	**Seedling**	1-10	150-1200, ≥ 70% PP	N/A	1-2"	1-10'	N/A	2+	5-10	2+	3+
	Overstory	100+	10 >21" & 10>14-20" dbh	30+	21" / 14"	60-175'	<25%				
Stand Initiation	**Sapling**	10-20	150-800, ≥ 60% PP	20-50	2-5"	10-20'	25-30%	2+	5-10	2+	3+
	Overstory	110+	10-20+	30+	21" / 14"	60-175'	<25%				
Stem Exclusion	**Pole**	20-40	150-450, ≥ 60% PP	30-80	3-6"	20-50'	30-50%	3+	5-15	2+	3+
	Overstory	120+	7-15+	20+	20"+	60-175'					
Stem Exclusion	**Immature saw**	40-100	100-350, ≥ 60% PP	60-120	6-14"	40-120'	40-60%	3+	10-15	2+	4+
	Overstory	150+	5-10+	N/A	22"+	60-175'					
Understory Reinitiation	**Mature sawtimber**	100-150	>6" dbh 50-200, total 100-500, ≥50% PP	80-240	15+	80-160'	50-70%	4+	10-20	2+	4+
Old Forest	**Old/mature sawtimber**	150+	>6" dbh 30-120, total 75-350, ≥ 40% PP	80-260	Overstory 21"+	120-175'	40%+	4+	10-25	3+	5+

Table 7: Mod Warm/Dry Douglas-fir Climax Target Stand – Wildlife Integration

Moderately Warm/Dry Habitat Type groups 2a, 3a: Douglas-fir climax types (1-2 storied) Wildlife Elements						
Developmental Stage	**Structural Stage**	*Elk Browse*	*Flam. Owl & goshawk*	*White-headed woodpecker*	*Cavity Nesting Habitat (woodpeckers)*	*Aspen*
Stand Initiation	**Seedling**	High	Forage	High	Low	Potential for isolated aspen; desirable where it occurs
	Sapling	Mod/High	Forage	High	Low	
Stem Exclusion	**Pole**	Mod	Declining Forage	Mod	Low	
	Immature saw	Low/Mod	Declining forage	Mod/Low	Low/med	
Reinitiation	**Mature saw**	Mod	Nesting & Forage	Low	Moderate	
Old Forest	**Old/mature saw**	Mod	Nesting & Forage	Low	Mod/High	

Table 8: Mod Warm/Dry Douglas-fir Climax Target Stand – Soils, Fire, and Natural Disturbance Integration

Moderately Warm/Dry Habitat Type groups 2a, 3a: Douglas-fir climax types (1-2 storied) Fire, & Disturbance Risk Elements								
Structural Stage	**Developmental Stage**	*Surface & Ladder Fuels*	*Canopy Base Height*	*Crown Density (CD)*	*Fire-Resilient SPP (RT)*	*Fire Risk*	*Bark Beetle Risk*	*Root & Stem Disease Risk*
Stand Initiation	**Seedling**	Low	High	Low	See structure table – serals desired to	Low	Low	Low
	Sapling	Low	High	Low		Low	Low	Low
Stem Exclusion	**Pole**	Low	Mod	Low/Mod		Mod	Low	Mod
	Immature saw	Low	Mod	Low/Mod		Mod/High	Low/Mod	Mod

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Reinitiation	**Mature saw**	Low	High	Mod/High	the extent feasible	Mod/High	Mod/High	Mod/High
Old Forest	**Old/mature saw**	Low	High	Mod/High		Mod	High	High

b. Variation 2: Grand fir Climax (Habitat Type Groups 2b, 3b)

Table 9: Mod Warm/Dry Grand fir Climax Target Stand – Vegetation

Moderately Warm/Dry Habitat Type groups 2b, 3b: Grand fir climax types. 1-2 storied											
Stage		**Vegetation Structure**						**Downed Wood**		**Snags/Acre 20'+**	
Developmental	**Structural**	**Age**	**Trees per Acre & Composition**	**BA/ac**	**Average dbh**	**Height**	**Canopy Closure**	**Lg. wood 20"+**	**Tons/ac CWD**	***20"+***	***15-19.9"***
Stand Initiation	**Seedling**	1-10	300-2000, ≥50% WL, PP, and/or DF	N/A	1-2"	1-10'	N/A	2+	10-15	2+	3+
	Overstory	100+	10>21", 10 14-20"	30+	21"+	60-175'	<20%				
Stand Initiation	**Sapling**	10-20	300-1200, ≥50% WL, PP, and/or DF	20-50	2-5"	10-20'	30-40%	2+	10-15	2+	3+
	Overstory	110+	20+	30+	21"+	60-175'	<20%				
Stem Exclusion	**Pole**	20-40	300-800, ≥50% WL, PP, and/or DF	40-100	3-6"	20-50'	40-70%	3+	10-20	2+	3+
	Overstory	120+	15+	<10	21"+	60-175'					
Stem Exclusion	**Immature saw**	40-100	200-500, at least 30% seral (WL, PP, DF)	80-160	6-14"	40-120'	40-70%	3+	15-20	2+	4+
	Overstory	150+	10+	<10	21"+	60-175'					
Understory Reinitiation	**Mature sawtimber**	100-150	>6": 150-350, total 200-500. ≥20% WL, PP, and/or DF	100-260	15+	80-160'	50-70+%	4+	15-25	2+	4+
Old Forest	**Old/mature sawtimber**	150+	>6" dbh = 50-150, with ≥ 20 TPA >20" dbh. Total 300-450. ≥15% WL, PP, and/or DF	120-260	Overstory 21"+	130-160'	GF type 70%+	4+	15-25	3+	5+

Table 10: Mod Warm/Dry Grand fir Climax Target Stand – Wildlife Integration

Moderately Warm/Dry Habitat Type groups 2b, 3b: Grand fir climax types (1-2 storied) Wildlife Elements							
Stage		**Habitat Elements, Low / Med / High**				**Unique Elements**	
Developmental	**Structural**	*Elk Browse*	*Goshawk*	*Fisher & Marten*	*Cavity Nesting Habitat*	*Aspen*	*Pacific Yew*
Stand Initiation	**Seedling**	High	Forage	Low forage & denning	Low	Potential for isolated aspen; desirable where it occurs	Potential for yew; desirable where it occurs
	Sapling	Mod/High	Forage	Low forage & denning	Low		
Stem Exclusion	**Pole**	Mod	Declining Forage	Forage	Low		
	Immature saw	Low/Mod	Declining forage	Forage	Low/med		
Reinitiation	**Mature saw**	Low	Nesting & Forage	Denning & forage	Moderate		
Old Forest	**Old/mature saw**	Low	Declining Nesting; Forage	Denning & forage	Mod/High		

Table 11: Mod Warm/Dry Grand fir Climax Target Stand – Soils, Fire, and Natural Disturbance Integration

Moderately Warm/Dry Habitat Type groups 2b, 3b: Grand fir climax types (1-2 storied) Fire & Disturbance Risk Elements								
Developmental Stage	**Structural Stage**	*Surface & Ladder Fuels*	*Canopy Base Height*	*Crown Bulk Density*	*Fire-Resilient SPP*	*Fire Risk*	*Bark Beetle Risk*	*Root Disease Risk*
Stand Initiation	**Seedling**	Low	High	Low	See structure table – serals desired to	Low	Low	Low
	Sapling	Low	High	Low		Low	Low	Low
Stem Exclusion	**Pole**	Low	Mod	Low/Mod		Mod	Low	Mod

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	Immature saw	Low	Mod	Low/Mod	the extent feasible	Mod/High	Low/Mod	Mod
Reinitiation	**Mature saw**	Low	High	Mod/High		Mod/High	Mod/High	Mod/High
Old Forest	**Old/mature saw**	Low	High	Mod/High		Mod	High	High

VII. Moist Mixed Conifer Target Stand (Habitat Type Groups 4, 5, and 6)

Description

The habitat types in ***Group 4*** (moderately warm and moist grand fir) are characterized by mixed species stands of grand fir, Douglas fir, lodgepole pine, Engelmann spruce and occasionally western larch or ponderosa pine, with diverse shrub and forb understories. Grand fir/Clintonia is the habitat type most frequently found. These habitat types are common at mid elevations on north slopes and lower slopes in slope positions or geographic areas too dry for western red cedar. The habitat types in ***Group 5*** (moderately cool and moist western red cedar) are characterized by mixed species stands of western red cedar, grand fir, and Douglas fir, with diverse shrub and forb understories. Western white pine, larch, and ponderosa pine are less frequent components. Cedar/Clintonia is the habitat type in this group most frequently found. These habitat types are common in the western portion of the subbasin on lower slopes and northerly aspects, but become increasingly rare toward the headwaters. The habitat types in ***Group 6*** (moderately cool and wet western red cedar) are characterized by stands of grand fir and western red cedar. Douglas-fir and western white pine are less common. They often have fern and herb understories. Cedar/lady fern is the habitat type most frequently found. These habitat types are generally limited to riparian areas along streams and moist lower slopes in the western part of the subbasin.

Objectives & Discussion

- Applicable wildlife habitats for this type include moose and fisher.
- Restoration of seral species such as white pine, western larch, and ponderosa pine is a key objective.
- Utilize variable density retention techniques. 2 acres is the maximum opening size with no dead or green trees. Retain both individual and clumps of leave trees.
- Tree clumps are 7-10 green trees/acre. Leave Douglas-fir and grand fir only if no seral species are available. Use retention clumps around legacy trees or standing dead to improve chances of retention.
- Retain dead and green trees across all cover types. Retention of green trees will be more evenly distributed for fire tolerant species. Fire intolerant species retention of green trees will have fewer scattered trees and more clumps.
- Retain legacy trees where feasible.
- Estimates of site prep loss:
    - Tractor Ground: Jackpot burning improves overstory retention; assume 0-10% loss of green trees due to burning.
    - Line Ground: Site prep burning may eliminate most standing green overstory; assume 50-60% loss of retained green trees.
- *Pending Validation Items:*
    - Narratives need to be developed to explain the wildlife and fire/fuels elements.

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Table 12: Moist Mixed Conifer Target Stand – Vegetation

Moist Mixed Conifer			Habitat Type groups 4-6	2-storied			
Structural Stage	**Developmental Stage**	**Age in Years**	**Trees per Acre**	**BA**	**Average dbh**	**Height**	**Canopy Closure**
Stand Initiation	**Seedling**	1-10	300-2000 of which >300 WP/WL/PP. For certification; minimum 300 TPA long-lived serals, 80% stocked.	N/A	1-2”	1-15’	N/A
	Overstory	100+	14 to 28 combo 5/3 snags	N/A	14”+	70-150’	15-25%
Stand Initiation	**Sapling**	10-25	300-800 of which >200 WP/WL/PP	10-55	1-2”	10-40’	N/A
	Overstory	110+	11 to 22 combo 5/3 snags		20”+	70-150’	10-15%
Stem Exclusion	**Pole**	25-70	200-450 of which >200 WP/WL/PP	40-150	3-10”	20-75’	>70%
	Overstory	125+	>10 live trees, 5/3 snags		20”+	70-150’	10-15%
Stem Exclusion	**Immature saw**	70-100	100-250 of which >150 WP/WL/PP	80-250	7-16”	30-120’	>70%
	Overstory	150+	>10 live trees, 6/4 snags		20”+	100-150’+	10-15%
Understory Reinitiation	**Mature sawtimber**	100-150	80-200 of which >80 WP/WL/PP	150-300	10-24”	70-150’	>70%
					20”+	100-150’+	10-15%
	Overstory	150+	>10 live trees, 8/5 snags				
Old Forest	**Old/mature sawtimber**	150+	60-150 of which >80 WP/WL/PP	120-300	20”+	70-150’+	70-80%

Table 13: Moist Mixed Conifer Target Stand – Wildlife Integration

Moist Mixed Conifer Habitat Type groups 4-6 (2 storied)			Snags Avg. DBH		Green Tree Retention	Habitat Elements, Low-Low/ Med-Med/ High-High					Unique Elements & Wildlife Value	
Structural Stage	**Developmental Stage**	*LG Wood 20” +*	*Mature 20” 30’ #/ac*	*Mature 20”+30-‘ #/ac*	*21”+ or avg DBH mature, whichever >. #/ac*	*Overstory Canopy Closure*	*Browse*	*Hiding Cover*	*Thermal Cover*	*Cavity Habitat*	*Deciduous Trees*	*Pacific Yew*
Stand Initiation	**Seedling**	2	5	3	14-28	15-25%	High	Low	Low	Low/Med	Low	Low
	Sapling	3	5	3	11-22	10-15%	Med/High	Med	Low	Low/Med	Med	Med
Stem Exclusion	**Pole**	3	5	3	11-22	>10%	Med	High	Low/Med	Med	Med/High	Med/ High
	Immature saw	2	6	4	11-22	>10%	Low/Med	High	Med	Med/High	High	High
Understory Reinitiation	**Mature saw**	3	8	5	15-25+	>10+%	Low	Med/High	High	High	Low/Med	High
Old Forest	**Old/matur saw**	4	10+	5	60-150+	>70%	Low/Med	Med/High	High	High	Low	High

Table 14: Moist Mixed Conifer Target Stand – Soils, Fire, Natural Disturbances Integration

Moist Mixed Con Habitat Type groups 4-6 (2 storied)		Soils Elements		Fire Elements (May be more applicable at project level).				Natural Disturbance Risk (Low/Med/High)	
Structural Stage	**Developmental Stage**	*Woody Debris Tons/ac*	*Decay Class Logs/ac by Class 1-6*	*Surface & Ladder Fuels (SF & LF)*	*Canopy Base Height (CBH)*	*Crown Density (CD)*	*Fire-Resilient SPP (RT)*	*Fire Risk & Insect Risk (FR & IR)*	*Disease Risk*
Stand Initiation	**Seedling**	17-33	*Describe decay class development through stand structural stage*	Low/Low	High	Low	High	Low/Low	Low
	Sapling	17-33		Low/Low	High	Low	High	Low/Low	Low
Stem Exclusion	**Pole**	17-33		Low/Low	High	Low	High	Low/Low	Low
	Immature saw	17-33		Low/Low	High	Low	High	Low/Med	Med
Understory Reinitiation	**Mature saw**	17-33		Low/Low	High	Low	High	Low/Med	Med
Old Forest	**Old/matur saw**	17-33		Low/Low	High	Low	High	Low/Med	Med

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VIII. Cool and Wet/Moist Subalpine Fir (Habitat Type Groups 7 and 8)

Description

Habitat type group 7 (Cool and Moist subalpine fir) is characterized by stands of subalpine fir, Engelmann spruce, and lodgepole pine, with brush understories. Western larch, whitebark pine, and Douglas-fir are less common components. Subalpine fir/menziesia is the habitat type in this group most frequently found in the subbasin. These habitat types are common and occur at upper elevations on north aspects and moist lower slopes (Green et al, 1992). These types area characterized by cool and moist site conditions. Species diversity can be high with larix occidentalis, Pseudotsuga menziesii, Pinus monticola, Picea Engelmannii, Pinus contorta, Abies lasiocarpa and Abiesgrandis. Other sites are dominated by Pinus contorta after stand replacement burns. These sites are probably too cool for Tsuga heterophylla and Thuja plicata to play a dominant role. On the other hand, these sites are not cold enough that Pinus albicaulis is competitive and it usually does not play a major successional role (although it may sometimes be present in minor amounts). Fire history information is scarce. Fire intervals are estimated at greater than 120 years for most sites (Fischer, 1987) (Report 09-08 v1.0).

Habitat type group 8 (Cool and Wet subalpine fir) is characterized by stands of subalpine fir, Engelmann spruce, and lodgepole pine, with shrub, forb or graminoid understories. Subalpine fir/bluejoint reedgrass is the habitat type in this group most frequently found in the subbasin. These habitat types are uncommon and occur at upper elevations in riparian areas (Green et al, 1992). These are very wet sites. They are forested riparian areas along streams and associated with wetlands. Due to this very wet condition the fire free interval can be very long. Intervals between severe, stand replacement fires are probably much longer than the majority of fire group nine, 90-130 years and are probably in excess of 150 years. (Report 09-08 v1.0).

Objectives & Discussion

- Utilize variable density retention techniques. 2 acres is maximum opening size with no dead or green trees. Retain both individual and clumps of leave trees. Tree clumps are 7-10 green TPA. Retention of green will be more evenly distributed in LP and more clumpy in SAF.
- Opportunistic management of tall shrubs using OSR; favor retention/regeneration of huckleberry and willow where possible.
- Managing stand dead: Retain all legacy trees 17"_ dbh. Trees will primarily spruce and lodgepole, approximately 4/acre. Retain legacy trees in clumps to improve retention success. Standing legacy trees will influence where clumps are retained.
- Managing down woody debris: 7-18 tons/acre. Stands will also be gaining nutrients from suppressed/intermediate tree input.
- Managing Stand Green; Estimate of site prep loss 10% lodgepole pine; 25% loss subalpine fir
    - Site prep loss on Tractor Ground: Jackpot burning improves overstory retention, specifically mature SAF. Assume 0-10% loss of green trees due to burning.
    - Site prep loss on Line Ground: Burning may eliminate most green overstory; assume 50-60% loss of retained green trees.
- *Pending Validation:*
    - The team needs to fill in the wildlife, soils and fire/fuels tables, and explain in narrative.

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a. Variation 1: Lynx Habitat Emphasis

Table 15: Subalpine Fir Lynx Habitat Target Stand - Vegetation

Stage		Multi-Storied. SAF/MH habitat type groups.					
Developmental	**Structural**	**Age**	**Trees per Acre**	**BA/Ac**	**Average dbh**	**Height**	**Canopy Closure**
Stand Initiation	**Seedling**	1-10	400-1800 ES/SAF of which >100 WL For certification: minimum 100 tpa long lived serals; 80% unit stocked	N/A	1-2”	1-15’	
	Overstory	80+	14-36 combo live and snags	N/A	12”+	70-125	5-15%
Stand Initiation	**Sapling**	10-25	500-1000 total of which >100 WL	10-55	1-4”	10-25’	
	Overstory	100+	14-36 combo live and snags		14”+	70-125’	5-15%
Stem Exclusion	**Pole**	25-70	400-700 of which >200 WL	150-250	3-10”	20-60’	>50%
	Overstory	125+	10-20 combo live and snags		18”+	70-125’	+/-10%
Stem Exclusion	**Immature saw**	70-100	250-450 of which >25 WL	250-350	8-16”	30-90’	>50%
	Overstory	150+	10-20 combo live and snags		20”+	70-125’	+/-10%
Understory Reinitiation	**Mature sawtimber**	100-150	200-300 of which >25 WL	250-350	10-20”	50-100’	>50%
					20”+	70-150’+	+/-10%
	Overstory	150+	5-10 combo live and snags				
Old Forest	**Old/mature sawtimber**	150+	100-200 of which >25 WL	250-350	20”+	70-150’+	>50%

Table 16: Subalpine Fir Lynx Habitat Target Stand – Wildlife Integration

Stand Stage			Snags Avg. DBH		Green Tree Retention	Habitat Elements, Low-Low/ Med-Med/ High-High					Unique Elements & Wildlife Value	
Developmental	**Structural**	*LG Wood 20” +*	*Mature 20” 30’ #/ac*	*Mature 20”+30-‘ #/ac*	*21”+ or avg DBH mature, whichever >. #/ac*	*Overstory Canopy Closure*	*Browse*	*Hiding Cover*	*Thermal Cover*	*Cavity Habitat*	*Deciduous Trees*	*Pacific Yew*
Stand Initiation	**Seedling**											
	Sapling											
Stem Exclusion	**Pole**											
	Immature saw											
Reinitiation	**Mature saw**											
Old Forest	**Old/mature saw**											

Table 17: Subalpine Fir Lynx Habitat Target Stand – Soils, Fire, Natural Disturbance Integration

Stand Stage		Soils Elements		Fire Elements (May be more applicable at project level).				Natural Disturbance Risk (Low/Med/High)	
Developmental	**Structural**	*Woody Debris Tons/ac*	*Decay Class Logs/ac by Class 1-6*	*Surface & Ladder Fuels (SF & LF)*	*Canopy Base Height (CBH)*	*Crown Density (CD)*	*Fire-Resilient SPP (RT)*	*Fire Risk & Insect Risk (FR & IR)*	*Disease Risk*
Stand Initiation	**Seedling**								
	Sapling								
Stem Exclusion	**Pole**								
	Immature saw								
Understory Reinitiation	**Mature saw**								

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Old Forest	Old/mature saw								

b. Variation 2: Non-Lynx

Table 18: Subalpine Fir Non-Lynx Habitat Target Stand – Vegetation

SAF/MH habitat type groups		Multi-Storied					
Structural Stage	**Developmental Stage**	**Age in Years**	**Trees per Acre**	**BA/Ac**	**Average dbh**	**Height**	**Canopy Closure**
Stand Initiation	**Seedling**	1-10	40-1800 ES/SAF of which >100 WL. For certification, minimum 100 TPA long lived serals w/ 80% unit stocked.	N/A	1-2”	1-15’	N/A
	Overstory	80+	14-36 combo live and snags	N/A	12”+	70-125’	5-15%
Stand Initiation	**Sapling**	10-25	500-1000 of which >100 WL	10-55	1-4”	10-25’	5-15%
	Overstory	100+	14-36 combo live and snags		14”+	70-125’	5-15%
Stem Exclusion	**Pole**	25-70	400-700 of which >200 WL	150-250	3-10”	20-60’	>50%
	Overstory	125+	10-20 combo live and snags		18”+	70-125’	+/-10%
Stem Exclusion	**Immature saw**	70-100	250-450 of which >25 WL	250-350	8-16”	30-90’	>50%
	Overstory	150+	10-20 combo live and snags		20”+	70-125’	+/-10%
Understory Reinitiation	**Mature sawtimber**	100-150	200-300 of which >25 WL	250-350	10-20”	50-100’	>50%
					20”+	70-150’	+/-10%
	Overstory	150+	5-10 combo live and snags				
Old Forest	**Old/mature sawtimber**	150+	100-200 of which >25 WL	250-350	20”+	70-150’	>50%

Table 19: Subalpine Fir Non-Lynx Habitat Target Stand – Wildlife Integration

SAF/MH Habitat type groups, Multi storied			Snags Avg. DBH		Green Tree Retention	Habitat Elements, Low-Low/ Med-Med/ High-High					Unique Elements & Wildlife Value	
Structural Stage	**Developmental Stage**	*LG Wood 20” +*	*Mature 20” 30’ #/ac*	*Mature 20”+30-‘ #/ac*	*21”+ or avg DBH mature, whichever >. #/ac*	*Overstory Canopy Closure*	*Browse*	*Hiding Cover*	*Thermal Cover*	*Cavity Habitat*	*Deciduous Trees*	*Pacific Yew*
Stand Initiation	**Seedling**											
	Sapling											
Stem Exclusion	**Pole**											
	Immature saw											
Understory Reinitiation	**Mature saw**											
Old Forest	**Old/matur saw**											

Table 20: Subalpine Fir Non-Lynx Habitat Target Stand – Soils, Fire, and Natural Disturbance Integration

		Soils Elements		Fire Elements (May be more applicable at project level).				Natural Disturbance Risk (Low/Med/High)	
Structural Stage	**Developmental Stage**	*Woody Debris Tons/ac*	*Decay Class Logs/ac by Class 1-6*	*Surface & Ladder Fuels (SF & LF)*	*Canopy Base Height (CBH)*	*Crown Density (CD)*	*Fire-Resilient SPP (RT)*	*Fire Risk & Insect Risk (FR & IR)*	*Disease Risk*
Stand Initiation	**Seedling**								
	Sapling								
Stem Exclusion	**Pole**								
	Immature saw								

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Understory Reinitiation	Mature saw								
Old Forest	Old/matur saw								

IX. Cool/Cold Upper Subalpine (Habitat Type Groups 9, 10, 11)

Description

This target stand is not yet developed.

Objectives

Integrated objectives for this stand have not yet been developed.

a. Variation 1: Whitebark pine emphasis

Table 21: Upper Subalpine Whitebark Pine Target Stand - Vegetation

Table 22: Upper Subalpine Whitebark Pine Target Stand – Wildlife Integration

Table 23: Upper Subalpine Whitebark Pine Target Stand – Soils, Fire, and Natural Disturbance Integration

a. Variation 2: Non-Whitebark pine emphasis

Table 24: Upper Subalpine Non-Whitebark Pine Target Stand - Vegetation

Table 25: Upper Subalpine Non-Whitebark Pine Target Stand – Wildlife Integration

Table 26: Upper Subalpine Non-Whitebark Pine Target Stand – Soils, Fire, and Natural Disturbance Integration

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X. References

Bollenbacher, Barry, Renate Bush, and Renee Lundberg 2009. Estimates of Snag Densities for Northern Idaho Forests in the Northern Region. USDA FS, R1 Vegetation Classification, Mapping, Inventory and Analysis Report 09-06 v1.3

Cooper, Stephen V, Kenneth E. Neiman, and David W. Roberts 1991. Forest Habitat Types of Northern Idaho: A Second Approximation. USDA FS Intermountain Research Station General Technical Report INT-236.

Green et al 1992, Errata corrected 2005, 2007, 2008, and 2011. Old Growth Forest Types of the Northern Region.

Reynolds goshawk paper

Smith, Jane Kapler and William C. Fischer. Fire Ecology of the Forest Habitat Types of Northern Idaho. USDA FS, Intermountain Research Station. INT-GTR-363.

Thomas log decay pub

USDA 1997, Rev. 2005. Biophysical Classification – Habitat Type Groups and Descriptions of Northern Idaho and Northwestern Montana, Lower Clark Fork and Adjacent Areas. R1 Vegetation Classification, Mapping, Inventory and Analysis Report. *(Green, Zack?)*

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Appendix A: SVS images for Example Target Stands

IV *Warm/Dry*

TBD

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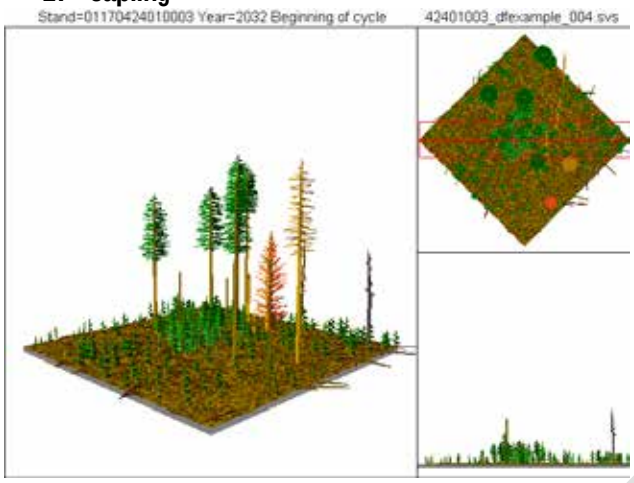
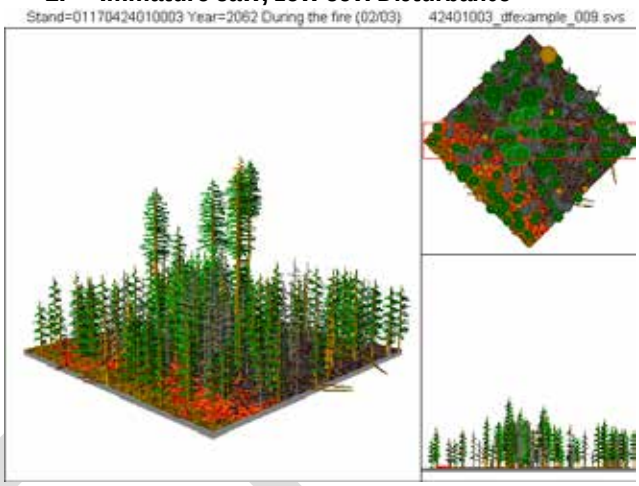
V(a) Moderately Warm/Dry Douglas-fir Climax

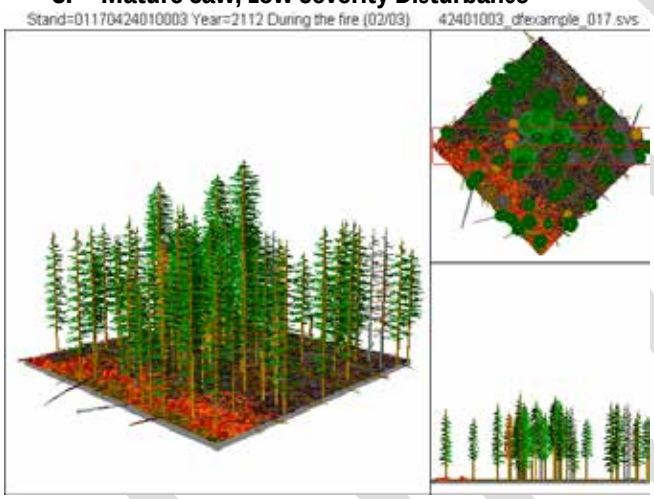
1. Sapling



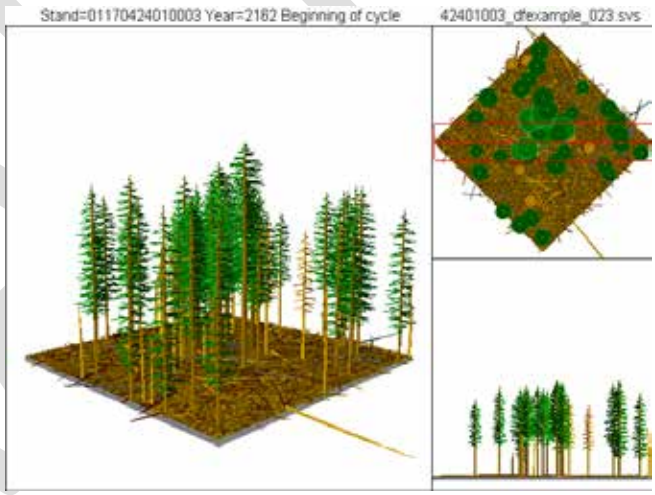
2. Immature Saw, Low Sev. Disturbance



3. Mature Saw, Low Severity Disturbance



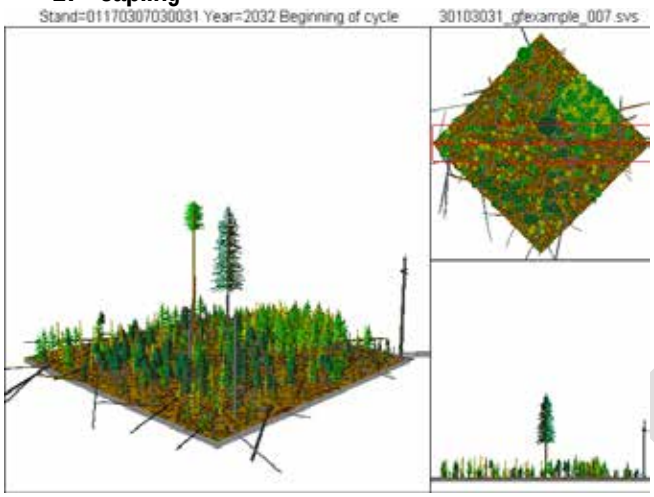
4. Old Forest



EXAMPLE PHOTOGRAPH OF TARGET STAND EXAMPLE AT UNDERSTORY REINITIATION PHASE.

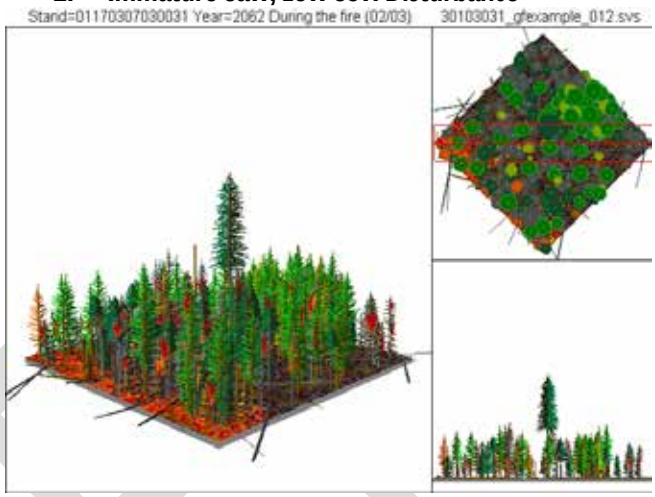
V(b) Moderately Warm/Dry Grand-fir Climax

1. Sapling

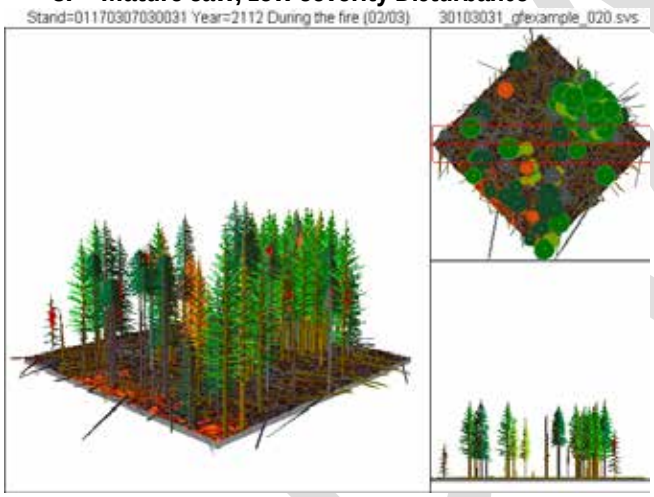


**Note this image is low for legacy trees.*

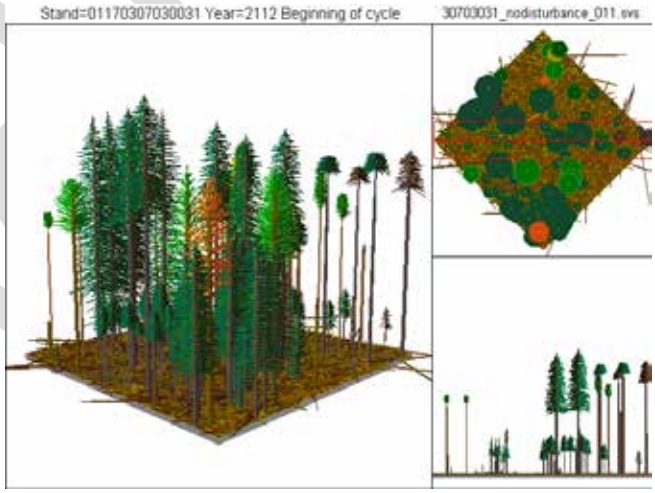
2. Immature Saw, Low Sev. Disturbance



3. Mature Saw, Low Severity Disturbance



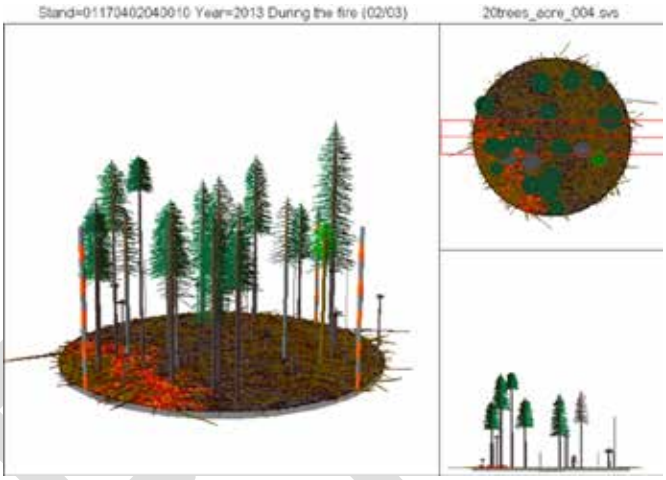
4. Old Forest



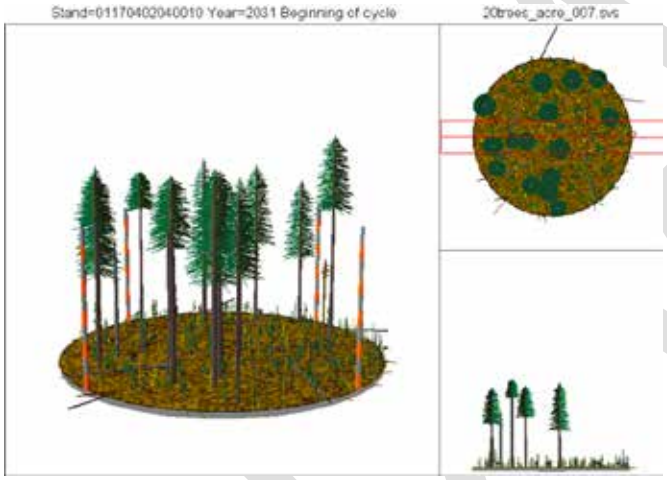
VI Moist Mixed Conifer

5. Existing Condition

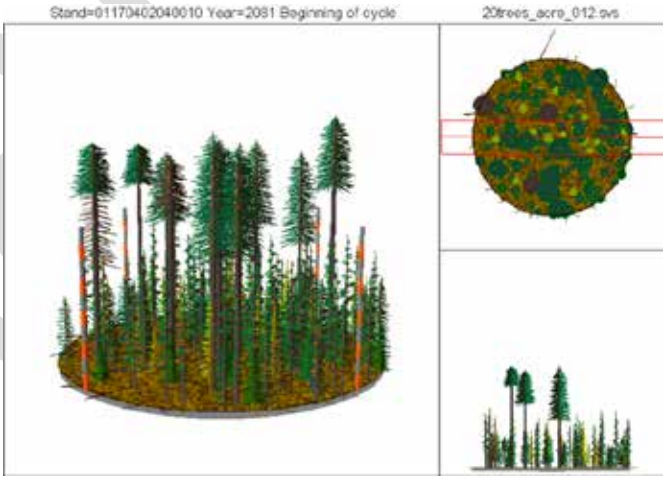
6. Disturbance



7. Stand Initiation

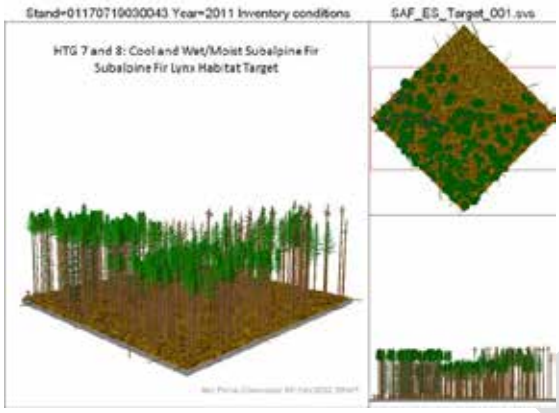


8. Stem Exclusion

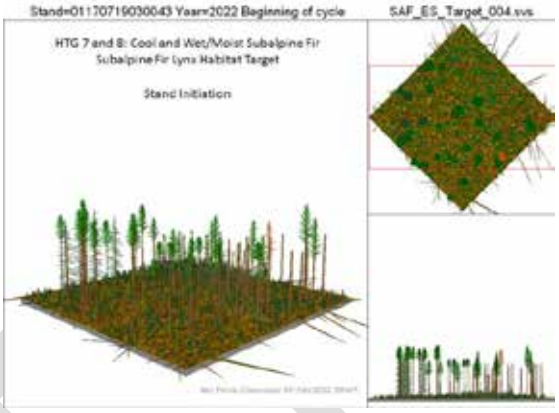


VII(a) Cool and Wet/Moist Subalpine fir Lynx Habitat

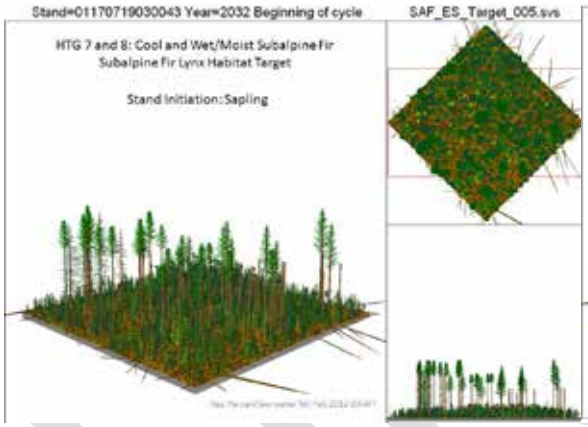
1. Existing Condition



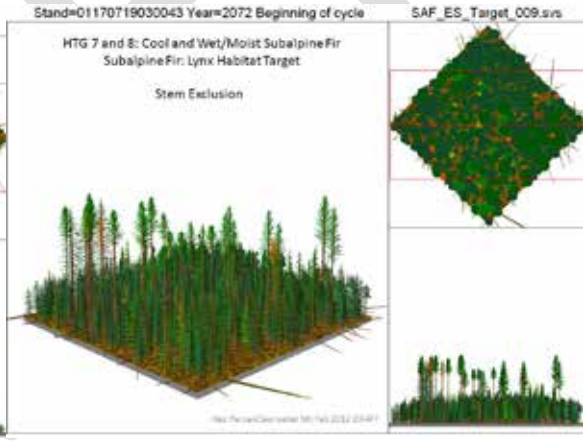
2. Stand Initiation - Seedling



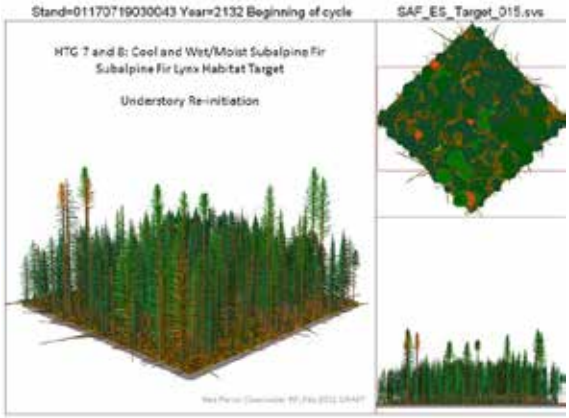
3. Stand Initiation - Sapling



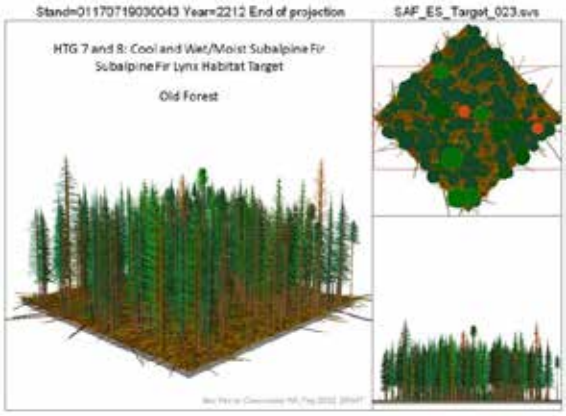
4. Stem Exclusion



5. Understory Reinitiation

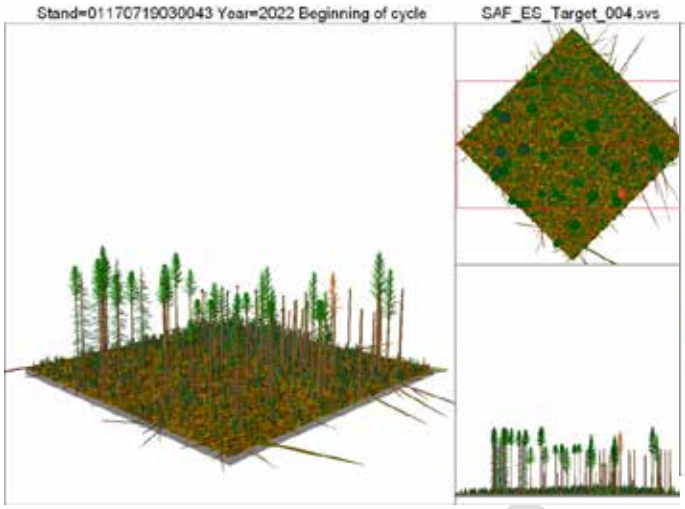


6. Old Forest

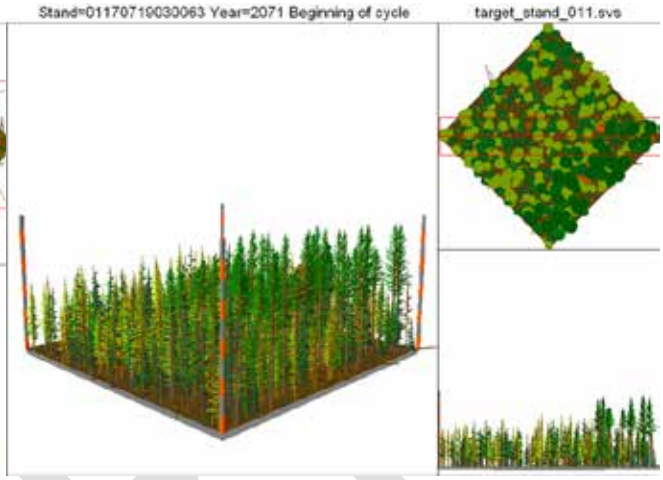


VII(b) Cool and Wet/Moist Subalpine fir Non-Lynx Habitat

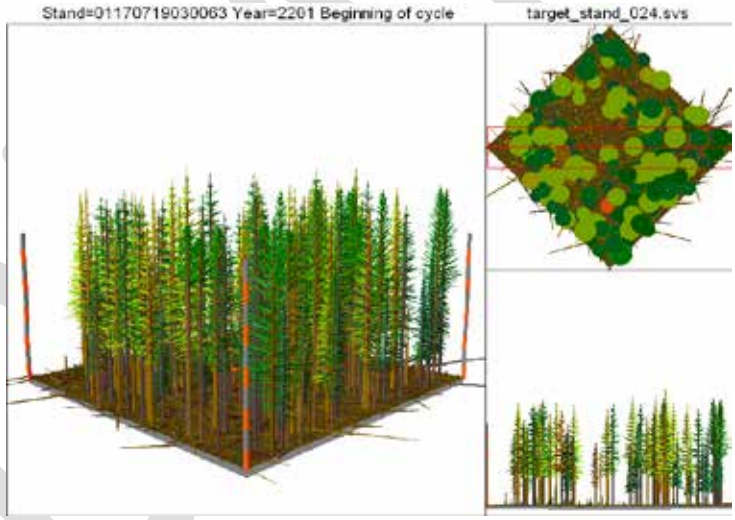
1. Stand Initiation



2. Stem Exclusion



3. Understory Reinitiation/Old Growth



VIII(a) Cool/Cold Upper Subalpine Whitebark Pine Emphasis

TBD

VIII(b) Cool/Cold Upper Subalpine Non-Whitebark Pine

TBD

DRAFT

Appendix H

Clear Creek Unit Summary

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
101	NFA	63	Regeneration	Regeneration	Regeneration
102	NFA	178	Regeneration	Regeneration	Regeneration
103	NFA	118	Regeneration	Regeneration	Drop
104	NFE	57	Regeneration	Regeneration	Regeneration
105	NFB	18	Regeneration	Regeneration	Regeneration
106	NFB	15	Regeneration	Regeneration	Drop
107	NFB	10	Regeneration	Regeneration	Drop
108	NFB	31	Regeneration	Regeneration	Drop
109	NFB	157	Regeneration	Regeneration	Regeneration
110	NFB	24	Regeneration	Regeneration	Drop
111	NFB	5	Regeneration	Regeneration	Drop
112	NFB	21	Regeneration	Regeneration	Drop
113	NFB	46	Regeneration	Regeneration	Regeneration
114	NFC	48	Regeneration	Regeneration	Regeneration
115	NFC	1	Regeneration	Regeneration	Regeneration
116	NFC	10	Regeneration	Regeneration	Regeneration
117	NFC	4	Regeneration	Regeneration	Regeneration
118	NFC	8	Regeneration	Regeneration	Regeneration
119	NFD	64	Regeneration	Regeneration	Regeneration
120	NFD	42	Regeneration	Regeneration	Regeneration
121	NFD	11	Regeneration	Regeneration	Drop
122	SFG	77	Regeneration	Regeneration	Regeneration
123	SFE	121	Regeneration	Regeneration	Regeneration
124	SFE	24	Regeneration	Regeneration	Regeneration
125	SFE	78	Regeneration	Regeneration	Regeneration
126	SFJ	69	Regeneration	Regeneration	Regeneration
127	SFE	10	Regeneration	Regeneration	Regeneration
128	SFJ	52	Regeneration	Regeneration	Regeneration
129	SFE	53	Regeneration	Regeneration	Regeneration
130	SFG	47	Regeneration	Regeneration	Regeneration
131	SFJ	32	Drop	Drop	Drop
132	SFK	3	Regeneration	Regeneration	Drop
133	SFK	17	Regeneration	Regeneration	Regeneration
134	SFK	17	Regeneration	Regeneration	Regeneration
135	SFK	34	Regeneration	Regeneration	Regeneration
136	SFC	49	Regeneration	Regeneration	Regeneration
137	SFC	6	Regeneration	Regeneration	Regeneration
138	SFC	5	Regeneration	Regeneration	Regeneration
139	SFC	90	Regeneration	Regeneration	Regeneration
140	SFC	31	Regeneration	Regeneration	Regeneration
141	SFC	36	Regeneration	Regeneration	Regeneration
142	SFC	28	Regeneration	Regeneration	Drop
143	SFA	1	Drop	Drop	Drop
144	SFA	0	Drop	Drop	Drop
145	SFA	109	Regeneration	Regeneration	Drop

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
146	SFA	14	Drop	Drop	Drop
147	SFM	33	Regeneration	Regeneration	Regeneration
148	SFM	38	Regeneration	Regeneration	Regeneration
149	SFM	51	Regeneration	Regeneration	Regeneration
150	SFH	147	Regeneration	Regeneration	Regeneration
152	SFH	36	Regeneration	Regeneration	Regeneration
153	SFH	13	Regeneration	Regeneration	Regeneration
154	SFH	81	Regeneration	Regeneration	Regeneration
155	NFG	101	Regeneration	Regeneration	Regeneration
156	NFG	73	Regeneration	Regeneration	Regeneration
157	NFG	19	Regeneration	Regeneration	Regeneration
158	NFG	9	Regeneration	Regeneration	Regeneration
159	NFG	102	Regeneration	Regeneration	Regeneration
160	NFG	116	Regeneration	Regeneration	Regeneration
201	NFA	3	Commercial Thin	Commercial Thin	Commercial Thin
202	NFA	28	Commercial Thin	Commercial Thin	Commercial Thin
203	NFA	21	Commercial Thin	Commercial Thin	Drop
204	NFA	55	Commercial Thin	Commercial Thin	Commercial Thin
205	NFA	109	Commercial Thin	Commercial Thin	Commercial Thin
206	NFE	77	Commercial Thin	Regeneration	Commercial Thin
207	NFB	30	Commercial Thin	Commercial Thin	Drop
208	NFB	30	Commercial Thin	Regeneration	Commercial Thin
209	NFB	2	Commercial Thin	Regeneration	Commercial Thin
210	NFB	3	Commercial Thin	Regeneration	Commercial Thin
211	NFC	12	Commercial Thin	Commercial Thin	Commercial Thin
212	NFC	17	Commercial Thin	Commercial Thin	Commercial Thin
213	NFC	8	Commercial Thin	Commercial Thin	Commercial Thin
214	NFD	102	Commercial Thin	Regeneration	Commercial Thin
215	NFD	4	Commercial Thin	Regeneration	Commercial Thin
216	NFD	5	Commercial Thin	Regeneration	Commercial Thin
217	SFE	41	Commercial Thin	Commercial Thin	Commercial Thin
218	SFE	146	Commercial Thin	Regeneration	Commercial Thin
219	SFG	22	Commercial Thin	Regeneration	Commercial Thin
220	SFG	26	Commercial Thin	Regeneration	Commercial Thin
221	SFC	26	Commercial Thin	Regeneration	Commercial Thin
222	SFC	70	Commercial Thin	Regeneration	Commercial Thin
223	SFC	2	Commercial Thin	Regeneration	Commercial Thin
224	SFC	38	Commercial Thin	Regeneration	Drop
225	SFC	60	Commercial Thin	Regeneration	Commercial Thin
226	SFC	28	Commercial Thin	Regeneration	Drop
227	SFC	15	Commercial Thin	Regeneration	Drop
228	SFC	209	Commercial Thin	Commercial Thin	Commercial Thin
229	SFJ	50	Commercial Thin	Regeneration	Commercial Thin
230	SFJ	197	Commercial Thin	Commercial Thin	Commercial Thin
231	SFK	39	Commercial Thin	Regeneration	Commercial Thin

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
232	SFK	21	Commercial Thin	Commercial Thin	Commercial Thin
233	SFK	12	Commercial Thin	Regeneration	Commercial Thin
234	SFK	172	Commercial Thin	Regeneration	Commercial Thin
235	SFK	74	Commercial Thin	Regeneration	Commercial Thin
236	SFK	38	Commercial Thin	Regeneration	Commercial Thin
237	SFK	37	Commercial Thin	Regeneration	Commercial Thin
238	SFK	49	Commercial Thin	Regeneration	Commercial Thin
301	na	333	Commercial Thin	Commercial Thin	Commercial Thin
302	na	2	Drop	Drop	Drop
303	na	55	Drop	Drop	Drop
304	NFG	160	Commercial Thin	Commercial Thin	Commercial Thin
305	na	4	Commercial Thin	Commercial Thin	Commercial Thin
306	na	60	Commercial Thin	Commercial Thin	Commercial Thin
307	na	326	Commercial Thin	Commercial Thin	Commercial Thin
308	NFG	30	Drop	Drop	Drop
309	na	277	Commercial Thin	Commercial Thin	Commercial Thin
310	NFG	24	Commercial Thin	Commercial Thin	Commercial Thin
311	NFG	30	Commercial Thin	Commercial Thin	Commercial Thin
312	NFG	29	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
313	NFG	19	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
314	NFG	8	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
315	na	162	Commercial Thin	Commercial Thin	Commercial Thin
316	na	189	Commercial Thin	Commercial Thin	Commercial Thin
317	na	78	Commercial Thin	Commercial Thin	Commercial Thin
318	na	64	Commercial Thin	Commercial Thin	Commercial Thin
319	na	244	Commercial Thin	Commercial Thin	Commercial Thin
320	na	215	Commercial Thin	Commercial Thin	Commercial Thin
321	na	34	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
322	na	16	Commercial Thin	Commercial Thin	Commercial Thin
323	na	75	Commercial Thin	Commercial Thin	Commercial Thin
324	na	355	Commercial Thin	Commercial Thin	Commercial Thin
325	na	20	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
326	na	36	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
327	na	89	Commercial Thin	Commercial Thin	Commercial Thin
328	na	26	Drop	Regeneration	Regeneration
329	na	103	Drop	Regeneration	Regeneration
330	na	33	Commercial Thin	Commercial Thin	Commercial Thin
331	na	27	Commercial Thin	Commercial Thin	Commercial Thin
332	na	15	Commercial Thin	Commercial Thin	Commercial Thin
333	na	75	Commercial Thin	Commercial Thin	Commercial Thin
334	na	2	Drop	Drop	Drop
335	na	26	Commercial Thin	Commercial Thin	Commercial Thin
336	na	29	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
337	na	143	Drop	Drop	Drop
338	na	10	Drop	Drop	Drop

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
339	na	30	Drop	Drop	Drop
340	na	30	Commercial Thin	Commercial Thin	Commercial Thin
341	na	276	Commercial Thin	Commercial Thin	Commercial Thin
342	na	3	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
343	na		Commercial Thin	Commercial Thin	Drop
344	na	11	Commercial Thin	Commercial Thin	Commercial Thin
345	na	118	Commercial Thin	Commercial Thin	Commercial Thin
346	na	38	Commercial Thin	Commercial Thin	Commercial Thin
347	na	98	Commercial Thin	Commercial Thin	Commercial Thin
348	na	43	Commercial Thin	Commercial Thin	Commercial Thin
349	na	53	Commercial Thin	Commercial Thin	Commercial Thin
350	na	23	Commercial Thin	Commercial Thin	Commercial Thin
351	na	21	Commercial Thin	Commercial Thin	Drop
352	na	13	Commercial Thin	Commercial Thin	Commercial Thin
353	na	6	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
354	na	8	Commercial Thin	Commercial Thin	Commercial Thin
355	na	8	Commercial Thin	Commercial Thin	Commercial Thin
356	na	95	Commercial Thin	Commercial Thin	Commercial Thin
357	na	54	Commercial Thin	Commercial Thin	Drop
358	na	278	Commercial Thin	Commercial Thin	Commercial Thin
359	na	14	Drop	Drop	Drop
360	na	18	Drop	Drop	Drop
361	na	4	Drop	Drop	Drop
362	na	19	Drop	Drop	Drop
363	na	8	Drop	Drop	Drop
364	na	9	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
365	na	20	Drop	Drop	Drop
366	na	72	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
367	na	9	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
368	na	19	Drop	Drop	Drop
369	na	14	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
370	na	12	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
371	na	10	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
372	na	9	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
373	na	27	Commercial Thin	Commercial Thin	Commercial Thin
401	NFB	12	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
402	NFB	11	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
403	NFB	31	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
404	NFB	15	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
405	NFB	35	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
406	NFB	55	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
407	NFB	23	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
408	NFB	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
409	NFB	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
410	NFC	5	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
411	NFC	29	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
412	NFC	15	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
413	NFC	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
414	NFD	22	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
415	NFD	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
416	SFG	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
417	SFG	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
418	SFE	23	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
419	SFE	4	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
420	SFE	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
421	SFE	19	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
422	SFC	36	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
423	SFC	14	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
424	SFJ	41	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
425	SFJ	8	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
426	SFK	23	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
427	SFK	20	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
428	SFK	31	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
429	SFA	26	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
430	SFA	8	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
431	SFA	12	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
432	SFA	5	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
433	SFA	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
434	SFA	15	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
435	SFM	37	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
436	SFM	13	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
437	SFM	23	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
438	SFM	37	Drop	Drop	Drop
439	SFH	20	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
440	SFH	20	Drop	Drop	Drop
441	SFH	17	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
442	SFH	31	Drop	Drop	Drop
443	SFH	14	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
444	SFH	11	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
445	SFH	8	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
446	SFH	7	Drop	Drop	Drop
447	SFH	2	Drop	Drop	Drop
448	SFH	4	Drop	Drop	Drop
449	NFG	58	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
450	NFG	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
451	NFG	5	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
452	NFG	4	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
453	NFG	6	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
454	na	38	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
455	na	19	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
456	na	31	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
457	na	10	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
458	na	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
459	na	24	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
460	na	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
461	na	19	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
463	na	8	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
464	na	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
465	na	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
466	na	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
467	na	9	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
468	na	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
469	na	10	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
470	na	25	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
471	na	11	Drop	Drop	Drop
472	na	5	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
473	na	32	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
474	na	20	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
475	na	23	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
476	na	16	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
477	na	14	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
478	na	21	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
479	na	14	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
480	na	27	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
481	na	25	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
482	na	32	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
483	na	33	PreCommercial Thin	PreCommercial Thin	PreCommercial Thin
501	NFA	29	Improvement	Improvement	Improvement
502	NFA	16	Improvement	Improvement	Drop
503	NFA	5	Improvement	Improvement	Improvement
504	NFB	11	Improvement	Improvement	Drop
505	NFB	197	Improvement	Improvement	Improvement
506	NFE	30	Improvement	Improvement	Improvement
601	NFE	28	Restoration	Restoration	Restoration
602	NFE	13	Restoration	Restoration	Restoration
701	NFE	257	Burn	Burn	Burn
702	NFE	13	Burn	Burn	Burn
703	NFE	10	Burn	Burn	Burn
704	NFE	13	Burn	Burn	Burn
705	NFE	164	Burn	Burn	Burn
706	NFE	15	Burn	Burn	Burn
707	NFE	17	Burn	Burn	Burn
708	NFF	187	Burn	Burn	Burn
709	SFF	303	Burn	Burn	Burn
710	SFF	5	Burn	Burn	Burn

Unit Number	Patch Area	units_ dissolved _on	Units Alt. B	Units Alt. C	Units Alt. D
711	SFF	18	Burn	Burn	Burn
712	SFG	150	Burn	Burn	Burn
713	SFG	93	Burn	Burn	Burn
714	SFE	127	Burn	Burn	Burn
715	NFE	1	Burn	Burn	Burn
RET	NFA	911	Retention	Retention	Retention
RHCA	na	3710	RHCA	RHCA	RHCA

Appendix I

Clear Creek—Past Activities by Sale Name

Sum of GIS_Acres

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
9730 SALVAGE						**1457.01**			**1457.01**
Salvage Cut (intermediate treatment, not regeneration)						1457.01			1457.01
BASALT POLE				**30.15**					**30.15**
Single-tree Selection Cut (UA/RH/FH)				30.15					30.15
BIG CEDAR			**699.66**						**699.66**
Broadcast Burning–Covers a majority of the unit			214.29						214.29
Patch Clearcut (EA/RH/FH)			6.44						6.44
Plant Trees			218.02						218.02
Stand Clearcut (EA/RH/FH)			260.91						260.91
BLACK COUGAR						**1128.49**			**1128.49**
Broadcast Burning–Covers a majority of the unit						294.19			294.19
Plant Trees						436.46			436.46
Stand Clearcut (EA/RH/FH						172.77			172.77
Stand Clearcut (w/ leave trees) (EA/RH/FH)						225.07			225.07
BROWN SPRINGS			**582.72**	**887.06**					**1469.78**
Broadcast Burning–Covers a majority of the unit				441.38					441.38
Plant Trees			68.52	445.68					514.20
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			72.82						72.82
Stand Clearcut (EA/RH/FH)			441.38						441.38
BUTTE SALE			**132.26**	**193.70**					**325.96**
Plant Trees				162.98					162.98
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			132.26						132.26
Stand Clearcut (EA/RH/FH)				30.72					30.72
CEDAR CREEK 2			**36.97**	**272.83**					**309.80**
Broadcast Burning–Covers a majority of the unit				18.66					18.66
Plant Trees				18.66					18.66
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			36.97	171.49					208.46

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
Stand Clearcut (EA/RH/FH)				64.02					64.02
CEDAR ROAD (THIN)			**66.14**						**66.14**
Salvage Cut (intermediate treatment, not regeneration)			66.14						66.14
CEDAR SADDLE			**97.46**						**97.46**
Precommercial Thin			48.73						48.73
Salvage Cut (intermediate treatment, not regeneration)			48.73						48.73
CHINESE RABBIT STEW					**126.50**	**1560.95**	**14.40**		**1701.85**
Broadcast Burning–Covers a majority of the unit						168.76			168.76
Commercial Thin					63.25				63.25
Improvement Cut						31.57			31.57
Patch Clearcut (EA/RH/FH)						6.90			6.90
Plant Trees						644.07	14.40		658.47
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)						208.36			208.36
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)						141.40			141.40
Shelterwood Preparatory Cut (EA/NRH/NFH)					63.25				63.25
Shelterwood Staged Removal Cut (EA/NRH/NFH)						63.25			63.25
Stand Clearcut (EA/RH/FH)						168.58			168.58
Stand Clearcut (w/ leave trees) (EA/RH/FH)						128.06			128.06
CLEAR CR. INTRMDT					**270.85**				**270.85**
Commercial Thin					270.85				270.85
CLEAR STORM					**682.68**	**284.59**			**967.27**
Broadcast Burning–Covers a majority of the unit					247.19	85.72			332.91
Plant Trees					118.31	198.87			317.18
Stand Clearcut (EA/RH/FH)					317.18				317.18
COUGAR RIDGE					**565.78**	**55.55**			**621.33**
Broadcast Burning–Covers a majority of the unit					137.57	55.55			193.12
Plant Trees					113.49				113.49
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)					55.55				55.55

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)					121.60				121.60
Stand Clearcut (EA/RH/FH)					137.57				137.57
DUMMY SALE FOR KV/BD	**135.82**	**47.85**	**1505.24**	**2612.12**	**372.99**				**4674.02**
Broadcast Burning–Covers a majority of the unit			43.42	333.62	372.99				750.03
Plant Trees	135.82	47.85	1372.32	1933.75					3489.74
Precommercial Thin			89.50	344.75					434.25
GREENWALL AREA			**8.86**						**8.86**
Stand Clearcut (EA/RH/FH)			8.86						8.86
HAYSFORK CREEK				**98.46**					**98.46**
Plant Trees				49.23					49.23
Stand Clearcut (EA/RH/FH)				49.23					49.23
KAY CEDAR						**40.58**			**40.58**
Commercial Thin						29.23			29.23
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)						11.35			11.35
KAY CREEK					**250.95**	**1178.63**			**1429.58**
Broadcast Burning–Covers a majority of the unit						202.50			202.50
Plant Trees						630.87			630.87
Shelterwood Staged Removal Cut (EA/NRH/NFH)						26.48			26.48
Stand Clearcut (EA/RH/FH)					250.95	318.78			569.73
LODGE POINT STEW								**230.24**	**230.24**
Commercial Thin								230.24	230.24
LOOKOUT BUTTE					**837.61**				**837.61**
Broadcast Burning–Covers a majority of the unit					105.94				105.94
Commercial Thin					149.36				149.36
Plant Trees					273.95				273.95
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)					168.01				168.01
Stand Clearcut (EA/RH/FH)					140.35				140.35
LOOKOUT TREE			**160.60**						**160.60**
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			160.60						160.60

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
LUCKY 13					**18.13**				**18.13**
Salvage Cut (intermediate treatment, not regeneration)					18.13				18.13
MIDDLE FORK							**104.38**	**73.87**	**178.25**
Liberation Cut							73.87		73.87
Plant Trees								73.87	73.87
Precommercial Thin							30.51		30.51
MIDDLE FORK CLEAR CR				**526.75**	**281.31**				**808.06**
Broadcast Burning–Covers a majority of the unit					109.09				190.09
Commercial Thin				129.09	34.86				163.95
Overstory Removal Cut (from advanced regeneration) (EA/RH/FH)				33.11					33.11
Patch Clearcut (EA/RH/FH)				16.29					16.29
Plant Trees					98.15				98.15
Precommercial Thin					18.82				18.82
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)				7.88	11.20				19.08
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)				141.46					141.46
Shelterwood Preparatory Cut (EA/NRH/NFH)				94.28	9.19				103.47
Stand Clearcut (EA/RH/FH)				104.64					104.64
MULE CORRAL					**81.79**				**81.79**
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)					69.62				69.62
Shelterwood Staged Removal Cut (EA/NRH/NFH)					12.17				12.17
NORTH FORK CEDAR		**36.36**	**171.96**	**25.67**					**233.99**
Broadcast Burning–Covers a majority of the unit			81.56						81.56
Plant Trees			45.20						45.20
Precommercial Thin				25.67					25.67
Stand Clearcut (EA/RH/FH)		36.36	45.20						81.56
NUMBER ONE SALE			**63.60**						**63.60**
Stand Clearcut (EA/RH/FH)			63.60						63.60
OLD TAHOE CABIN				**31.36**					**31.36**

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
Salvage Cut (intermediate treatment, not regeneration)				31.36					31.36
OLD UPPER SWIFTWATER			**81.08**	**12.66**					**93.74**
Broadcast Burning–Covers a majority of the unit			12.66						12.66
Plant Trees			34.21						34.21
Precommercial Thin				12.66					12.66
Stand Clearcut (EA/RH/FH)			34.21						34.21
PINE KNOB FORKS					**575.65**	**59.59**			**635.24**
Broadcast Burning–Covers a majority of the unit					199.81				199.81
Patch Clearcut (EA/RH/FH)					17.83				17.83
Plant Trees					129.75	59.59			189.34
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH)					46.28				46.28
Stand Clearcut (EA/RH/FH)					181.98				181.98
PINE KNOB SALE				**179.34**					**179.34**
Plant Trees				89.67					89.67
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)				29.96					29.96
Stand Clearcut (EA/RH/FH)				59.71					59.71
PINE KNOB SLOPE			**55.12**		**10.96**				**66.08**
Plant Trees					10.96				10.96
Salvage Cut (intermediate treatment, not regeneration)			44.16						44.16
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			10.96						10.96
POTATO HILL				**142.62**					**142.62**
Stand Clearcut (EA/RH/FH)				142.62					142.62
ROBINETTE SALE			**51.98**						**51.98**
Shelterwood Establishment Cut (with or without leave trees) (EA/RH/NFH			25.99						25.99
Stand Clearcut (EA/RH/FH)			25.99						25.99
SALE14				**203.30**					**203.30**
Plant Trees				101.65					101.65
Stand Clearcut (EA/RH/FH)				101.65					101.65
SECTION 29 SALE			**72.36**						**72.36**

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
Plant Trees			36.18						36.18
Stand Clearcut (EA/RH/FH)			36.18						36.18
SOLO CREEK				**864.32**					**864.32**
Broadcast Burning–Covers a majority of the unit				30.95					30.95
Plant Trees				308.38					308.38
Single-tree Selection Cut (UA/RH/FH)				81.55					81.55
Stand Clearcut (EA/RH/FH)				443.44					443.44
SWAMP CREEK				**78.99**					**78.99**
Stand Clearcut (EA/RH/FH)				78.99					78.99
SWIFTWATER MILL SITE			**101.58**	**50.79**					**152.37**
Plant Trees			50.79						50.79
Precommercial Thin				50.79					50.79
Stand Clearcut (EA/RH/FH)			50.79						50.79
TAHOE BLOWDOWN				**109.18**					**109.18**
Patch Clearcut (EA/RH/FH)				7.49					7.49
Salvage Cut (intermediate treatment, not regeneration)				101.69					101.69
TAHOE RIDGE			**403.75**						**403.75**
Broadcast Burning–Covers a majority of the unit			99.48						99.48
Plant Trees			65.01						65.01
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			34.47						34.47
Stand Clearcut (EA/RH/FH)			204.79						204.79
TAHOE SALVAGE				**11.93**	**128.49**				**140.42**
Salvage Cut (intermediate treatment, not regeneration)				11.93	128.49				140.42
TWIN MOOSE SALVAGE					**104.66**				**104.66**
Salvage Cut (intermediate treatment, not regeneration)					59.86				59.86
Stand Clearcut (EA/RH/FH)					44.80				44.80
UPPER BROWN SPRINGS			**270.85**	**979.02**					**1249.87**
Broadcast Burning–Covers a majority of the unit				285.20					285.20
Plant Trees				480.12					480.12
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			158.54	126.06					284.60

Sale Name	1930–1939	1950–1959	1960–1969	1970–1979	1980–1989	1990–1999	2000–2009	2010–Present	Grand Total
Stand Clearcut (EA/RH/FH)			112.31	87.64					199.95
UPPER PINE KNOB			**166.97**						**166.97**
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			166.97						166.97
WAY TRAIL			**107.27**						**107.27**
Stand Clearcut (EA/RH/FH)			107.27						107.27
WEST LODGE				**869.52**	**37.69**				**907.21**
Broadcast Burning–Covers a majority of the unit				250.47					250.47
Patch Clearcut (EA/RH/FH)				4.31					4.31
Plant Trees				156.29	37.69				193.98
Stand Clearcut (EA/RH/FH)				458.45					458.45
(BLANK)	**135.82**	**554.11**	**2212.83**	**1497.92**	**1199.83**	**286.40**		**1071.31**	**6958.22**
Broadcast Burning–Covers a majority of the unit					831.66	55.55			887.21
Plant Trees		73.02	314.51	543.82	185.34				1116.69
Precommercial Thin				246.94	114.26	188.37		1052.42	1601.99
Prune						42.48		18.89	61.37
Salvage Cut (intermediate treatment, not regeneration)			31.36	115.54	16.16				163.06
Seed-tree Final Cut (EA/NRH/FH)				73.29					73.29
Seed-tree Seed Cut (with and without leave trees) (EA/RH/NFH)			36.07						36.07
Shelterwood Preparatory Cut (EA/NRH/NFH)		16.16			52.41				68.57
Shelterwood Staged Removal Cut (EA/NRH/NFH)				52.23					52.23
Single-tree Selection Cut (UA/RH/FH)				21.32					21.32
Stand Clearcut (EA/RH/FH)	135.82	464.93	1830.89	444.78					2876.42
Grand Total	**271.64**	**638.32**	**7049.26**	**9677.69**	**5545.87**	**6051.79**	**118.78**	**1375.42**	**30728.77**

Appendix J

Summary of Watershed Improvement Projects

Summary of Watershed Improvement Projects identified to demonstrate Nez Perce Forest Plan Appendix A Upward Trend

The analysis of expected trend in aquatic conditions is an important component of the aquatic and watershed assessments. Nez Perce Forest Plan Appendix A addresses trends in below objective watersheds with upward trend direction. To assess the expected trend in aquatic conditions a variety of information and tools are used to arrive at a professional conclusion. These tools include the NEZSED and FISHSED, and ECA models that focus on sediment and water yields. Information used includes the landscape setting and channel characteristics, project proposals, existing pre-project trends, other activities within the watershed, and qualitative assessment of the effect pathways between management activities and resulting aquatic conditions. Effects analyses for all proposed actions associated with the Clear Creek Integrated Restoration Project can be found in the Aquatics and Watershed sections of this EIS.

The Clear Creek Integrated Restoration project proposes a variety of watershed improvement projects to improve watershed health and function: decommissioning of 13.2 miles of system road, including the removal of 8 stream crossings and approximately 3 miles of non-system road (estimated amount that would be ancillary of system roads and would be identified during system road decommissioning surveys); road reconditioning along portions of 49 miles of system road; and road reconstruction along segments of 120 miles of system road, including replacement of 64 culverts.

Watershed improvement needs were identified during the pre-NEPA stage of this EIS. Some of the concerns were addressed through projects that were completed under separate decision documents and were incorporated into the existing condition of this EIS or the cumulative effects analyses as a future project. Although assessed during the same pre-NEPA assessment as this EIS, it was determined that implementing these projects through separate NEPA and prior to the completion of this EIS would accelerate watershed recovery. The associated projects are described below.

South Fork/West Fork Clear Creek Road Decommissioning Project EA, 2011
Decommissioning of approximately 10 miles of system road and 73 miles of non-system road, includes removal of 21 stream crossings.

Clear Creek Culvert Replacements CE, 2011
Culvert removal/replacement of 11 culverts – 9 culverts on fish bearing streams were replaced with culverts that are at wider than bankfull width to allow for stream bank development within the structure; 1 culvert on a non-fish bearing stream were replaced to accommodate a minimum 100-year stream flow event; and 1 culvert was removed.

Browns Spring Culvert Replacements and Roads 1124 and 1129 Improvement Project Letter to File, 2012
Road improvement on 1.7 miles of Road 1124 and 1.3 miles of Road 1129. Replacement of two culverts on the 286 road.

Road 286N Road Maintenance Project Letter to File, 2013
Reconstruction of 0.6 miles of Road 286N, including one culvert replacement.

Road 650 Road Maintenance Project Letter to File, 2013
Approximately 15.5 miles of road improvement, including replacement of 35 non-water cross drain culverts. A total 10.5 was conducted by the Forest Service and 5 miles were completed by Idaho County.

Clear Ridge Non-System Road Decommissioning Project CE, 2015
Proposed project to decommission approximately 65 miles of non-system road, including removal of 15 stream crossings.

Summary of Watershed Improvement Projects proposed and implemented in the Clear Creek Watershed 2011-2015

Activity	Quantity	Description
System Road Decommissioning	23miles	Road decommissioning practices vary depending on the potential of landslides and other erosion conditions associated with the road, the land type the road is on, and its proximity to fish bearing streams. While some roads can be abandoned, most roads require full decompaction and slope recontouring. Generally, abandoned roads have no stream crossings, are well vegetated, are resistant to surface erosion, and are not prone to mass failure.
Non-system Road Decommissioning	141 miles	Non-system roads are old skid trails, jammer roads, or temporary roads used for past harvest activities. Soil would be decompacted and roads would be fully recontoured.
Road Recondition	49 miles	Portions of the total length would be treated as needed. Consists of standard maintenance, such as road blading, brushing, cleaning of culverts, removal of small cutslope failures, application of rock in wet spots and removal of obstructions such as trees, rocks, etc.
Road Reconstruction	124 miles	Portions of the total length would be treated as needed. Includes spot aggregate placement, blading, brushing and removal of obstructions, reshaping of drainage dips and road bed, and replacement of cross drain and live water culverts.
Culvert Replacements	113	On fish bearing streams, pipes are replaced with larger culverts that provide for all aquatic organism passage. They are wider than bankfull width and are open bottom arches or circular pipes with substrate added for stream simulation. On non-fish bearing streams, culverts are sized to accommodate a minimum 100-year stream flow event.
Culvert Removal	45	Culverts are removed, stream banks are sloped back, and stream channels are restored.

The following tables display the watershed improvement activities by prescription watershed and the associated decision documents through which projects were cleared. The conclusions regarding aquatic trends in many of the prescription watersheds are the consequence of subtle balances between the short-term impacts and long-term improvements. Trend conclusions must also be tempered with knowledge of the variability of conditions within the watersheds and the unpredictability of weather and natural disturbance events. Future trend will likely be very much influenced by future events–both management activities and natural events, including climate change.

Pine Knob Creek Prescription Watershed

Watershed Area 4.1 sq. miles (2,622 acres) 0.78 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	22.1	2.5	19.6	0.0	19.6	1.8	17.8
road density	5.4		4.8		4.8		4.3
RHCA miles	1.9	0.2	1.7	0.0	1.7	0.1	1.6
RHCA road density	2.4		2.2		2.2		2.0

Culverts	Clear Creek IR Project
replaced	2
removed	0

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Clear Creek IR Project
total miles	8.5
miles outside RHCA	7.4
miles in RHCA	1.1

Road Recondition	Clear Creek IR Project
total miles	5.8
miles outside RHCA	5.8
miles in RHCA	0

Non-System Road Decomm	Clear Creek IR Project*	Clear Ridge Non-System Road Decomm
total miles	0.5	11
miles outside RHCA	0.5	9.7
miles in RHCA	0.0	1.3

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
Clear Creek IR Project (Alt. C–max alternative)	731	1 / 0.8	0

Browns Spring Creek Prescription Watershed

Watershed Area 4.8 sq. miles (3,057 acres) 1.3 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	23.1	3.3	19.8	0.0	19.8	4.5	15.3
road density	4.8		4.1		4.1		3.2
RHCA miles	3.8	0.3	3.5	0.0	3.5	1.7	1.8
RHCA road density	2.9		2.6		2.6		1.4

Culverts	Clear Creek Culvert Replacements	Browns Spring Project	Clear Creek IR Project
replaced	1 (fish)	2	3
removed	0	0	5

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Clear Creek IR Project
total miles	9.7
miles outside RHCA	7.8
miles in RHCA	1.9

Road Recondition	Clear Creek IR Project
total miles	4.2
miles outside RHCA	4.2
miles in RHCA	0

Non-System Road Decomm	Clear Creek IR Project*	Clear Ridge Non-System Road Decomm
total miles	1.1	19.6
miles outside RHCA	0.7	15.9
miles in RHCA	0.4	3.7

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	1113	9 / 3	0

Clear Creek Prescription Watershed

Watershed area 11.3 sq. miles (7,234 acres) 2.7 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	31.1	4.9	26.2	0	26.2	0.6	25.6
road density	2.8		2.3		2.3		2.3
RHCA miles	2.7	0.5	2.2	0	2.2	0.0	2.2
RHCA road density	1.0		0.8		0.8		0.8

Culverts	Clear Creek Culvert Replacements	Clear Creek IR Project
replaced	3 (fish)	10
removed	0	0

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Clear Creek IR Project
total miles	13.2
miles outside RHCA	11.9
miles in RHCA	1.3

Road Recondition	Browns Spring Project	Clear Creek IR Project
total miles	2.0	2.7
miles outside RHCA	2.0	2.7
miles in RHCA	0.0	0.0

Non-System Road Decomm	Clear Creek IR Project*	Clear Ridge Non-System Road Decomm
total miles	0.2	16.3
miles outside RHCA	0.2	14.5
miles in RHCA	0.0	1.8

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	1222	19 / 3.6	601

Solo Creek Prescription Watershed

Watershed Area 3.5 sq. miles (2,226 acres) 1.1 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	14.1	1.8	12.3	0.0	12.3	1.4	10.9
road density	4.0		3.5		3.5		3.1
RHCA miles	1.8	0.0	1.8	0.0	1.8	0.4	1.4
RHCA road density	1.6		1.6		1.6		1.4

Culverts	Clear Creek IR Project
replaced	4
removed	1

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Clear Creek IR Project
total miles	9.1
miles outside RHCA	8.1
miles in RHCA	1.0

Road Recondition	Clear Creek IR Project
total miles	1.8
miles outside RHCA	1.8
miles in RHCA	0

Non-System Road Decomm	Clear Creek IR Project*	Clear Ridge Non-System Road Decomm
total miles	0.4	3.7
miles outside RHCA	0.3	3.5
miles in RHCA	0.1	0.2

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	646	6 / 1.7	0

Middle Fork Clear Creek Prescription Watershed

Watershed Area 6.3 sq. miles (4,025 acres) 1.7 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	16.9	2.0	14.9	0.0	14.9	1.3	13.6
road density	2.7		2.4		2.4		2.2
RHCA miles	1.8	0.2	1.6	0.0	1.6	0.1	1.5
RHCA road density	1.1		0.9		0.9		0.9

Culverts	Clear Creek IR Project
replaced	4
removed	1

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Clear Creek IR Project
total miles	6.9
miles outside RHCA	6.0
miles in RHCA	0.9

Road Recondition	Browns Spring Project	Clear Creek IR Project
total miles	1.0	2.2
miles outside RHCA	1.0	2.2
miles in RHCA	0.0	0.0

Non-System Road Decomm	SF/WF Road Decomm	Clear Creek IR Project*
total miles	6.9	0.3
miles outside RHCA	6.4	0.3
miles in RHCA	0.5	0.0

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	627	10 / 3.5	0

Kay Creek Prescription Watershed

Watershed Area 5.5 sq. miles (3,537 acres) 1.7 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	14.5	0.0	14.5	0.6	13.9	0.9	13.0
road density	2.6		2.6		2.5		2.4
RHCA miles	2.2	0.0	2.2	0.5	1.7	0.2	1.5
RHCA road density	1.3		1.3		0.9		0.9

Culverts	Clear Creek Culvert Replacements	Road 286N Project	Clear Creek IR Project
replaced	1 (fish)	2	6
removed	0	0	0

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Road 286N Project	Clear Creek IR Project
total miles	0.6	9.2
miles outside RHCA	0.4	8.3
miles in RHCA	0.2	0.9

Road Recondition	Clear Creek IR Project
total miles	2.2
miles outside RHCA	2.2
miles in RHCA	0

Non-System Road Decomm	SF/WF Road Decomm	Clear Creek IR Project*
total miles	8.1	0.2
miles outside RHCA	7	0.2
miles in RHCA	1.1	0.0

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	105	2 / 0.5	0

South Fork Clear Creek Prescription Watershed

Watershed Area 20.2 sq. miles (12,941 acres) 4.8 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	35.9	2.6	33.3	1.2	32.1	0.0	32.1
road density	1.8		1.6		1.6		1.6
RHCA miles	5.2	0.4	4.8	0.0	4.8	0.0	4.8
RHCA road density	1.1		1.0		1.0		1.0

Culverts	Clear Creek Culvert Replacements	Road 650 Project	Clear Creek IR Project	SF/WF Decomm non-system roads
replaced	1 (fish), 1 (non-fish)	22	27	0
removed	0	0	0	1

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Road 650 Project	Clear Creek IR Project
total miles	4.5	16.5
miles outside RHCA	4.1	14.1
miles in RHCA	0.4	2.4

Road Recondition	Clear Creek IR Project
total miles	9.8
miles outside RHCA	9.8
miles in RHCA	0

Non-System Road Decomm	SF/WF Road Decomm	Clear Creek IR Project*
total miles	27.8	0.0
miles outside RHCA	25.0	0.0
miles in RHCA	2.8	0.0

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	1476	20 / 7.5	326

Hoodoo Creek Prescription Watershed

Watershed Area 10.1 sq. miles (6,446 acres) 2.4 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	48.9	2.6	46.3	7.6	38.7	0.8	37.9
road density	4.8		4.6		3.8		3.8
RHCA miles	9.1	0.7	8.4	2.7	5.7	0.2	5.5
RHCA road density	3.8		3.5		2.3		2.3

Culverts	SF/WF Road Decomm	Clear Creek Culvert Replacements	Road 650 Project	Clear Creek IR Project
replaced	0	3 (fish)	13	11
removed	21	1 (fish)	0	0

All fish bearing pipes AOP; All undersized pipes replaced

Road Reconstruction	Road 650 Project	Clear Creek IR Project
total miles	11	15.3
miles outside RHCA	9.9	13.9
miles in RHCA	1.1	1.4

Road Recondition	Clear Creek IR Project
total miles	7.1
miles outside RHCA	6.2
miles in RHCA	0.9

Non-System Road Decomm	SF/WF Road Decomm	Clear Creek IR Project*
total miles	34.9	0.2
miles outside RHCA	28.4	0.1
miles in RHCA	6.5	0.1

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	2124	33 / 11.3	325

Big Cedar Creek Prescription Watershed

Watershed Area 8.7 sq. miles (5,542 acres) 0.3 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	40.0	0.5	39.5	0.0	39.5	1.7	37.8
road density	4.6		4.6		4.6		4.4
RHCA miles	3.6	0.0	3.6	0.0	3.6	1.0	2.6
RHCA road density	12.3		12.3		12.3		8.7

Culverts	Clear Creek IR Project
replaced	2
removed	1

All fish bearing pipes on FS land AOP; All undersized pipes replaced; 3 fish barriers left on private land

Road Reconstruction	Clear Creek IR Project
total miles	2.1
miles outside RHCA	2
miles in RHCA	0.1

Road Recondition	Clear Creek IR Project
total miles	1.5
miles outside RHCA	1.5
miles in RHCA	0

Non-System Road Decomm	Clear Creek IR Project*	Clear Ridge Non-System Road Decomm
total miles	0.4	8.3
miles outside RHCA	0.2	7.0
miles in RHCA	0.2	1.3

*estimated 25% of proposed system road decommission miles

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	567	8/ 2.6	0

Lower Clear Creek Face Prescription Watershed

Watershed Area 17.7 sq. miles (11,358 acres) 0.3 RHCA sq. miles

Road Density	Roads Total 1995	Road Decomm 1996-2011	Roads Total 2011	SF/WF Road Decomm	Roads Total 2014	Clear Creek IR Project	Roads Final Total
miles	31.6	0.3	31.3	0.2	31.1	0.0	31.1
road density	1.8		1.8		1.8		1.8
RHCA miles	7.7	0.0	7.7	0.0	7.7	0.0	7.7
RHCA road density	25.7		25.7		25.7		25.7

Road Reconstruction	Clear Creek IR Project
total miles	1.6
miles outside RHCA	1.6
miles in RHCA	0

Road Recondition	Clear Creek IR Project
total miles	1.8
miles outside RHCA	1.4
miles in RHCA	0.4

Non-System Road Decomm	SF/WF Road Decomm
total miles	2.3
miles outside RHCA	1.8
miles in RHCA	0.5

Other actions proposed in the prescription watershed through the Clear Creek Integrated Restoration Project EIS

Clear Creek IR Project (Alt. C – max alternative)	Commercial Harvest (acres)	Temporary roads (acres / miles)	Prescribed burning (acres)
	84	1 / 0.7	120

Appendix K

Effectiveness of Road Best Management Practices

Effectiveness of Road Best Management Practices

Effects of Roads

Poorly designed or maintained forest road networks can increase hydrologic connectivity (drainage density) to streams by routing stormwater runoff through roadside ditches that connect directly to streams at road stream crossings, as well as further away from stream channels when gullies form below surface runoff relief culverts (Wemple et al., 1996). This increased hydrologic connectivity may impact the timing and magnitude of streamflow response to rain events and increase the frequency and magnitude of flood flows (Beschta et al., 2000; Eisenbies et al., 2007; La Marche and Lettenmaier, 2001). These direct hydrologic connections can adversely impact water quality through increased sedimentation from road erosion sources, while increased stormwater runoff may induce stream geomorphological changes, re-mobilize existing sediment stored within the stream channel, and result in the degradation of aquatic habitat (Goode et al., 2012); *[cited in Brown, et al., 2013]*.

Forest silvicultural operations generally cause relatively low and ephemeral increases in sediment as compared to alternative land uses (Neary et al., 1989). For example, Corbett et al. (1978) found that timber harvesting, if considered independently of roads, has minimal effects on stream sediment. However, forest roads and skid trails have significant potential to increase erosion and sedimentation (Patric, 1976, Swift and Burns, 1999, Aust and Blinn, 2004 and Grace, 2005). Forest roads can alter hillslope hydrology by creating compact and less permeable surfaces (Megahan, 1972), decreasing infiltration (Grace, 2005), and increasing drainage networks with road surfaces and ditches (Wemple et al., 1996, Croke et al., 2001, Croke and Mockler, 2001 and Jackson et al., 2005), thus resulting in increased overland flow, erosion, and sedimentation during rain events. Erosion rates have repeatedly been shown in monitoring and research studies to be higher from roads, bladed (Wade et al., 2012a) or overland (Sawyers et al., 2012) skid trails, and log landings, compared to adjacent harvested and undisturbed areas (Yoho, 1980, Rothwell, 1983, Arthur et al., 1998 and Worrell et al., 2011); *[cited in Wear, et al., 2013*].

Effectiveness of Road BMPs

In terms of the likelihood of sediment delivery, forest road stream crossings represent one of the most direct pathways for overland flow and sediment transport to stream channels (Lane and Sheridan, 2002); *[cited in Brown, et al., 2013]*. It is well documented in the literature that road surfacing techniques, such as the use of gravel, are used to enhance trafficability and minimize soil erosion on active roads (Clinton and Vose, 2003; Kochenderfer and Helvey, 1987; Swift, 1984), especially at road-stream crossings *[cited in Brown, et al., 2013]*. Graveling of road surfaces reduces sediment production (erosion) by reducing the surface area of soil exposed to raindrop impact, tire friction, and adverse effects of vehicular weight (by redistributing its force) (Megahan et al., 1991). However, the gravelling thickness must be adequate to ensure stability (Grayson, et al., 1993). The gravel protects the road surface and roadside ditch from kinetic energy of raindrop impact, which loosens sediment material. The gravel surface also increases the roughness of the road surface, thereby reducing the runoff rate and volume. The reduction in runoff reduces the transport of sediment from the road surface (Appelboom, et al., 2002) and within the roadside ditch; as well as decreasing the rate of further sheet erosion. For example,

i. Swift's (1984) study showed that placement of a 6-inch lift of 1.5-inch minus crushed rock reduced sediment production by 70 percent from the unsurfaced condition over a 5-month period. The gravel achieved this amount of protection even though this period

included 6.46 inches of rainfall in 5 days. In 13.3 months, the gravel with established grass at the margins of the traveled way reduced sediment production by over 84 percent compared to 9.5 months when the road was unsurfaced; *[cited in Burroughs and King, 1989]*.

ii. A similar study in West Virginia by Kochenderfer and Helvey (1987) tested roads surfaced with 6-inch lifts of 3-inch washed gravel (size ranged from 1.5 to 3 inches) and 3-inch crusher-run gravel. Average reductions in sediment production were 88 percent and 79 percent, respectively, over an unprotected road during the 4-year measurement period; *[cited in Burroughs and King, 1989]*.

iii. Simulated rainfall was applied to two 100-ft bordered sections of the Rainy Day road, Nez Perce National Forest, built in "border-zone batholith" material of gneiss and schist (Burroughs and others 1985a). The reduction in sediment production by graveling this road section was 79 percent *[cited in Burroughs and King, 1989]*.

iv. In a study that compared erosion from both bare and graveled road segments, Brown, et al. (2013) found that bare road segments generated 7.5 times more sediment than graveled road segments. When evaluating the comparison further, they found that the "problem roads", that is, the ones that delivered the most sediment were characterized by excessive lengths in between water control structures and inadequate surface cover (Brown, et al., 2013). They concluded that it is necessary to implement BMPs for road segments that are high-risk areas for water quality impairment; and that the use of appropriate BMPs can minimize sediment contributions from forest roads, even in situations where the original road design was not ideal (Brown, et al., 2013). They also concluded that BMP recommendation to gravel road segments to the top of the approach that is contributing sediment to the stream and to redistribute stormwater runoff from the road surface at least 7.6 m before the stream crossing can minimize sediment erosion from road segments and delivery to high-risk areas for water quality impairment (*Brown, et al., 2013).*

v. Clinton and Vose (2003) evaluated suspended sediment transport from paved, graveled, and bare road surfaces on controlled test road segments in Georgia. They found that gravel-surfacing roads reduced sediment erosion by 54%, and a 95% reduction for paved roads.

vi. In a study of several best management practices for sediment reduction from forest roads in the coastal plains of North Carolina, Appelboom et al. (2002) found that total runoff volume for the new gravel road surface treatment summed for all sampled events was reduced by an average of 39% compared to the non–graveled road surface treatment (Appelboom, et al., 2002). In addition, total sediment summed for all sampled events transported to the roadside ditch was reduced by the presence of gravel on the driving surface by an average of 67% compared to the non–graveled road surface for the new graveled road surface, and by an average of 54% compared to the non–graveled road surface for the pre–existing gravel road surface (Appelboom, et al., 2002).

A number of studies have also shown that road surfaces, as important hydrological pathways, affect the volume and distribution of overland flow and alter channel network extent, pattern, and processes (Harr et al., 1975; King and Tennyson, 1984; Montgomery, 1994; Jones and Grant, 1996; Wemple et al., 1996, 2001); *[cited in Croke, et al., 2005]*. Water control structures, such as ditches with relief culverts, broad based dips, water bars, and turnouts, are used to drain insloped road surfaces and minimize the travel length of overland flow (Keller and Sherar, 2003); such that, increasing number of cross-drains reduces drainage area that collect water, reduces erosion,

and hydrologic connectivity of road segments to streams *[cited in Brown, et al., 2013]*. For example,

i. Croke, et al. (2005) found that gully development below ditch relief culverts was related to two factors: hillslope gradient and road runoff contributing area; with flow volume and sediment erosion was increasing with both factors.

ii. In a study of erosion rates from road segments in Virginia, Brown, et al. (2013) found that the highest sediment delivery rates were associated with inadequate spacing between water control structures, 90–100% bare soil conditions throughout the year, and a lack of forest cover.

iii. Luce and Black (1999) determined that increases in both road length and gradient can lead to increased erosion. The interaction between length and gradient is strong. For example, increasing length has little effect if the gradient is low but has a great deal of effect on roads with high gradients. In general, erosion is proportional to the product of distance between cross-drains and the square of the slope of the road ($E \alpha LS^2$).

This strongly suggests that reducing spacing between cross-drains, especially on steeper road segments, dramatically reduces erosion, sediment delivery, and the potential for gullying below culvert outlets. Road approach length and bare soil percentage are the most important factors controlling sediment delivery. Fortunately, road approach length and bare soil percentage are both factors that can be controlled. Therefore, study findings support contemporary BMP recommendations for the spacing of water control structures at appropriate intervals and to stabilize road approaches near stream crossings with gravel, mulch, or other suitable material (Brown, et al., 2013). The road reconstruction and resurfacing work associated with the Clear Creek Project proposes to reduce spacing of cross-drains along the length of selected sections of roads and improve the road surface by increasing the amount of gravel, especially at approaches to watercourses. We are proposing to conduct these activities at locations where sediment delivery is most problematic, as modeled in NetMap. It is expected that these activities will reduce long-term, chronic sediment delivery from roads to streams by at least 90%.

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Appendix L

Response to DEIS Comments

Clear Creek Integrated Restoration Project

Response to DEIS Comments

Topic	Comment	Letter #/ Comment #	Response
All/Cumulative Effects	Disclose the acreages of past, current, and reasonably foreseeable logging, grazing, and road-building activities within the Project area;	03/03	Past, current and reasonably foreseeable activities have been accounted for in the existing condition and have been considered for potential cumulative effects in Chapter 4 of the DEIS and FEIS.
All/Forest Plan Standards	We agree that the Forest Service should complete a full environmental impact statement (EIS) for this Project because the scope of the Project will likely have a significant individual and cumulative impact on the environment.	03/02	An EIS has been developed.
Alternatives	You have presented three logical, legal, and realistic alternatives, so none seems to be any kind of phony plan just printed to be knocked down. All three are workable and legal, if probably not equally wise.	01/04	Thank you
Alternatives	…if, in the end, you chose Alt C, then some serious argument will be needed to explain the sediment and poor road obliteration issues. It just does not seem obvious to me that Alts B or C are really better--in any way--than D.	01/09	The same amount of road improvement and road decommissioning would occur under all alternatives. The difference in alternatives is related specifically to the amount and types of vegetation treatment. All action alternatives stay well below the Forest Plan allowable sediment yield guideline. Sediment yield percent over base for Alternative D is 0 to 4% less than that of Alternatives B and C for the prescription watersheds (DEIS, page 141). Total routed sediment percent over base to the mouth of Clear Creek is 1% less for Alternative D compared to Alternatives B and C (DEIS, page 3-148).Under all alternatives, sediment levels in streams would be reduced over the long term as a result of road improvement and decommissioning (see Aquatics and Watershed sections of the FEIS)

Alternatives	The range of alternatives presented in the Draft EIS is way too narrow and the proposal does not display an adequate range of alternatives as required by National Environmental Policy Act (NEPA). All action alternatives include relatively large timber harvest proposals and are not sensitive to other resource needs. All proposals include actions which put other resource values at unnecessary risk, when a more moderate proposal could avoid these potential impacts. For example there are 21 units were logging is planned in units that do not meet regional soil standards. Logging is planned for high risk landtypes and for streams that do not meet current Forest Plan standards. The fact that effects analysis for fish, wildlife and water quality and vegetation generally lump the impacts of Alternatives B, C and D also supports the contention that there is very little difference in the proposed action alternatives. One or two new alternatives which are clearly different than the three existing alternatives are sorely needed and are required by NEPA.	06/75	See response to previous comment #01/09 regarding the difference between the alternatives as they relate to vegetation treatments and road improvement and decommissioning. Effects to soils and high risk landtypes, as well as fish, water and wildlife, were also considered and design features will be implemented in order to minimize those effects while meeting Forest Plan or Regional standards and guidelines (see FEIS Design Features section as well as the Soils, Fish, Watershed and Wildlife sections of the FEIS).
Alternatives	New alternatives could include the non-controversial items such as the 1,887 acres of precommercial thinning, 41 acres of grass restoration, and 1,371 acres of prescribe fire. All timber harvest could be deferred on stands not meeting regional soil standards or in stands located on high risk landtypes. Restoration of these units could be completed without timber harvest. Timber harvest could focus on drier breakland types where there is no landslide risk and the effect of fire suppression is more pronounced. More mesic old growth and mature stands in upland areas could be maintained (especially those stands dominated by western red cedar). Retention of older stands could be distributed to favor species in need of these habitats like the goshawk, pileated woodpecker, fisher and marten. Cutting could also be deferred in drainages where forest plan water quality habitats are not being achieved regardless if there is an upward trend or not. Cutting of stands that have not reached culmination of mean annual increment could also be deferred. Sensitive plant populations could be located and protected instead of just assuming that they will be OK with no analysis. Roads could be closed or obliterated in areas were elk habitat security or water quality objectives are not being achieved. Water yield (ECAs) should be kept under the 15% ECA (good condition) guideline in all watersheds. In short, more balanced alternatives are needed that protect all resources.	06/76	The Decision Maker was presented a variety of alternatives including road decommissioning without timber harvest or prescribed fire, prescribed fire only, and harvest with no temporary road construction. These alternatives were considered but not analyzed in detail (see DEIS and FEIS) because they would not, or would only barely meet the purpose and need for vegetation improvement and the production of goods and services related to tree mortality. They would only minimally meet the goals and objectives of the CFLR Act. In addition, the Clear Creek area is designated by the Forest Plan as a timber management area. The “Alternatives Considered but Eliminated from Detailed Study” section of the FEIS describes alternatives that were considered by the IDT, but dismissed from detailed consideration.
Alternatives	This project involves too much logging.	22/01	See response to comment 06/76. Three alternatives were addressed in the DEIS and FEIS with varying levels of timber harvest.
Alternatives	Many of the negative impacts that the Forest Service describes for Alternative A could be addressed with another alternative that includes correction of these factors and perhaps even a small amount of timber harvest.	06/16	The Decision Maker was presented a variety of alternatives including road decommissioning without timber harvest or prescribed fire, prescribed fire only, and harvest with no temporary road construction. These alternatives were

			considered but not analyzed in detail (see DEIS and FEIS) because they would not, or would only barely meet the purpose and need for vegetation improvement and the production of goods and services related to tree mortality. They would only minimally meet the goals and objectives of the CFLR Act. In addition, the Clear Creek area is designated by the Forest Plan as a timber management area. The "Alternatives Considered but Eliminated from Detailed Study" section of the FEIS describes alternatives that were considered by the IDT, but dismissed from detailed consideration.
Alternatives	There would be no need for additional NEPA if the Forest Service included an alternative to fix problem roads and culverts and decommission all problem roads. Such an alternative could include other non-controversial items such as the 1,887 acres of precommercial thinning, 41 acres of grass restoration, and 1,371 acres of prescribed fire. Perhaps even some timber harvest could be scheduled in drainages which are truly meeting Forest Plan goals for water quality, fish and wildlife.	06/17	See response to comment #06/16. The IDT identified, and maximized the amount of road work proposed in order to provide maximum benefits to streams and to address the problem roads in the area (see FEIS Aquatics section). These activities are in addition to the already cleared culvert replacements (for fish passage) and road decommissioning in the southern end of the project area (South Fork/West Fork Clear Cr Road Decom EA). These activities are currently being implemented in the drainage. All alternatives would allow for the continued improvement of stream conditions throughout the watershed. The Forest Plan allows for harvest to occur in drainages not meeting Forest Plan water quality objectives as long as an upward trend can be shown. Clarification of upward trend has been included in the Aquatics section of the FEIS. Effects to streams from timber harvest and temporary road construction are expected to be minimal to non-existent based on past monitoring and the proposed design features (see Aquatics and Watershed sections in the FEIS).
Alternatives	The DEIS has not presented a reasonable range of alternatives as required by the National Environmental Policy Act (NEPA). You present "no action" and three extensive timber program alternatives (61.8 mmbf to 85.2 mmbf)-- essentially, no significant difference in the action alternatives.	08/01	See response to comment #06/16.
Alternatives	You need to present and evaluate a timber harvest alternative in the neighborhood of 15 to 30 mmbf.	08/03	An alternative was developed that did not have openings larger than 40 acres to demonstrate the need for larger patches. This alternative would produce between 20 to 30 mmbf. Please refer to the alternatives considered but not analyzed in detail section of the FEIS for further discussion.
Alternatives	Alternatives should have been developed that didn't log in old growth.	12/02	No logging proposed in old growth
Alternatives	Alternatives should have been developed that don't build new roads.	12/03	A "No New Road" alternative was discussed in the DEIS on page 2-12. Alternative D was developed to address this concern.

Alternatives	The massive amount of logging allowed in all the alternatives but the no-action alternative is unconscionable. I believe you have violated the requirements of the National Environmental Policy Act (NEPA) by not developing alternatives other than the massive 62-85 million board feet of logging. The 10,000 acres of logging you propose is ridiculously high.	20/01	Reasonable alternatives to the proposed action should fulfill the purpose and need and address unresolved conflicts related to the proposed action. The alternatives presented in the FEIS satisfy these requirements, and constitute a reasonable range of alternatives to the proposed action.
Alternatives	You must reject this proposal, and develop alternatives that don't log old growth forests, as well as alternatives that don't build new roads.	20/04	A "No new road" alternative was discussed in the DEIS on page 2-12. Alternative D was developed to address this concern. No logging is proposed in old growth
Alternatives	Conversely, some CBC members felt that further consideration of Alternative D is warranted based on strategic, efficiency, soils, and other considerations. That is, Alternative D still represents a significant level of timber harvest and landscape-scale restoration while responding to an issue with strong public interest. At the end of the day, the CBC wants to see the project implemented expeditiously, ensuring the purpose and need and other requirements are met. Some CBC members feel that incorporating some of the reduced temporary road elements of Alternative D could increase the likelihood of success and ensure timely implementation. This discussion and deliberation helps to underscore the ongoing need for internal CBC discussions with regards to forest wide road management considerations. Development of a forest wide roads analysis should assist in this process for the Forest Service, as well as for external parties.	27/09	Thank you for your comments. The Forest Supervisor will carefully consider all public input as well as the ecological, social and economic impacts of the project during the decision making process. We appreciate your interest in transportation planning and ensure we meet the Forest Plan goal of Provide a stable and cost efficient transportation system through construction, reconstruction, maintenance or transportation system management. However a Forest-wide analysis is beyond the scope of this project and would supply information that is not necessary for a decision. The IDT has done a thorough transportation system analysis for the Clear Creek drainage and separated out numerous construction, reconstruction, maintenance and decommissioning projects. We would also agree there is ongoing need for continued internal CBC discussions about National Forest Management.
Alternatives	The other main concern is the integrity of the NEPA and public involvement process. It is clear that all action alternatives are very similar in that they include massive logging. How does this comply with NEPA, which requires a reasonable array of alternatives and an objective analysis before decisions are made?	28/03	See answer to 20/01.
Alternatives	The DEIS does not include an action alternative that stays out of old growth (so-called improvement cuts); it does not fully analyze a watershed restoration alternative; it does not analyze an alternative that would build no new roads; it doesn't analyze an alternative that does not follow the forest plan DFCs (2-12); it does not analyze an action alternative that restricts openings from logging to 40 acres as per NFMA; and it does not analyze an alternative that won't exceed soil standards immediately after logging. These are only some of problems with the DEIS in terms of alternatives. In sum, DEIS doesn't analyze a reasonable	28/06	All action alternatives propose and analyze watershed restoration activities (road improvement and decommissioning). The activities are the same for all alternatives and address the need to provide for a continued upward trend in stream conditions. See response to #06/1, 08/03, and 12/03. An alternative that considered openings 40 acres and less was considered to show the effects of patch size and fire spread to support the regional forester request to exceed the 40 acre opening size. Please refer to the "Alternatives Considered but Eliminated from Detailed Study" section of the FEIS.

	alternative in terms of logging and restoration. All action alternatives are massive in the scale of change.		
Alternatives/Fire	Please provide an alternative that eliminates units that have noxious weeds present on roads within units from fire management proposals.	03/77	Almost all roads within the project area contain spotted knapweed and some form of fire is necessary in order to treat slash loads created by logging activities. Pre-treatment of roads prior to harvest would occur where necessary to reduce the seed source. Standard contract requirements for washing logging equipment prior to entering the area would also be required. Few roads occur near the boundary where prescribed fire is planned. These units have a lower risk of road-related weed spread. The cooperative weed program continues to spray along several of the main roads in order to keep weeds in check.
CBC	In 2010, the CBC worked with the Forest Service to submit a Collaborative Forest Landscape Restoration Program (CFLRP) Proposal for the Selway-Middle Fork Clearwater Project, which includes the Clear Creek Project Area. We appreciate that the DEIS recognized the role of the CBC in developing this project.	27/01	We appreciate the time the CBC has spent with project level collaboration. We feel this partnership will ultimately lead more socially, ecologically and economically desirable projects that will help to strengthen the communities within the Clearwater Basin.
Climate Change	Disclose the impact of climate change on the efficacy of the proposed treatments;	03/33	The long-term ability of forests to sequester carbon depends in part on their resilience to multiple stresses, including increasing probability of drought stress, high severity fires and large scale insect outbreaks associated with projected climate change. Resilience would be increased by managing these forested areas. Unlike other forest regions worldwide that are a net source of carbon to the atmosphere, U.S. forests are a strong net carbon sink, absorbing more carbon than they emit (Houghton 2003; US EPA 2010, pg. 7-14; Heath, et al. 2011). For the period 2000 to 2008, U.S. forests sequestered (removed from the atmosphere, net) approximately 481.1 teragrams (Tg) of carbon dioxide per year, with harvested wood products sequestering an additional 101 Tg per year (Heath et al 2011) . Our National Forests accounted for approximately 30 percent of that net annual sequestration. National Forests contribute approximately 3 Tg carbon dioxide to the total stored in harvested wood products, compared to about 92 Tg from harvest on private lands. In 2011, timber harvest occurred on approximately 0.1% of National Forest system lands. Within the U.S., land use conversion from forest to other uses (primarily for development or agriculture) are identified as the primary human activities exerting negative pressure on the carbon sink that currently exists in this country's forests (McKinley, et al. 2011; Ryan, et al. 2010; Conant, et al. 2007). When harvesting occurs on National Forests, the affected forests remain forests, not converted to other land uses, and long-term forest services and benefits are maintained.

Climate Change	We also recognize that the project may provide opportunities to diversify the landscape in light of pending climatic shifts that may impact the area.	27/03	See the response to 03/33.
Climate Change/Carbon	Disclose the impact of the proposed project on the carbon storage potential of the area;	03/34	See the response to 03/33.
Climate Change/Carbon	Do unlogged old growth forests store more carbon than the wood products that would be removed from the same forest in a logging operation?	03/61	See the response to 03/33.
Climate Change/Carbon	What is the cumulative effect of National Forest logging on U.S. carbon stores? How many acres of National Forest lands are logged every year? How much carbon is lost by that logging?	03/62	See response to 03/33.
Climate Change/Carbon	Is this Project consistent with "research recommendations (Krankina and Harmon 2006) for protecting carbon gains against the potential impacts of future climate change? That study recommends "[i]ncreasing or maintaining the forest area by avoiding deforestation," and states that "protecting forest from logging or clearing offer immediate benefits via prevented emissions."	03/63	See response to 03/33.
Climate Change/Carbon Storage	Published scientific reports indicate that climate change will be exacerbated by logging due to the loss of carbon storage. Additionally, published scientific reports indicate that climate change will lead to increased wildfire severity (including drier and warmer conditions that may render obsolete the proposed effects of the Project). The former indicates that the Clear Creek Project may have a significant adverse effect on the environment, and the latter undermines the central underlying purpose of the Project. Therefore, the Forest Service must candidly disclose, consider, and fully discuss the published scientific papers discussing climate change in these two contexts. At least the Forest Service should discuss the following studies: Depro, Brooks M., Brian C. Murray, Ralph J. Alig, and Alyssa Shanks. 2008. Public land, timber harvests, and climate mitigation: quantifying carbon sequestration potential on U.S. public timberlands. Forest Ecology and Management 255: 1122-1134; Harmon, Mark E. 2001. Carbon sequestration in forests: addressing the scale question. Journal of Forestry 99:4: 24-29; Harmon, Mark E, William K. Ferrell, and Jerry F. Franklin. 1990. Effects of carbon storage of conversion of old-growth forest to young forests. Science 247: 4943: 699-702; Harmon, Mark E, and Barbara Marks. 2002. Effects of silvicultural practices on carbon stores in Douglas-fir – western hemlock forests in the Pacific Northwest, USA: results from a simulation model. Canadian Journal of Forest Research 32: 863-877; Homann, Peter S., Mark Harmon, Suzanne Remillard, and Erica A.H. Smithwick. 2005. What the soil reveals: potential total ecosystem C stores of the Pacific Northwest region, USA. Forest	03/140	Increased resilience can maintain the overall ability of forested stands to store carbon at a very local scale **(FEIS, Chapter 3, Vegetation, Climate Change)**. The impacts to climate change due to the short term reduction of carbon stocks from this project are expected to be miniscule on the global scale. After reviewing all of the above publications, it is reasonable to expect that under many harvest scenarios, carbon sequestration in forests would be less than if no harvest were to occur (either by thinning or by clearcutting). However, the amounts of carbon that can be sequestered from forests that are harvested and forests that are not harvested can be quite variable. Such differences depend on location, forest type, time between disturbances and type of disturbances (insects, fire, harvest rotations, disease, etc.). All the above papers were written about the Pacific Northwest where disturbances from fire, disease, insects on those forest types are much different than that in the Intermountain West. Certainly, one can conclude some basic tenets about forestry and carbon sequestration, but the magnitude of differences may be considerable. The amount of greenhouse gas mitigation that can be gained from eliminating timber harvesting on all National Forest lands is small relative to current U.S. or worldwide GHG emissions. The gains in carbon storage that can be obtained may be more theoretical than real (Gan and McCarl 2007; Murray 2008; Wear and Murray 2004, McKinley, et al. 2011; Ryan, et al. 2010; Harmon 2009). This would be especially true if global warming brings with it an increased threat of severe wildfires and other forest disturbances as some project (Galik

	Ecology and Management 220: 270-283; McKenzie, Donald, Ze'ev Gedalof, David L. Peterson, and Philip Mote. 2004. Climatic change, wildfire, and conservation. Conservation Biology 18:4: 890 -902.		and Jackson 2009; Dale, et al. 2001; Barton 2002; Breashears and Allen 2002; Westerling and Bryant 2008; Running 2006a; Littell, et al. 2009; Boisvenue and Running 2010). At the very least, fuels treatments will not be a major source of GHG emissions. The emissions that do occur will come primarily from relatively unstable carbon stocks (e.g. forest stands at risk to natural disturbances) and will be compensated for over time by increased radial growth in the trees left standing. A total of 1,371 acres are proposed for prescribed burning in the Clear Creek Integrated Restoration Project under all action alternatives. The amount of carbon that could even potentially be released into the atmosphere from this project is infinitesimally small with respect to the larger issue of climate change. These articles were reviewed by members of the interdisciplinary team..
Climate Change/Carbon Storage	Do unlogged old growth forests store more carbon than the wood products that would be removed from the same forest in a logging operation?	03/157	This is a duplicate comment. Please see the response to 03/33.
Climate Change/Carbon Storage	What is the cumulative effect of National Forest logging on U.S. carbon stores? How many acres of National Forest lands are logged every year? How much carbon is lost by that logging?	03/158	See the response to 3/140.
Climate Change/Carbon Storage	Is this Project consistent with "research recommendations (Krankina and Harmon 2006) for protecting carbon gains against the potential impacts of future climate change? That study recommends "[i]ncreasing or maintaining the forest area by avoiding deforestation," and states that "protecting forest from logging or clearing offer immediate benefits via prevented emissions."	03/159	See the response to 3/140.
Collaboration	The USFS has been using "Collaborative Groups" to recommend national forest projects for almost a decade. As is the case here, the collaborative group is portrayed as a sample of forest users. In reality, the USFS selects each collaborative group member carefully to assure they support the project the USFS wants to implement.	02/02	This is not true. The CBC was convened by Senator Mike Crapo and members selected by the group's steering committee. The USFS was not responsible for member selection.
Cumulative Effects	Even though ecological restoration is not the project's priority, the NEPA document must at least identify all the existing ecological liabilities caused by past management actions. This includes poorly located or poorly maintained roads, high-risk fuel situations caused by earlier vegetation manipulation projects, wildlife security problems by open motorized roads and trails plus those that are closed but violated—and include all those impacts in the analyses.	03/114	Past logging and roads are considered in the existing conditions for the project area for each of the resources. Past and historical vegetation management practices were primarily clearcutting followed by either broadcast burning or dozer piling which eliminated a high risk fuel situation in those areas. The roads within Clear Creek occur in good locations near ridgetops and on stable landtypes (see Aquatics section of the FEIS). Field reviews show that while road maintenance may not occur on a regular basis, the roads are in excellent shape with only isolated erosion. Only 55% of the roads are open to motorized use and elk security is higher than recommended over

			most of the drainage. Please see the FEIS, Chapter 3 for more information.
Cumulative Effects	Dropping private lands for the analysis is not appropriate for considering cumulative effects and the overall importance of forest service lands for the individual species. The condition of the private land should have been at least discussed for the entire Clear Creek drainage.	06/42	Existing conditions and proposed vegetation management activities on private lands were considered and are discussed throughout the FEIS (Chapter 3).
Cumulative Effects	The analysis of cumulative effects was flawed and incomplete. The outdated, inaccurate NEZSED model was used for Forest Service proposed activities. However, several significant actions were not evaluated: Eastside Allotment (livestock grazing), Clear Ridge Road Decommissioning, timber harvest of Idaho state lands, and private land harvest. A credible cumulative effects analysis has to be conducted.	08/18	See response to 06/42. The Forest Plan requires the use of the NEZSED model; however professional judgment and past monitoring of similar projects was also used to assess of potential effects of proposed activities. These are discussed in the FEIS. Private lands, grazing on the Clear Creek portion of the Eastside Allotment, and Clear Ridge Road Decommissioning were considered in the aquatic habitat analysis and are included in the FEIS.
Cumulative Effects/Long Term-Short Term	Since many of the benefits of this project won't be realized for a century or more, a long-term vision for the landscape is necessary. There will be both costs and benefits to a variety of wildlife species in both the short and long term, and these will change over time (as described in the cumulative effects). For a particular species, what may constitute a cost today may become a benefit in the future. The necessity of forest opening for the reestablishment of early sera! tree species provides an appropriate example. Even for interior forest species, the creation of larger young patches (a short-term cost) will, in the long-term, provide larger patches of older forest with a more natural species composition (a long-term gain).	17/02	No answer needed
Cumulative Effects/Monitoring	For every project proposal, it is important that the results of past monitoring be incorporated into planning. All Interdisciplinary Team Members should be familiar with the results of all past monitoring pertinent to the project area, and any deficiencies of monitoring that have been previously committed to. For that reason, we expect that the following be included in the NEPA documents or project files: A list of all past projects (completed or ongoing) implemented in the proposed project area watersheds. • The results of all monitoring done in the project area as committed to in the NEPA documents of those past projects. • The results of all monitoring done in the proposed project area as a part of the Forest Plan monitoring and evaluation effort. • A description of any monitoring, specified in those past project NEPA documents or the Forest Plan for proposed project area, which has yet to be gathered and/or reported.	03/118	Monitoring of the grazing allotment has occurred and the information is briefly summarized in the Aquatics section of the FEIS and included in the project record. Implementation monitoring (through contract administration) has been conducted and continues on the SF/WF Road Decommissioning Project and the Clear Creek Culvert Replacement Project. Forest Plan Monitoring for consistency related to cobble embeddedness in streams is presented in the Aquatics section of the FEIS. There are no designated Forest Plan stream monitoring/evaluation sights in Clear Creek.
Design Criteria	Design criteria should be clarified with regards to units with high subsurface erosion potential (Design Criteria #5, page 2-5). The Design Criteria indicates that only high subsurface erosion potential units will have special considerations regarding	27/19	You are correct, all skid trails, landings, and temporary roads would be limited to the extent possible and would be decommissioned. Design criteria #5 was established specifically for high subsurface erosion areas. Design criteria 6 and 7 were

	restoration of skid trails and landings, however later in the DEIS, in Design Criteria #8 and in Sec. 3.5.6, it states that all temporary roads, skid trails and landings will be restored (decommissioned and decompacted). The CBC recommends that the design criteria be clarified to ensure that all skid trails and landings should be limited to the extent possible and that all skid trails and landings will be decommissioned. If practicability makes restoration of any harvest areas unrealistic, moderate subsurface erosion risk areas, and/or areas that exceed the 15% soil standard should be considered for special measures, at a minimum. With regards to soil Design Criteria #6 and 7, the DEIS references section 3.6.5 erroneously.		established to minimize the extent of all new detrimental disturbance. Design criteria #8 discusses decompaction for all skid trails in all units, regardless of extent of detrimental disturbance. For Design Criteria 6 and 7, the DEIS should have referenced section 3.5. 6, pages3-43, 44). The FEIS has been updated to address this concern. See the soil report for further clarification.
Design Criteria	Operation of some machinery on steeper slopes may be appropriate to limit operator risk and liability.	27/20	Operation of equipment on slopes over 35% is being considered based on reviews of ground disturbance on area where this has taken place. The review indicated that this treatment had acceptable impacts under certain conditions. The intent is to allow the sales to remain flexible to accommodate modern logging techniques where they are compatible to meeting resource objectives. Soils Design Criteria #9 establishes that machinery can be operated on slopes steeper than 35% with approval of the project soil specialist. This would occur on site-specific, field reviewed locations
Design Criteria/Alternatives	To the extent that additional landslide prone areas are identified during project layout and implementation, design criteria should incorporate direction to adopt PACFISH buffers for these areas as well. While it may not be required, we encourage consideration of winter logging in some of the units to further reduce soil impacts, when the ground is frozen or covered by at least 6" of snow. We recognize that operational costs (i.e. plowing) can impact the operability of winter logging; however, in some areas where anticipated detrimental disturbance is highest, winter logging should be considered to effectively mitigate those impacts.	27/18	You are correct. If additional landslide prone areas are identified, the area would be excluded from harvest and a 100' PACFISH buffer would be added. This change will be added to the FEIS. Monitoring of winter logging has shown that detrimental soil disturbance is reduced as long as frozen ground or depths of snow conditions are met. Winter logging could be utilized in the implementation of this project, but would not be required.
Documentation	Disclose the timeline for implementation;	03/17	If an action alternative is selected by the decisionmaker, the Economics Environmental Consequences section of the FEIS indicates that the timber volume is scheduled to be sold through 5 different sales over a 5-year period, starting in 2015. Typical sale duration would be 4 years each; the last sale would be completed in 2023, for a total of about 8 years of harvest activities. Post-harvest reforestation and site preparation work could continue for up to 5 years following harvest on the last sale, creating a potential end date of 2028, for a total of 13 years of harvest plus post-harvest activities.
Documentation	With the very vocal proposal in Idaho to transfer USFS lands to the state, I'm sure you're aware that the public very much wants an increase in timber harvest. Frankly, I would like to see in the future a "mega EIS" along the lines of the Four Forest Initiative (4FRI) in	05/03	Please see the response to 20/01.

	Arizona.		
Documentation	For a guy who has read literally hundreds of EIS's over the years, I'm very impressed with this one. It's not too long...as in not "lawsuit proofed." It's clear, concise, and loaded with relevant facts and tables. A lot of EIS's now a days hardly even mention "vegetation." The public doesn't really give a crap about MIS...but they do want to know what the forest will look like when you're done. I like the tables on "age class, tree size, successional stages." Few EIS's show "age class and tree size." Helps with the visualization. The public doesn't have a clue about successional stages, but they can visualize tree size and age. Over all, job well done.	05/20	Thank you
Documentation	Please assure that 1) the natural resource damage caused by this timber sale is described in detail in Chapter 3 of the final NEPA document, and 2) the documents contained in the attachments to these comments are included in the Reference section.	10/03	Chapter 3 of the FEIS includes a discussion of potential environmental effects due to timber harvest. The references section of the FEIS has been updated to include the documents contained in the attachments to Letter 10.
Documentation	Finally, we have some specific questions with regards to statements and tables in the DEIS and encourage you to clarify the following in the FEIS: Clarify how the implementation of Alternatives B, C and D would result in an increase in the mean patch size of old structural classes (both multi-story and single-story), see table 3-25. Amend the apparent incorrect statement on page 3-71 that states, "All activities would occur within the Focus areas." Clarify the statement (page 3-75) that "All action alternatives were designed to address the issue of stands not reaching the culmination of mean annual increment." Correct the apparent misstatement on page 3-101 that "Alternative D does not conduct" regeneration and improvement harvest. According to our review Alternative D conducts 2,178 acres of regeneration and 211 acres of improvement harvest.	27/16	Mean patch size is increased by reducing the incidence of small fragmented patches of older single and multi-story structural classes. The statement on 3-71 should be "All activities within the focus areas were designed to create a disturbance pattern…" The statement on 3-75 means that commercial thinning will only occur in stands that have not reached the culmination of mean annual increment. The typographical error has been fixed in the FEIS.
Documentation	The documents should be edited by an English teacher and presented to the public in Plain English --on the Internet. Along with all planning discussions, scientific documentation, etc. Plus, the website should have a standard, common sense URL and remain in place indefinitely.	30/03	The NEPA documents, legal ads, scoping materials, and many other documents pertinent to this project are written in English and are posted on the Forest website.
Documentation	The DEIS includes Chapter 3, Environmental Consequences. The DEIS does not include a Chapter titled Affected Environment (current conditions). Although initially it appeared to be missing, after review it was clear that the information is discussed in Chapter 3. For clarity, we request that Chapter 3 be relabeled Affected Environment and Environmental Consequences.	33/04	This concern has been addressed in the Final EIS.
Documentation/Collaboration	I've spent years reading USFS EIS's and EA's, and was drawn to this project because of it's "collaborative" nature. I was so impressed with the EIS that I felt compelled to comment on it when	05/01	Thank you

	I read it had just been opened for comments. Frankly, I think the project should be a model for the Northern Region.		
Documentation/DFC's	The DEIS states that the DEIS DFCs are consistent with the forest plan DFCs. Even so they are different. Specifically, how are the new DFCs in the DEIS the same as those in the forest plan. Why wasn't a site-specific plan amendment done to adopt these new DFCs? Thus, isn't this DEIS functioning as a forest plan amendment without going through the legitimate and legal amendment process?	28/04	By creating a landscape that is dominated by a diversity of plant species, age classes, and disturbance patterns that will trend the analysis area towards resistance and resilience to future change agent is directly supported by the forest plan goals objectives, and standards. This is evident if one keeps this in mind as the forest plan is read.
Documentation/DFC's	Specifically, neither the Selway and Middle Fork Clearwater Rivers Subbasin Assessment nor the watershed assessment document have gone through the NEPA analysis and decision process to look at a range of alternatives or to consider cumulative impacts. It has not been adopted into the forest plan though the DEIS vegetation goals and DFCs are based on its "recommendations." (See page I-5). This is crucial because no alternatives to these new DFCs have been considered even though they are not part of the forest plan. The cumulative effects of that change indirection has not been analyzed either.	28/05	The forest plan directly supports maintaining a diversity of plant communities, patch sizes, size classes, and age classes across the forest. The DFC's simply quantify the range of those conditions based on ecological processes and plant community dynamics. This "change indirection" occurred in 1987 when the current forest plan was signed.
Documentation/EIS	We agree that the Forest Service should complete a full environmental impact statement (EIS) for this Project because the scope of the Project will likely have a significant individual and cumulative impact on the environment.	03/01	This comment was submitted for a Draft EIS, so clearly, project activities are being analyzed in an EIS. A Final EIS disclosing all direct, indirect, and cumulative effects on the environment has been prepared.
Documentation/FP Amendments	The Tribe notes that the Forest's proposal to amend the Soils section of the Nez Plan meets neither the Purpose of nor the Need for Action (Section 1.3). Rather, this amendment simply facilitates, administratively, the implementation of the Project. Furthermore, amendment of the Soils section of the Forest Plan as proposed would weaken soil quality standards below that of the existing Forest Plan, facilitating treatment of three units which would otherwise be precluded from management under this proposal. The T1ibe recommends that this and other desired amendments to the Forest Plan be separated from this Project and evaluated within a separate NEP A framework.	21/14	The amendment to the Forest Plan is an administrative action. The amendment would better align Forest Plan standards with the Regional soil quality standards. Until a new Forest Plan is established, this issue will be dealt with on a site-specific, project NEPA analysis. The soils amendment does not weaken the Forest Plan standards. The Forest Plan currently does not allow any activity, including soil restoration, in units with over 20% detrimental disturbance. This amendment will allow for achieving the vegetation purpose and need, as well as improving soil conditions. Regional soil guidance allows for activities to occur in units that are not currently meeting standards in provide a net improvement in soil quality through restoration activities. By utilizing existing skid trails and landings, there would be little to no increase in detrimental soil disturbance. (FEIS, Soils section and Appendix D).
Documentation/FP Amendments	The Tribe notes that the Forest's proposal to amend the Nez Perce Forest Plan Appendix N definition of old growth meets neither the Purpose of nor the Need for Action (Section 1.3). Rather, this amendment simply facilitates, administratively, the implementation of the Project. The Tribe further notes that this	21/15	The amendment to the Forest Plan is an administrative action. The amendment would better align Forest Plan standards with the Regional standards (Green et a 1992l). Until a new Forest Plan is established, this issue will be dealt with on a site-specific, project NEPA analysis. The Green et al definitions are regarded

	proposed amendment does not appear in Chapter 1 of the DEIS ("Purpose of and Need for Action"). An evaluation of the direct, indirect, and cumulative impacts of this amendment does not appear in Appendix D or elsewhere in the DEIS. Amendment of the definition of old growth as proposed would make available additional areas for treatment which would otherwise be precluded from management under this proposal. The Tribe recommends that this and other desired amendments to the Forest Plan be separated from this Project and evaluated within a separate NEPA framework.		as the "best available science" for the classification of old growth at the site-specific level. See FEIS Appendix D for the amendment.
Documentation/Maps	In reviewing the harvest maps for Alternative C, it appears the over-all patch sizes are much larger than depicted with by 'averages'.	13/06	The maps do not show all of the RHCA buffers or other retention areas within each unit.
Documentation/Maps	While the project maps do include system trails on the maps, the design features to protect trails are missing from the DEIS.	16/01	The system trails would be protected during harvest activities; design criteria will be developed in the FEIS to state that designated trails will be protected.
Documentation/Public Involvement	The EPA is supportive of the Forest's collaborative effort to develop actions that would improve the historic range of variability on the landscape. The DEIS is robust and clearly describes information gathered from public scoping efforts and includes a summary of other relevant plans that affect the proposed activities (e.g., PACFISH/INFISH).	33/01	Thank you
Documentation/Purpose and Need	All proposed alternatives treat large acreages of stands which have presumably culminated and this level of harvest should more than exceed the purpose and need described for the project.	06/06	See response to comment 20/01
Documentation/Purpose and Need	We appreciate that the project represents a shift in the management of the Nez Perce-Clearwater National Forests towards landscape-scale restoration, with an emphasis on retention and trending the landscape towards desired future conditions, appropriate patch sizes and functioning watersheds. We also strongly support the fact that the project proposes significant levels of timber harvest to achieve local economic goals supporting increased employment, which is a primary objective in addition to restoration work of the Selway-Middle Fork CFLRP project of which Clear Creek is a keystone area.	27/02	Thank you for your comments. We have shown that responsible forest management can result in timber outputs that support the local economy.
Documentation/Purpose and Need	Specifically, the Forest and ID Team are to be commended for the large scale of this proposal, as it represents what many agency leaders and interested publics have been suggesting is needed to achieve some of the following benefits of a landscape level approach to national forest management: NEPA efficiency - getting more "bang for our buck," in terms of an ongoing reduction of planning resources (dollars and personnel). Project scale significance - moving forest vegetation composition, structure and function toward desired conditions. Increased timber outputs –	27/04	We appreciate your observations.

	contributing to the objectives supported by the CFLRP proposal, and strongly supported by the CBC and local communities. Reduced cumulative effects - Management actions treat more acres and concentrates activity in shorter time frame, allowing for extended period of recovery, growth and forest development, thereby reducing the need for regular reentry and associated impacts.		
Documentation/References	None of the scientific documents listed in the attachments to these comments are listed or cited in the References section of this DEIS. This is called lying by omission.	10/02	The references section of the Final EIS has been updated to address this concern.
Documentation/References	Please include (and cite) the source documents for the opposing views contained in the attachments to these comments in the References section of the final EIS. When describing the environmental effects of the timber sale activities to the countless natural resources in the project area please cite the resource damage described in the source documents contained in the attachments.	10/04	Chapter 3 of the FEIS includes a discussion of potential environmental effects due to timber harvest. The references section of the FEIS has been updated to include the documents contained in the attachments to Letter 10.
Documentation/References	Please comply with 40 C.F.R. § 1502.9(a) by responding to each opposing view in Attachments #1and #4.	10/05	The Forest Service has reviewed the literature citations and has provided a response in the table below.
Documentation/References	Attached are some references that will be included in ICL and/or CBC comments for consideration in the FEIS and ROD for the Clear Creek Integrated Restoration Project.	15/01	IDT Members Review References, address as needed
Documentation/References	The CBC referenced several papers in our scoping comments. None of those papers were included in the DEIS bibliography. As a result, the papers will be submitted in their entirety and the CBC requests that the papers be incorporated into the project file, bibliography and their findings be considered in the analysis and decision for the Clear Creek Project. These papers include: Johnson, K. Norman, and Jerry F. Franklin. "Restoration of Federal forests in the Pacific Northwest: strategies and management implications." Unpublished manuscript. August 15.2009 (2009): 120. Franklin, J. F. and K. N. Johnson. 2012. A restoration framework for federal forests in the Pacific Northwest. Journal of Forestry 110:429-439. Franklin, J.F. and Johnson, K. N. Applying Restoration Principles on the BLM O&C Forests in Southwest Oregon. Unpublished manuscript. November 30 2010 (2010): 9. Franklin, J.F. and Johnson, K. N A Guide to Creating Diverse Early Successional Ecosystems through Variable Retention Regeneration Harvest on the Coos Bay District of the BLM. Unpublished manuscript. June 1, 2011 (2011): 5. Moritz, M.A., Hessburg, P.F., et al., 2010. Native Fire Regimes and Landscape. Resilience. In: McKenzie, D., Miller, C., Falk, D.A. (Eds.), The Landscape Ecology of Fire. Verlag, Springer, pp. 51–	27/28	The documents listed were considered by the IDT and have been added to the project file. Most, if not all, support the approach to vegetation management that would be used for this project.

	86, Vol. 213. Perry, D. A., Hessburg, P. F., Skinner, C. N., Spies, T. A., Stephens, S. L., Taylor, A. H., Franklin, J.F., McComb, B. and Riegel, G. (2011). The ecology of mixed severity fire regimes in Washington, Oregon, and Northern California. Forest Ecology and Management, 262(5), 703-717.		
Economics	For a change, this document takes a good luck at the genuine economic issue: will the taxpayers find the proposed action profitable. Thea appear to in all actions cases, at least if the PNV analysis is correct. It appears to be correct, which is again a feature of this area's low elevation and already-extensive road access.	01/05	Thank you
Economics	Brazell and some of his District Rangers have just revealed in the newspaper that providing short-term corporate profit opportunities is their #1 priority for your tax dollars.	02/01	This comment is an opinion and not specific to the Clear Creek project.
Economics	Disclose the funding source for non-commercial activities proposed;	03/18	The comment is unclear, and not site specific. The Economics section of the FEIS discloses potential economic effects associated with the proposed actions. The Clear Creek project is being considered, at least partially, as a Land Stewardship Project under Section 347 of the Omnibus Consolidated Appropriations Act of FY 1999. This Act allows the timber stumpage to be used to pay for the non-commercial activities. As shown on DEIS page 3-19, the timber value generated from logging would cover the cost of the non-commercial projects.
Economics	Please evaluate all of the costs and benefits of this project. Please include a detailed list of all the costs to the agency and the public.	03/141	The costs associated with this project are displayed on page 3-19 of the DEIS. Benefits of the activities are displayed in the DEIS and FEIS as each resource area is evaluated.
Economics	You seem to have underestimated the cost to taxpayers of the proposed logging. Please include all costs.	03/187	The costs displayed in the DEIS and FEIS are based on current information from actual sold sales and management activities and were determined to accurately represent taxpayer costs at this time.
Economics	Alternative C based on Table S-1 provides an additional 223 sustained jobs and a greater harvest income. In addition Alt. C provides a greater degree of vegetative restoration which better meets the purpose and need of the project (Page 2-3, DEIS).	04/01	Economic viability is only one aspect of evaluating the best alternative. For example, each alternative reflects tradeoffs of the management direction within that proposal. Alternative C may create the most immediate jobs, but alternative B generates the most stumpage revenue that can be used on other restoration projects which in turn creates additional jobs.
Economics	Providing jobs and income for the local economy is a critical need of Idaho County. We request you strongly consider Alt. C.	04/02	Alternative C would generate the most immediate income to the communities. Alternative B, if implemented using Stewardship Contracting authority, which uses the stumpage value to pay for other resource work, would provide longer term income.

Economics	I'm impressed with the large amount of acres treated and board feet produced. I like that one of the "issues" was to make a "cost effective" EIS. The large size has to be more attractive to industry, and thus result in higher revenues for stewardship activities.	05/02	Consolidating treatment activities on the Nez Perce-Clearwater National Forest has contributed to the fact that the Forest is receiving top dollar for their advertised sales.
Economics	Very impressed with the PNV. Very impressed with $1.25 million dollars for stewardship activities. Why spend budget money for road decommissioning, when you can "let the trees" pay for it. Just like the old "purchaser road credit days," but in reverse!	05/14	Stewardship Contracting has been a very effect tool on the Forest for paying for other restoration activities. As long as Congress continues to authorize use of this “tool”,the Forest will continue to use it.
Economics	Yours is the ONLY EIS that I've ever seen list the EIS NEPA costs. It looks low to me. Is it true that the $175,000 for NEPA costs, listed as a footnote under the PNV table on page 3-19, is the cost to prepare the EIS? It should be a requirement for the entire USFS to tell the public how much it costs to prepare an EIS. It's all about transparency.	05/15	The NEPA costs are based on a Forest average, but would likely exceed these costs due to additional data needs spurred by controversy or litigation.
Economics	Does the USFS "pay" for the road construction costs, or is that "paid" for by the contractor?	05/16	The timber stumpage value pays for the road construction costs (DEIS, p.3-19, Table 3-3 footnote)
Economics	Economies-of-scale for timber sale preparation, operations (including road construction and maintenance), and site-preparation (prescribed burning) related to larger patches are neither disclosed nor discussed. Comparing estimates of the management costs associated with protecting and managing resource values should be compared between alternatives. The issue relating to “…reducing planning an implementation costs by managing on a large scale” (...am assuming both analysis area and larger patches) was not specifically addressed in the analysis. This is an important issue indicator. Addressing patch size, and other elements of scale, is not business-as-usual (ecologically, biologically, economically or operationally) for this Forest. It is important, therefore, to display the effects by alternative, to support advantages/disadvantages and refute arguments/positions to the contrary.	13/05	Completing the vegetation treatments in larger areas, such as in Alternative C which regenerates larger patches, allows for areas to be completed, than closed for an extended period of time, while the new trees grow. This reduces road maintenance costs and the continued costs of multiple entries. A discussion of this will be added to the FEIS.
Economics	I don’t think making jobs for Idaho permits saving it. Are the Idaho folks too lazy to make their own jobs for themselves	14/03	Jobs generated from the Clear Creek project are in support of the job market that is already established in the area.
Economics	The DEIS does not clearly convey the costs of the proposal. How would taxpayers be affected? Virtually every sale in this region is below cost, yet the economics section does not clearly show all the costs.	28/45	The project alternatives are clearly cost effective for sale viability and contributions to the local economy. Costs associated with additional NEPA work or litigation, which some associate with below cost evaluations, are not relevant to this analysis, because they are either sunk costs not a result of this project’s actions or are unknown.
Economics	I think Option C is the best and should be started ASAP, despite my other concerns. The more ground that is treated per entry --	30/01	A discussion on treating larger areas will be incorporated in the FEIS economic section.

	and the more local jobs created in the process -- the better, to my way of thinking. All of the options (except A, which really isn't an option) are okay, but B and D do less and are more likely to require additional future entries into the same locations.		
Economics/	On page 3-15 it is stated that site preparation was modified from prescribed burning to mechanical treatment for economic reasons. How will these changes affect resource values such as soil protection, stream sedimentation and forage production for wildlife? How many units were modified in this "major" adjustment and what is the current mix of prescribed burning to mechanical treatment?	06/19	The mechanical site preparation proposed is by use of an excavator which has proven to cause less soil disturbance than the use of dozers to pile slash. The use of mechanical site preparation verse prescribed fire is projected to be about 30% mechanical to 70% burn for Alt. B; 40% mechanical to 60% burn for Alt. C; and 37% mechanical to 63% burn for Alt. D. A wildlife benefit of this adjustment is the greater survival of the leave trees in the unit for longer term standing structure and forage will still be created through the pile burning. Field visits to excavator piled sites has shown that detrimental soil impacts which could contribute to stream sedimentation are minimal, because the machine stays in one place why it piles the slash within its reach. Equipment would be used on existing skid trails to the extent possible (DEIS, Page 2-6).
Economics/CBC	The second major concern is duplication of effort. The CBC is funded through tax dollars from the Forest Service (largely) yet its role seems little different than the Forest Service. This duplication of effort and the increased spending of tax dollars is very questionable.	28/02	The CBC's funding sources are unknown to the ID team and have no influence on this or other projects. The CBC's governance, structure and role is actually quite different from that of the Forest Service. They lack the technical expertise to effectively influence activities at the project level. Rather, they have been involved at a broader level, representing differing interests that seek to help guide the management of the Forests within the Clearwater Basin for the greater good. The CBC has provided some sideboards and expectations to the Forests such as: work at a large scale; do what's right on the ground and don't shy away from controversy. To that end, the Forests have begun to approach land management (particularly vegetation management) projects differently. Instead of doing a "piecemeal" approach and singling out opportunities where they exist, we are now looking at forest management at the watershed scale, where we can effectively mitigate forest health and fuel concerns. As we developed the Clear Creek project, we periodically presented our process, rationale and logic to the CBC and received feedback towards the social and ecological acceptance/feasibility of our proposals. We feel that the expectations, guidance and sideboards that the CFLR program and CBC provide will ultimately lead to better and more efficient land management.
Economics/CFLRA	I am concerned that funds generated from this project will be used beyond the analysis area for purposes not directly related to the seven CFLRA goals listed on page viii of the DEIS. The Clear Creek project represents approximately 80% of the 58,000 acre Middle Fork/Clear Creek assessment area. The proposed actions would occur on the easiest, most economical ground to manage	13/25	Funds from timber sale receipts of the Clear Creek project may be used to implement restoration projects outside the CFLR project area, which will indeed make the program "additive" to the Forests in the face of declining budgets. Funds may also be used to help pay for the implementation of forest management in the Middle Fork area if such a project is pursued.

	within this area. Funds generated by the Clear Creek project need to be "banked" to support management activities in the more difficult and costly landscape that is the Middle Fork section of the assessment area. The need for treating the Middle Fork landscape as critical/important as the proposed Clear Creek project, but will require higher costs/ac to achieve desired conditions for vegetation and wildlife (particularly elk winter range).		If stewardship contracting is used, excess stumpage values generated from the sales can be saved as retained receipts to be targeted for other projects within the watershed.
Economics/Timber Harvest	My last comment concerns logging or in general the removal of wood resource. Many dead trees will be encountered and I feel they should be utilized. Sold for firewood, not just given up to the public where too few can gather the majority of the free wood. Or sold to either fiber or pulp concerns and this should be in place before the timber is marketed so that the logger has the responsibility to utilize the dead wood and not just waste it or give it away. Existing markets are interested but you might have to look a bit further than the realm of Potlatch or Home Depot. And, when are we going to get rid of the Scribner scale or at least	29/05	Dead trees are generally required to be removed as a forest product if they are merchantable, unless the dead wood is needed to meet other resource objectives, such as wildlife snag retention or as woody debris for long term soil nutrition.
FACA/CBC	There appear to be violations of the Federal Advisory Committee Act (FACA) in the development of the proposal. According to the Federal Advisory Committee Act "the function of advisory committees should be advisory only, and that all matters under their consideration should be determined in accordance with law, by the official, agency or officer involved." As evidenced by several statements in the DEIS, the relationship between the forest service and the Clearwater Basin Collaborative (CBC) has not followed FACA guidelines. Instead of the advisory role that is required by FACA, the CBC has been considered a "partner" and has been given both decision and oversight responsibilities for many aspects of the Clear Creek Integrated Restoration Project.	06/77	We are keenly aware of your concerns regarding perceived violations of the FACA. The language in the CFLRP legislation does seem to be in conflict with that of the FACA, however to avoid violations the Forests and CBC routinely rely on guidance provided by *Key Principles and Practical Advice for Complying with the Federal Advisory Committee Act* (available in the project file). In this situation, the Forests did not establish nor control the CBC, we do not set their agenda, present information at their meetings by invitation only and we do not solicit advice or consensus recommendations. In fact, CBC input at the project level has remained very much from individual organizations, with many member organizations submitting their own, separate comments towards project development. As mentioned above, at the project level, the CBC has functioned as a sounding board to help develop projects that are more socially, ecologically and economically acceptable.
FACA/CBC	The relationship of the CBC and the Forest Service raises many additional questions. First, has the CBC been designated as a federal "advisory committee"? If not, why not and what is its clearly defined purpose? Has the establishment, purpose and charter of the CBC as a federal advisory committee been listed in the Federal Register as required by law? Why is the CBC needed when functions assigned to the CBC like ecological assessment, selection of project locations and monitoring have all been accomplished by the Forest Service historically and isn't this a duplication of effort rather than an advisory role? Shouldn't these tasks be more appropriately accomplished by the agency?	06/78	The CBC is not a Federal advisory committee. Their purpose as indicated on their website is to "Protect and Enhance Idaho's Clearwater Basin". The CBC has undertaken an ecological assessment at the Basin scale to help inform their internal dialogues. To our knowledge, the assessment is being given some consideration in Forest Plan revision, however, due to its scale; their assessment played no role in the Clear Creek project development. Project level assessment, development and monitoring will always be responsibility of the Agency; however, input is

			welcome from ALL interested individuals and organizations.
FACA/CBC	It appears that the proposed action (#B) was selected long before the NEPA analysis. As requested by the CBC, it is apparent that this is a major template and step to restoring the old timber program of the 1960s and 1970s.	08/02	The ID team spent over a year developing the proposed action (alternative B), which was responsive to the needs across the Clear Creek landscape, as outlined in the desired conditions and Forest Plan direction. Selection of the final alternative is the Forest Supervisors discretion and may be any of those analyzed or a modification/combination of several. The CBC has actually advocated for parts of several alternatives as opposed to the proposed action (alternative B). Of note is that many of the stands proposed for commercial thin in this project are a result of the "timber program" of the 1960s and 1970s, proving the renewability of the resource. We would argue that the timber program in those days worked at the appropriate scale, although the design and mitigation measures used then are nowhere near the standards of today's scientifically based, low and minimum impact techniques that maintain or provide for structure, habitat, woody debris and so on.
FACA/CBC	In any case, the National Public needs to know how the special interest CBC influenced the development and analysis of this proposal.	08/04	Answered below with 28/01
FACA/CBC	One of the most disappointing aspects of this proposal is the inordinate influence that the special interest CBC had on its configuration and magnitude. This unethical influence comes at the expense of the National Public. It is obvious that the CBC is functioning as an ad hoc Forest Service. This contemporary change in agency behavior significantly dilutes the integrity and credibility of the real Forest Service.	08/19	See response to comment 06/77. We genuinely appreciate and can relate to your concerns; however emphasis on collaboration is a result of the passage of the Omnibus Public Land Management Act of 2009 through the 111th congress and signed into law by President Barack Obama on March 30, 2009. Title IV of the bill created the Collaborative Forest Landscape Restoration Program. We cannot ascribe motives for the program's creation but we feel its implementation may ultimately lead to better and more efficient management of the Forests, and ultimately for the "National Public". It should be noted that project input was solicited from many individuals and groups ,not just the CBC. We can offer that our approach to public outreach and communications have improved as a result of the program and expect to better accommodate more partners/public participation in the future.
FACA/CBC	The so-called Clearwater Collaborative must be scrapped. I, as a part owner of that National Forest living in a state other than Idaho, have been totally left out, and it appears that the Collaborative is calling for many of the same ludicrous proposals as embodied in the Clear Creek Integrated Restoration Project. Scrap the Collaborative and stop violating NEPA!	20/05	The Forests have no jurisdiction over the CBC but we would point out that their meetings are open to the public and advertised on their website. In our experience they are welcoming of visitors and allow for public input as well. Participation in project development prior to scoping is not a violation of NEPA. As mentioned above, input towards Forest Service project development is welcomed from ALL interested individuals and organizations. In fact, the Forests routinely meet with groups other than the CBC to get input towards project

			development (Friends of the Clearwater, Back Country Horsemen, special use permit holders, just to name a few). The Forests, in an effort to be transparent with this project, solicited input from several routine planning participants prior to engaging in the NEPA process. Some participants provided input and some declined. Regardless, the Forests will continue to solicit input prior to engaging in the NEPA process and once the process has begun per 40 CFR 1503 and 1506.6. Every participant's input is equal and there is no special deference given to any one group or individual.
FACA/CBC	The development of this proposal apparently stems from the Clearwater Basin Collaborative. What the DEIS does not answer is whether this group complies with the Federal Advisory Committee Act. Indeed, the agency and USDA have been evasive ion that topic. The DEIS tells the public this group is a "partner" and has been given special authority in designing this proposal not afforded to other citizens. In any case, the National Public needs to know how the special interest CBC influenced the development and analysis of this proposal.	28/01 8/04	The Clear Creek project was developed under the legislative direction of the Collaborative Forest Landscape Restoration Program. That direction states quite simply that projects will be collaboratively developed. We recognize that this may lead to some perceived conflicts with FACA, but as outlined above, the Forests and CBC have followed the guidance in *Key Principles and Practical Advice for FACA compliance* to avoid violations. For this project, the CBC was given not given any "special authority" other than access to Agency personnel time, at their request, to present project details, status and to provide feedback. The term "partner" was used as a courtesy to the CBC members who devoted a great deal of time (much of which was unpaid) towards providing feedback. The Agency routinely "partners" with many organizations, including your own, to accomplish our missions. The term "partner" in the context of this project has no legal significance.
Fire	Disclose the actions being taken to reduce fuels on private lands adjacent to the Project area and how those activities/or lack thereof will impact the efficacy of the activities proposed for this Project;	03/29	Fuel reduction on private grounds has been ongoing and is expected to continue as a result of funding received through the Western States Competitive Grant. Also two small timber harvest operations have reduced fuels near the project boundary
Fire	Disclose the efficacy of the proposed activities at reducing wildfire risk and severity in the Project area in the future, including a two-year, five-year, ten-year, and 20-year projection;	03/30	Proposed activities would reduce the crown fire potential on 7% of the project area (DEIS, FEIS Fuels section) by 2022. Future reduction may be needed in the future as understory vegetation regrows.
Fire	If the Forest Service did not conduct its Fire Plan, please disclose the cumulative effects of Forest-wide implementation of the Fire Plan in the Clear Creek project to avoid illegally tiering to a non-NEPA document.	03/38	The Fire Plan is a programmatic issue to that needs to be addressed at the Forest level. It is not a topic for smaller site-specific projects. The Clear Creek project does incorporate the need to treat fuels within the Wildland Urban Interface (WUI). The Forest has also adopted areas where fire is allowed to burn to reduce risks to firefighters while allowing natural processes to occur.
Fire	Did the Forest Service conduct ESA consultation for the its Fire Plan?	03/40	The Forest has conducted programmatic Biological Assessments for prescribed fire and fire suppression activities. Additional

			consultation is conducted at the project level if proposed activities do not meet the guidance found in these documents.
Fire	What about the role of mixed severity and high severity fire – what are the benefits of those natural processes? How have those processes (mixed and high severity fire) created the ecosystems we have today?	03/52	Past fire history is discussed in the existing condition for fuels in the FEIS and DEIS. While they may be natural processes, the Forest Plan requires suppression in about 70% of the drainage, primarily because it occurs within a WUI. Proposed project activities will create similar patch size and age class structures as those provided by wildfire with less risk to the adjacent private lands and federal lands managed for timber harvest.
Fire	Over how many millennia have mixed and high severity fire have been occurring without human intervention?	03/53	Likely since the last ice age; however, humans currently live adjacent to the area and protection of private property is a concern. The Forest Plan requires suppression in about 70% of the drainage as a result.
Fire	Please consider that thinning can result in faster fire spread than in the unthinned stand. Graham, et al., 1999a point out that fire modeling indicates: For example, the 20-foot wind speed1 must exceed 50 miles per hour for midflame wind speeds to reach 5 miles per hour within a dense Stand (0.1 adjustment factor). In contrast, in an open stand (0.3 adjustment factor), the same midflame wind speeds would occur at only a 16-mile-per-hour wind at 20 feet.	03/110	Fuel modeling for the area indicates that current conditions indicate a large potential for passive crown fire near the Forest boundary on the west side of the project area. Proposed prescribed fire activities would alter fire behavior so that the majority would occur as ground surface fire due to the reduction in ladder fuels.
Fire	Also, Hessburg and Lemkuhl (1999) suggest that prescribed burning alone can be utilized in many cases—possibly here—where managers typically assume mechanical fuel reductions must be used.	03/112	Mechanical treatment (harvest) is proposed as a tool to satisfy the purpose and needs of the project and to meet Forest Plan management area direction, including fuel reduction. Prescribed fire has been proposed as a tool in some areas where mechanical methods are not an option.
Fire	Since disruption of fire cycles is identified, the NEZ PERCE-CLEARWATER NF needs to take a hard look at its fire policies. The development of approved fire management plans in compliance with the Federal Wildland Fire Policy was the number one policy objective intended for immediate implementation in the Implementation Action Plan Report for the Federal Wildland Fire Management Policy and Program Review. In general, the FS lags far behind other federal land management agencies that have already invested considerable amounts of time, money, and resources to implement the Fire Policy. Continued mismanagement of national forest lands and FS refusal to fully implement the Fire Policy puts wildland firefighters at risk if and when they are dispatched to wildfires. This is a programmatic issue, one that the current Forest Plan does not adequately consider. Please see Ament (1997) as comments on this proposal, in terms of fire policy and Forest Planning.	03/117	Please see response to comment #03/38.
Fire	What about the role of mixed severity and high severity fire – what are the benefits of those natural processes?	03/147	see response to comment 03/52

Fire	How have those processes (mixed and high severity fire) created the ecosystems we have today?	03/148	see response to comment 03/52
Fire	Over how many millennia have mixed and high severity fire have been occurring without human intervention?	03/149	see response to comment 03/53.
Fire	Moving forward quickly to provide harvest opportunities before value is lost to fire or disease needs to be a high priority.	04/03	We agree and estimate that project activities could begin within the next 2 years.
Fire	While I agree that the amount of regeneration harvest may affect fire behavior should a wildfire occur, I do not think that fire risk will actually be reduced. Fire risk is largely a function of weather patterns, drought conditions, fuel moisture and ignition sources. The risk of fire may actually even increase as logging operations and burning operations are conducted across the landscape. Harvest operations such as commercial and pre-commercial thinning may increase risk due to drying and more uniform redistribution of fuels. The Forest Service needs to incorporate more than just the amount of regeneration harvest into its fire risk assessment in the final FEIS.	06/20	We would agree that the risk or occurrence of fire is beyond our control and is climate driven. Harvested areas are expected to reduce fire behavior, spread potential and risk of a large scale stand replacing event due to a reduction in fuel levels. We are aware that some studies have shown an increased risk of fire spread as a result of logging slash, however the risk is generally short lived (<3 years) until the slash decomposes. In this project the risk is expected to be further reduced through mechanical piling and/or prescribed fire to reduce activity generated slash. Biomass (limbs, needles, tops) utilization is also a consideration and emphasis of the CFLR program, although it is generally market driven. Further assessments of fire have been included in the FEIS
Fire	The use of prescribed fire should be consistent with the frequency and intensity typical of the fire regime for a given landscape.	13/10	Prescribed fire has been proposed in the Roadless Area of lower Clear Creek to reduce fuels along the private property boundary and to put fire back on the landscape where it has been suppressed in the past. These lower slopes would have been expected to burn fairly frequently at a lower intensity. Depending on aspect, slope and fuel loadings, implementation of prescribed fire may need to be re-introduced at an scale or intensity less than that of normal regimes to ensure an escaped fire does not occur, particularly along the private property boundary. As fuel loadings are reduced, however, future prescribed burning may be able to be implemented at a more historic regime.
Fire	Most of the lower reaches of the Clear Creek drainage and some large areas in the upper drainage are in a period of natural succession where brush varieties make up a large percentage of the vegetation. My comment concerning these areas is that broadcast burning does not produce a desired effect, but damages (again) the soil quality, regeneration, and older conifers. My suggestion, of which I am able to show on the ground examples of and deliver up a cost per acre for treatment of the same adjacent brush fields, is to mitigate, pile and burn. This process is effective,	29/01	We would agree that slashing, piling and burning of the shrubs (fuels) is an effective technique to reducing fire behavior, particularly on smaller areas and propose to use it where appropriate and cost effective. These treatments however would be less cost effective in the Clear Creek Roadless area due to difficult access. Broadcast burning is proposed here. It is expected that prior to implementation there would need to be some mitigation work done along the private property boundary to avoid an escaped fire. Prescribed fire has also been proposed because fire is a natural part of that landscape. The conifers

	cost comparative and 100% target successful.		that are growing throughout much of the shrubfields in Clear Creek are generally shade tolerant and fire intolerant species (grand fir and Douglas-fir) with some ponderosa pine. The shade tolerant species pose a risk to the old growth Ponderosa pines as they continue to grow and provide ladder fuels. The objective would be to reduce this risk by removing the shade tolerant species with a low intensity prescribed fire. Low intensity fire also has minimal effects to the soil if timed appropriately. Prior to burning a site specific burn plan will be prepared that documents the weather conditions and other environmental parameters needed to achieve desired results. You are welcome to view the burn plan and discuss it with the fire managers prior to implementation.
Fire	The DEIS discusses prescribed tire and references smoke management planning through the Idaho/Montana Airshed Group- a consortium of agencies, tribes, and private organizations who coordinate prescribed bum activities to prevent public health impacts. We are pleased that the Forest is a member of the Airshed Group. We believe that the information generated from the Smoke Management Unit is valuable at preventing health impacts. The DEIS references the Airshed Group; however, the DEIS does not provide details describing the group's work and process to avoid or reduce smoke impacts. We recommend including a summary of this information. This could include a description of the process, type of information generated to inform proposed activities, and examples demonstrating program success.	33/03	The Airshed group reviews proposals from agencies that wish burn slash or prescribed fire units including total acres and type of burn proposed. The group assesses how much smoke would be produced by these activities and allows only a portion of them to be burned on any given day. They assess upcoming weather patterns to determine the potential smoke impacts in order to regulate burning on a day to day basis. For more information about this group, please see their website at: *http://www.smokemu.org/about.cfm*
Fire/Thinning	In their conclusion, Graham, et al., 1999a state: Depending on intensity, thinning from below and possibly free thinning can most effectively alter fire behavior by reducing crown bulk density, increasing crown base height, and changing species composition to lighter crowned and fire-adapted species. Such intermediate treatments can reduce the severity and intensity of wildfires for a given set of physical and weather variables. But crown and selection thinnings would not reduce crown fire potential. … Since the scientific literature suggests that your thinning activities will actually increase the rate of fire spread, you need to reconcile such findings with the contradictory assumptions expressed in your scoping letter.	03/111	Project activities would change species composition to more fire resilient species and reduce crown fire potential on 7% of the area as noted in the DEIS and FEIS (Fuels section). Project activities would also reduce surface and ladder fuel loadings which would also reduce the risk for crown fire.
Fire/WUI	please accurately disclose the threats to private structures and people under those scenarios, for all alternatives. It must be discernable why some areas are included for treatment and others are not.	03/105	See WUI discussions below response to comment 03/107
Fire/WUI	The FS must have a detailed long-term program for maintaining the allegedly safer conditions, including how areas will be treated in the future following proposed treatments, or how areas not needing treatment now will be treated as the need arises. The public at large and private landowners must know what the scale	03/106	The proposed actions would reduce fire risk through at least 2022 as noted in the DEIS. Future treatments are likely occur but cannot be assessed at this time as conditions are likely to change over the next decade. We are not able to determining funding scenarios or budgets that far into the future due to

	of the long-term efforts must be, including the amount of funding necessary, and the likelihood based on realistic funding scenarios for such a program to be adequately and timely funded.		Congressional priorities and changes in labor technologies or other associated costs. It will likely remain a high priority area due to its proximity to private lands.
Fire/WUI	The FS must assess the fuel and fire risk situation across land ownership boundaries to understand, and disclose to the public, the likely fire scenarios across the area's landscape.	03/107	Within the watershed there are several likely fire scenarios that led to the development of this proposal. Of grave concern is fire spreading from private lands onto the Forest. The drainage lines up with the prevailing winds and the terrain, slope and fuels would also contribute to rapid upslope, upcanyon fire spread. Fuels on the private lands are generally light and flashy, supportive of rapid fire spread. Of concern would be a large fire rapidly spreading into the headwaters of the drainage. A stand replacing event such as this could have negative downstream effects to the watershed. Also, it would be highly likely that heavy handed and potentially resource damaging suppression tactics would be employed during firefighting operations. Fires started on NFS lands pose as big a concern the watershed as those starting on private. Much of the watershed is difficult or time consuming to access by suppression resources. As mentioned above, terrain, slope, fuels and prevailing/diurnal winds would contribute to rapid, large fire growth. Continuous vertical fuels and homogenous canopies would support a stand replacing crown fire, particularly in severe years. Cold front passage in this area typically results in a reversal of prevailing wind with strong gusty winds. Again, the drainage is situated to line up in a manner that could support large wind driven fire growth given the fuel loadings. A fire moving from the Forest towards private ground would be aggressively suppressed with primary consideration given to the private properties and other values at risk and secondary consideration to the resource values in the watershed. The lack of variable vegetative conditions on the landscape can be attributed to almost a century of fire suppression in which over 290 fires have been suppressed since the 1970s. It is very logical to assume that several of those fires, burning under natural conditions, would have transformed the landscape into something other than the existing conditions. Unfortunately, due to the proximity of private lands, management of natural fire in this particular landscape is not currently an option. This project would try to emulate, to the best of our abilities, mosaic conditions at the appropriate scale. Observations of 40+ years of natural fire in our Wilderness areas demonstrate that it is the mosaic conditions that limit fire spread, even in severe years. Fuel reduction on private grounds has been ongoing and is expected to continue as a result of funding received through the Western States Competitive Grant.

Fire/WUI	The FS (Cohen, 1999) reviewed current scientific evidence and policy directives on the issue of fire in the wildland/urban interface and recommended an alternative focus on structure ignitability rather than extensive wildland fuel management: The congruence of research findings from different analytical methods suggests that home ignitability is the principal cause of home losses during wildland fires… Home ignitability also dictates that effective mitigating actions focus on the home and its immediate surroundings rather than on extensive wildland fuel management.	03/108	Dr. Cohen's research does not apply to the Clear Creek project because the project purpose does not include fuels reduction to reduce risk of fire damage to homes located within the wildland urban interface. The purpose of this project is to manage vegetation and fuel accumulations at the landscape level. It does not include fuels reduction to reduce the risk of fire damage to homes in the wildland urban interface (EIS, Purpose and Need, Chapter 1). Observations of 40+ years of natural fire in our Wilderness areas demonstrate that it is the mosaic conditions that limit fire spread, even in severe years.
Fire/WUI	The evidence suggests that wildland fuel reduction for reducing home losses may be inefficient and ineffective. Inefficient because wildland fuel reduction for several hundred meters or more around homes is greater than necessary for reducing ignitions from flames. Ineffective because it does not sufficiently reduce firebrand ignitions (Cohen, 1999)…. That research also recognizes "the imperative to separate the problem of the wildland fire threat to homes from the problem of ecosystem sustainability due to changes in wildland fuels" (Ibid).	03/109	See response to comment 03/108
Fire/WUI	The Forest Service needs to re-evaluate the fact that 94% of the area is considered WUI (page 3-21) by Idaho County Wildfire Mitigation Plan Committee (Idaho County 2009). This designation appears to be in error as most of the upper drainage is 100% National Forest and located several miles from any urban areas or other areas of human habitation.	06/20	As stated in the DEIS (pg. 3-23), Idaho County is responsible for the WUI designation. While there would be a fuel reduction benefit, it was a driver for the project (i.e. no found in the Purpose and Need). Regardless, the "fuel reduction" benefits of the project largely focus on reducing crown fire potential across the landscape to minimize the risk of a stand replacing event and associated negative downstream effects.
Fire/WUI	We also question the legitimacy of this being in a WUI. It isn't under any meaningful definition. Further, when did the Idaho County plan that identifies the WUI on the national forest go through NEPA?	28/38	See the response to comment 06/20. The WUI designation does not authorize ground disturbing treatments on federal lands, therefore no NEPA is required. The Clear Creek EIS does comply with NEPA in that it analyzes the proposed action effects on fuels.
Fisheries	The Forest Service cites fisheries Desired Future Condition (DFC), cobble embeddedness and % fines by depth calculations from 1987 and 2012 to make this claim. However, these calculations appear to be suspect and some of the data to support the Forest Service claims appears to be very dated. First, fishery habitat potential figures for 1987 appear to have been estimated as all numbers occur in intervals of 10%. Is there any actual data for these calculations and how can you predict a positive trend if no baseline data is available?	06/11	A positive trend can be determined for current conditions using more recent data. For Clear Creek, current substrate, riparian condition, road information (condition, location, and hazard rating) and visual observations of streams were used. A more detailed clarification of upward trend has been included in the Aquatics Section of the FEIS.
Fisheries	Second in only one case (Solo Creek) is cobble embeddedness or fines by depth reported for more than one year. It is very difficult to predict a trend from one point. Does the Forest Service have any other data? For example, what were the cobble	06/12	A more detailed clarification of upward trend has been included in the Aquatics Section of the FEIS. We have clarified that upward trend is not based on sediment/cobble embeddedness alone.

	embeddedness levels for all of the other streams in 1993?		
Fisheries	The Forest Service has not conducted any comprehensive study of fish densities in the project areas for twenty years (DEIS 3.15). There have also never been any surveys for pearl shell mussels or Pacific lamprey (DEIS 3.15). Such surveys could have helped to document that the project area streams are truly on a positive trend in terms of aquatic resources.	06/13	The presence, absence or densities of fish species can aid in the determination of overall stream health, however densities can be highly variable and are difficult to tie specifically to land management activities or upward trend. This is especially true for salmon, steelhead, and lamprey which migrate to the ocean then return to spawn in local streams. These species are heavily influenced by factors that occur outside of the Clear Creek watershed (i.e. dams, fishing, and ocean conditions). If adults return in low numbers, then juvenile densities would also be low and not necessarily associated with watershed conditions in Clear Creek. The Forest Plan upward trend is associated with habitat conditions and not fish densities in part due to these influencing factors. Trends in fish populations would be useful, if available, but are not required for determining upward trend (USFS, 2011). A more detailed clarification of upward trend has been included in the Aquatics Section of the FEIS.
Fisheries	With no recent stream surveys of fish densities or densities of other sensitive aquatic species and no baseline habitat data it is hard to know if the project streams are actually on a positive trend to recovery. Even by the data presented in Table 3.1, a positive trend based on actual data (two points – 1993, 2012) has only been shown for one stream (Solo Creek). Table 3.1 documents a negative trend for the Middle Fork of Clear Creek and two other streams (Pine Knob Creek and Clear Creek) are documented as currently not meeting Forest Plan standards. Yet, timber harvest has been proposed in all of three of the drainages. There is also no discussion regarding the overall negative trend for the mainstem of Clear Creek.	06/14	See response to Comments #06/12 and #06/13.
Fisheries	no timber harvest should be scheduled in streams like the Middle Fork of Clear Creek where even the low quality data presented by the Forest Service suggests a negative trend.	06/15	See response to Comments #06/12.
Fisheries	The FISHSED and DFC fish habitat models also need to be up-dated or replaced. Forest Service research efforts in Boise and Logan, Utah have provided new models and data. Without the use of the best available science, your depictions of upward trends for watersheds and fish habitats are highly questionable, speculative, and likely erroneous.	08/09	We are required by the Forest Plan to use FISHSED and the DFC habitat model until the Plan is Revised (which is currently under way). Please see response to Comment #06/12 regarding upward trend. Additional modeling and a review of more recent science related to potential sediment input is included in the Watershed section of the FEIS.
Fisheries	Factual documentation of an upward trend requires a credible set of time-series data in order to deal with statistical variation (Ramsey and Schafer, 1997). Your presentation in Table 3-1 fails this requirement and is misleading. For the Solo Creek watershed, you only have two data points (1993 and 2012). This can be hardly construed as adequate time-series data. Also, if you were	08/11	Please see response to Comment #06/12 regarding upward trend. We have clarified that upward trend is not based on sediment/cobble embeddedness alone.

	monitoring CE in the 1980s, where's your data to indicate upward trends in your prescription watersheds? Having monitored cobble embeddedness extensively on the Clearwater National Forest, I need to see more data before I'm convinced that you have an upward trend in any watershed. Also, it is very critical to know if the CE parameter was surveyed with the same methodology. If not, any comparison would be invalid.		
Fisheries	The presentation of data in Table 3-1 is confusing and may suffer from a comparison of "apples versus oranges." The DEIS displays DFC tabular values (1987 vs. 2012) from Espinosa (1992). This comparison reflects improvement in habitat potential with two composite data points. Again, this is hardly an adequate set of time-series data. If you are going to use the DFC analysis, you need to tell the public what species, habitat variables, and channel types you are evaluating. There are differences especially with the sediment and temperature parameters.	08/12	Please see response to Comment #06/12 regarding upward trend. Cobble embeddedness data collected near the mouth of the streams listed in the table was the only part of the DFC analysis used (as directed by the Forest Plan which focuses on sediment- see Aquatics section in the FEIS). The model shows that for the channel types used (B and C channels), there was no difference between fish species in the DFC for cobble embeddedness; therefore we did not include separate data for each species (steelhead, chinook, cutthroat). Bull trout were not assessed separately due to the very low likelihood that they occur in watershed.
Fisheries	The DEIS states that no bull trout were observed in 1993 and 2007. Why haven't more surveys been conducted since 2007? The public needs more information. How comprehensive were the surveys? What kinds of equipment and protocols were utilized? If potential improvement of bull trout habitat is occurring, we need to see the documentation. If the Clear Creek proposal is about restoration, we need to see the prospects and objectives to restore bull trout to the system. We also need similar information and data on the spring Chinook salmon. With a hatchery near the mouth of Clear Creek, it seems that there would be more of an effort to restore spring Chinook to the system.	08/14	We relied on the surveys conducted by the US Fish and Wildlife Service through the Idaho Supplementation Study ISS- (2009, 2012) and data collected at the Kooskia Hatchery at the mouth of Clear Creek (C.Bretz, personal comm.). The ISS (2012) provides an estimate of spring chinook escapement into Clear Creek. Many chinook are directed into the Kooskia hatchery and not allowed to move upstream to spawn. Some are released above the hatchery but it is only a small percentage of the total that enters the mouth of Clear Creek. Data on spring chinook would not reveal increased or decreased levels due to the trapping efforts of the hatchery. We don't believe that Clear Creek provides quality habitat for bull trout due to naturally higher than preferred temperatures (see Aquatics section of the FEIS).
Fisheries	The DEIS depicts a picture of perfection in the face of a large timber program. This is unrealistic. While it is commendable that you are requiring "no harvest" PACFISH buffers, they are certainly not "fail-safe." The Forest Service only has to consult their documentation of the 1995-96 storm event in the Clearwater Basin hat resulted in hundreds, if not thousands, of road failures and landslides in developed watersheds to refute the "fail safe" contention. During this storm, PACFISH/INFISH buffers (100-300 ft.) did not effectively stop significant sediment delivery from road failures and other mass erosion events.	08/15	The Clear Creek drainage did not experience road failures during the 1995-96 flood events. This in part due to the fact that only 11% of the area is considered landslide prone. That combined with the fact that the majority of roads were built near stable ridgetops or well into the headwaters of the drainage reduced the risk of road failures. Roughly 90% of the roads were field reviewed and only one recent road related slide was noted. Most road failures on the Clearwater NF resulted from midslope roads that had log culvert structures instead of pipes. Roads in the Clear Creek drainage do not contain log structures and are a low risk for failure (FEIS, Aquatics section). Fill cracks and other issues were noted during field surveys and are incorporated into the project design (road decommissioning or improvement).

Fisheries	According to the DEIS, a total of only 20 miles of NFS system roads exist within PACFISH buffers, and RHCAS have been minimally affected by past timber harvest activities. If this is the case, where did all the watershed and fish habitat degradation emanate from? The Middle Fork of Clear Creek still exhibits a high level of CE (55%) and a low level of habitat potential (55%). The mainstem channel of Clear Creek also exhibits high levels of habitat degradation (DEIS, p. 3-5). It would appear that the functionality of your buffer strips is limited.	08/16	The DFCs for aquatic habitat are a one-size-fits-all prescription; however streams do not always fit into those prescriptions. For example, there are many streams in unmanaged landscapes that don't meet the DFCs for sediment, temperature, or wood on the Clearwater NF (Lochsa Subbasin Assessment- IDEQ 1999; various Clearwater NF stream habitat surveys). They do, however meet their beneficial uses based on both habitat and biotic factors (IDEQ, 1999 and 2010). As noted in the Aquatics section of the FEIS, even though embeddedness may be higher than desired, cutthroat densities were also high in Middle Fork and the mainstem of Clear Creek as well as Pine Knob Creek. This would indicate that conditions are suitable for good fish production. It is very likely that sediment levels may have always been higher than the DFCs; however no data exists prior to management activities in the drainage. Regarding the mainstem of Clear Creek, the table on pg. 3-5 shows that the stream has improved since 1987 and that substrate levels are approaching desired conditions (see FEIS Aquatics section).
Fisheries	Espinosa et al. (1997) documented the failure of bmps to adequately protect salmon habitat on the Clearwater National Forest. Decommissioning and building temporary roads will still generate and deliver sediment to streams in the short term—a relative period of 15 to 20 years (pp. 3-41-3-42). When you add sediment generated from skidding, yarding, and transporting of logs, the situation can hardly be described as "fail-safe" or no impacts.	08/17	This 1997 article looked at projects that did not implement PACFISH buffers, which have been required since 1995. PIBO monitoring was designed to address the long term effectiveness of PACFISH buffers. The preliminary data shows the buffers are effective in maintaining RMOs (FEIS, Aquatics section). Since 1997, when the article was published, many of the management recommendations in the article have occurred including: removal of riparian areas from the timber harvest base, retention of roadless areas, validation of BMPs through monitoring, assessing cumulative effects at the watershed scale including private/state lands, removal of riparian roads, and emphasizing watershed restoration activities (in the case of Clear Creek, road improvement and culvert replacement). Recent monitoring indicates that no sediment is moving into streams from temporary roads, skid trails or yarding corridors and that sediment from road decommissioning and log haul activities is minor and limited as discussed in the FEIS.
Fisheries	all the logging allowed by mgt has increased the temperature of streams so that the fish are dying and dead too.	14/05	There is no indication that management activities on Forest Service lands have increased temperatures to the point where they are causing mortality to fish. Stream temperatures are within preferred limits for chinook salmon and cutthroat and steelhead trout. Summer temperatures are above those preferred by bull trout which is likely the reason that bull trout have not been found in the drainage (FEIS, Aquatics section). Also there are no streams on Forest Service land listed for pollutants (sediment or temperature) in the EPA approved 303(d)/305 (b)2012Integrated Report by IDEQ. All streams fully support beneficial uses (see

			FEIS and DEIS).
Fisheries	These habitat conditions will affect the macro invertebrate communities by reducing species richness, mayfly, stonefly and caddisfly presence, functional groups and evenness (high species dominance). In other words biointegrity of invertebrates and fish which depend on invertebrates for food will be significantly lowered.	18/02	The IDEQ uses both physical habitat and biological data (including insects) to determine if beneficial uses in the streams are being met. Streams north of the South Fork of Clear Creek and the mainstem of Clear Creek were assessed.IDEQ (2012) has determined that the streams meet their beneficial uses based on the presence of insects and fish. Additional information has been provided in the Aquatics section of the FEIS regarding beneficial uses.
Fisheries	I was the fisheries biologist on the Clearwater Ranger District in the late 80s and early 90s and supervised stream surveys for fish habitat, water quality in the Clear Creek drainage. I see no reference to these surveys, the stream survey report, or the Environmental Assessment that was prepared, signed and executed in your project area. My work and the work of my crew members can be found on file at the Clearwater Ranger District Office. Your discussion in the DE IS should reflect our work in section 3.1.5 Affected Environment.	23/01	A summary of the information has been included in the FEIS.
Fisheries	In our Fish Habitat Survey for Clear Creek, we clearly documented the presence of adult chinook salmon in the mainstem Clear Creek and the South Fork Clear Creek. Page 3-4 of your DEIS is not correct when it states "No chinook were observed during any of the habitat surveys."	23/02	Thank you for that information. A correction to the statement has been made in the FEIS.
Fisheries	We also documented with detailed survey data, the below Forest Plan Objective existing conditions of fish habitat water quality. I do not see detailed surveys of existing fish habitat contained in this DE IS that clearly shows an improved condition, as you claim on page 3-5 of the DE IS.	23/03	The streams in Clear Creek do not have recent habitat surveys other than those observations made by the Fisheries Biologist and Hydrologist during field reviews between 2010 and 2012. This information was combined with recent cobble embeddedness and temperature data. Other information was also used to determine improved conditions in the watershed and have been included in the Aquatics section of the FEIS.
Fisheries	Table 3-1 in the DEIS is not correct. Forest Plan Water Quality Objective for South Fork Clear Creek should be 90% rather than 80%. I do not see adequate survey data reflected in Table 3-1 to support your statement of an improving trend in fish habitat water quality.	23/04	We reviewed all Forest Plan amendments and none could be found that changed the South Fork Clear Creek water quality objective from 80% to 90%. The standard remains at 80% as designated by the Forest Plan; however as shown in the DEISand FEIS, the South Fork is currently at 100% of potential which meets the objective. Please see previous response to Comment 06/12 regarding upward trend.
Fisheries	Section 3.1.6 Environmental Consequences states "Few if any direct effects would occur to fish or their habitat from implementing the action alternatives .... ". I believe this statement to be false. Unless culvert removal and replacement has magically improved from when I did it, replacement of 77 culverts will cause measurable impacts to ESA listed fish habitat. Removal of 17 stream crossings will likely have long term benefits but also have	23/06	As noted in both the DEIS and FEIS, road decommissioning and culvert replacements are the only activities that would directly affect streams. Data from recent monitoring is provided to show the extent (amount/distance/duration) of the potential effects. The effects would be short term and minimized by BMP implementation. Consultation with the regulatory agencies (NOAA/USFWS) is ongoing.

	short term impacts. A copy of this letter will be sent to NOAA Fisheries.		
Fisheries	In summary, I believe this action is Likely to Adversely Affect ESA listed steelhead and chinook in the Clear Creek drainage. I believe your assumptions of "Few if any direct effects to fish is not supported by your existing condition surveys or by your NEZSED sediment analysis	23/08	The determination of effects for consultation with NOAA/USFWS is based on physical riparian and instream habitat parameters in combination with monitoring of similar activities within the Forest. It is only minimally based on the NEZSED model analysis which is only useful for comparing alternatives in the NEPA documents. Consultation with the regulatory agencies (NOAA/USFWS) is ongoing and a preliminary determination of Likely to Adversely Affect has been made and is specifically associated with road decommissioning and culver replacement activities. The direct, indirect and cumulative effects of the proposed action are discussed in the Watershed and Aquatics sections of the FEIS and supported by monitoring of similar activities.
Fisheries	Do not log in any watershed not meeting forest plan standards as it would harm fish habitat.	24/02	The BMPs associated with the proposed activities have been monitored for effectiveness on the Clearwater NF since 1990 and show that logging has little effect on fish habitat. Roads have the greatest potential effect on streams. Reducing impacts from roads is part of the projects purpose and need (FEIS, Ch.1). The project conducts activities to reduce the effects to streams from road-related sediment. The Forest Plan allows harvest to occur in watersheds not meeting water quality objectives as long as an upward trend can be shown. Additional information on upward trend has been included in the FEIS.
Fisheries	I am not convinced by the data presented in the DEIS that imperiled fish species like chinook salmon will not be negatively affected by the large amount of road building and logging in the Clear Creek drainage. Logging is also proposed to occur above a fish hatchery operated by the Nez Perce. This hatchery is already struggling due to sediment load and increased temperatures. I am opposed to this project on my national forest.	25/01	The FEIS discusses the effects of the proposed actions which would reduce road densities and conduct road improvement activities to reduce road-related sediment effects to streams. Based on monitoring logging is expected to have minimal to no effects on stream temperatures and instream sediment (FEIS, Aquatics and Watershed sections). The project activities would benefit the hatchery as activities would reduce the potential for sediment delivery to streams from roads. No effects to stream temperatures are expected (see FEIS).
Fisheries	The DEIS indicates that sediment yield will increase in some of the smaller streams from 16-24% over existing condition. The NFMA analysis and the DEIS noted that sediment has been a limiting factor for many area streams. Based on the information provided in the DEIS, along with historic data, some CBC members encourage you to provide additional discussion on this issue. It is unclear how the Fishery Habitat Potential listed on page 3-6 of the DEIS in table 3-1 indicated that Fishery Habitat Potential is being met for the majority of streams in the project area.	27/27	The NEZSED model indicates an increase in sediment yield; however all levels remain well below the Forest Plan allowed levels of 30-60%. The NEZSED model is used to compare alternatives and does not reflect the actual sediment yields expected from the project (FEIS, Watershed section). Monitoring of timber sales on the Clearwater NF over the last 15 years has shown little to no sediment moving from logging units to streams. The Fishery Habitat Potential assessment is explained in the footnote below the table. Additional information on streams in the project area is provided in the FEIS in order to clarify this concern.

Fisheries	The DEIS alleges that the area is on an upward trend. How was this determined? The chart on page 3-6 has no recent cobble embeddedness information for the Middle Fork of Clear Creek and every measure except for one creek, is for one year only. How can trend be determined by one data point? The same chart shows fishery habitat potential for 1987 in increments of 10 percent, which suggests that they were estimates. Was this based on actual data? How can you compare 1987data, assuming it is real, and other data when the protocol for the measure was developed in 1992? What about PIBO data and cobble embeddedness? Isn't this comparing apples and oranges?	28/07	A positive trend can be determined for current conditions using recent data. Please see response to Comment #06/12 regarding upward trend. PIBO data uses a "% surface fines" measurement which is then compared to the DFC chart for % surface fines found in the Espinosa DFC Analysis (1992). It is therefore appropriate to use the PIBO data since it is being compared to % surface fines and not to cobble embeddedness.
Fisheries	Furthermore, has the forest plan been amended to include later monitoring protocols? If not, why not? Page 3-5 suggests changes have been made in the protocols and in the way the plan requirements are interpreted without amending the plan? How can the agency compare across time with different monitoring protocols? How can the public trust the agency when the requirements in Appendix Aare reinterpreted?	28/08	Forest Plan water quality objective monitoring protocols have not been updated. Cobble embeddedness and % surface fine data is still used to determine if the objectives are being met. Forest Plan Appendix A did not describe in enough detail how to determine whether objectives were being met. It is common for Forests to write "white papers" in order to more clearly interpret Forest Plan direction that may have been vaguely written. The Appendix A Guidance referenced in the Aquatics section of the FEIS clarifies and defines how Appendix A is to be used so that consistency occurs across the Forest, Interpretations do not require a Forest Plan amendment since they do not change the intent or direction of the Plan.
Fisheries	What about the demonstrated failure of BMPs as documented in the Fish bate court case on the Clearwater National Forest and in published research (see Espinosa, F. Al, Jr., J. J. Rhodes, and D. A. McCullough. 1997. The Failure of Existing Plans to Protect Salmon Habitat in the Clearwater National Forest. Journal of Environmental Management (1997): 49, 205-230.)?	28/16	See Response to Comment #08/17. BMP monitoring effectiveness information is provided in the DEIS and FEIS Aquatics section.
Fisheries	What are the impacts to listed fish species in light of these unanswered questions? Specifically critical steelhead habitat occurs in the analysis area. Bull trout are not known in the area. However, have there been any recent surveys to verify their absence after 2007? How much of the area was actually inventoried? What about other rare species including Chinook salmon, Westslope cutthroat, Pacific lamprey and pearlshell mussel? The latter two were not analyzed, according to the DEIS and there is a paucity of information about cutthroat trout.	28/17	The potential impacts to listed and sensitive fish species and their habitat are discussed in the FEIS. Please see response to Comment # 06/13 regarding fish presence/densities.
Fisheries/Cumulative Effects	It is extremely important the FS disclose the environmental baseline for watersheds. Generally, this means their condition before development or resource exploitation was initiated. For example, the baseline condition of a stream means the habitat conditions for fish and other aquatic species prior to the impacts of road building, logging, livestock grazing, etc. Therefore, proper disclosure of baseline conditions would mean estimates of stream stability, pool frequency conditions, and water temperature	03/132	No stream habitat survey data is available for the project area prior to development activities which began in the 1930s. The cumulative effects of the action are based on the current existing conditions when combined with the expected direct and indirect effects of the proposed actions. The existing condition and expected effects are based on recent monitoring, field observations, and professional judgment as discussed in the FEIS. Please see the watershed report regarding sediment yield

	range—essentially the values of Riparian Management Objectives along with such parameters as sediment levels. When such information is provided, comparison with the current conditions (after impacts of development) will aid in the assessment of cumulative effects of all alternatives.		base line and stream stability conditions for updated information.
Fisheries/Hatchery/Cum Fx	Extensive timber harvest took place in the Clear Creek Watershed between the 1960's and the 1990's. The effects were devastating. Stream temperatures and sediment at Kooskia Hatchery increased to the point that many fish were killed. Although the Clear Creek Watershed has made some recovery over time, the hatchery continues to struggle with water quality and temperature issues from Clear Creek These issues have caused the hatchery to spend millions of dollars on a chiller system to achieve proper water temperatures and a new intake system to try and reduce the amount of sediment that flowed into the facility ponds and water supply infrastructure.	21/02	See response to #14/05. Stream temperatures naturally increase from headwaters down to the mouth due to stream widening and lessening riparian influence. Temperatures have been compared between the Forest boundary and the hatchery for 2 separate years to show how much is gained off of Forest Service lands (see FEIS Aquatics). Temperature data at the mouth of Clear Creek is also presented from 1962 which shows that temperature regimes prior to extensive harvest and the construction of the hatchery were similar to those occurring now. No stream temperature increases are expected as a result of the project due to PACFISH buffer retention. Proposed road-related activities are designed to reduce sediment in project area streams over the long term which would benefit the hatchery. Monitoring indicates little to no sediment entering streams from logging units due to PACFISH buffer retention and other design features (see FEIS).
Fisheries/Hatchery/Cum Fx	The U.S. Fish and Wildlife Service Hatchery Review Team identified several concerns related to Kooskia's water supply. First, the limited water availability and temperature fluctuations associated with surface water (Clear Creek) pose a fish health risk to spring Chinook Ich (parasite) infections occur annually, well water is currenty limited, and the temperature of Clear Creek water exceeds maximum guidelines for spring Chinook during the summer months. The hatchery depends on a water reuse system with well water makeup because of limited water availability. A water chiller also needs to be used to reduce the temperature of the reuse water to the desired temperature for spring Chinook during the summer.	21/03	see response to Comment #21/02
Fisheries/Monitoring	Please disclose in the NEPA document the results of up-to-date monitoring of fish habitat and watershed conditions and how this project will affect the fish in the project area.	03/131	The discussion of habitat conditions and recent monitoring, as well as the expected effects to fish is discussed in the Aquatic section of the DEIS and FEIS.
Fisheries/PACFISH	The DEIS (Section 3.1.4) assumes that retaining PACFISH buffers will prevent all harvest-related sediment from reaching streams. Two references and a personal observation are given to support this claim, but neither reference is from the peer reviewed literature and includes a sampling design to test this claim.	06/08	The assumption is based on field observations and field-based BMP audits in the local area. The DEIS and FEIS (Aquatics section) both include the results of local BMP monitoring on the adjacent Clearwater NF (before, and since, PACFISH was implemented) and have been available to the public since that time. Results indicate very high implementation and effectiveness rates based on on-the-ground monitoring using standard protocols for the survey. Participants include the Forest Fisheries Biologist, Forest Hydrologist and Forest Soils Scientist. Others that often attend include representatives from Idaho Dept.

			of Lands and IDEQ as well as District Rangers, ID team members and timber sale contract administrators. PIBO monitoring, which is specifically tied to PACFISH implementation, is also cited. Results indicate fine sediments are decreasing in managed landscapes (USDA, 2009). The PIBO protocols used are scientifically rigorous and monitoring occurs throughout the entire Columbia River Basin. The Bitterroot NF has also conducted similar monitoring of harvest specifically within buffers and has found no sediment delivery to streams (BNF, 2006). The results of these studies are discussed in the FEIS.
Fisheries/PACFISH	The Forest Service needs to provide peer reviewed literature to support their claim that sediment is not reaching streams from harvest activities due to PACFISH.	06/09	See response to Comment #06/08.
Fisheries/PACFISH	Section 3.1.5.2 Management Activities Affecting Streams begins by stating “PACFISH was designed to prevent adverse effects to listed fish species in the Columbia River drainage .... " In fact, PACFISH was designed to help RECOVER these ESA listed fish. The intent of PACFISH was to design projects that made things better for fish. I do not think that disturbing 120 miles of existing road, creating 36 miles of new temporary road, and cutting 60-80 million board feet of timber will do anything but bring these ESA listed fish closer to extinction.	23/05	We agree that PACFISH was designed to help recover ESA listed fish species. The proposed road improvement activities are is designed to reduce road-related sediment delivery to streams over the long term as would road decommissioning. As discussed in the FEIS, impacts to fish from these activities are expected to occur but would be short-term in nature due to BMP implementation. Not completing these activities is counter to the intent of PACFISH and the Nez Perce Forest Plan. As discussed in the FEIS, temporary roads would have no effect on streams based on recent monitoring, and timber harvest would occur over roughly a decade. PACFISH buffer implementation has proven effective in protecting streams. We expect this project to allow for the continued improvement of ESA listed fish habitat over the long haul.
Fisheries/Tribe	The Tribe appreciates that the OEIS includes a section on Tribal Treaty Rights. EIS at 1-18,19. While the Tribe appreciates the Forest Service's acknowledgment of the Tribe's 1855 Treaty and Tribal Trust responsibilities in this section, the agency should include additional evaluation how it upholds Tribal treaty obligations for this Project. There is no analysis of the impacts of the proposal to tribal treaty rights. To ensure federal compliance with the Tribe’s treaties, it is essential that the Forest Service examine the impacts of the project on tribal resources and, if necessary, develop an alternative that maximizes protection and enhancement of those resources. By failing to adequately analyze impacts to, or protect, treaty rights, a substantial likelihood exists that the Forest, through its action, may be diminishing treaty rights. The Forest Service's responsibility to the Tribe, as enumerated by federal statutes, cases, and the Forest Service's own policies, is "to protect 'to the fullest extent possible' the tribal treaty rights, and	21/04	The proposed project would meet the tribal treaty obligations for the project area by improving steam habitat conditions over time which would maintain fishing opportunities for Tribal members. The area is currently lacking in forage for big game such as elk and deer which are both important species for Tribal members who hunt. The amount of forage is expected to increase in timber harvest units. Harvest would also increase the visibility and vulnerability of big game. This would be both positive (for the hunter) and negative (for the elk). Project activities are not expected to negatively affect the Tribes’ ability to gather important plant species and may improve conditions for some of them (ex: huckleberries and mushrooms). Road decommissioning may limit access to some areas; however the benefits would be realized in stream habitat conditions. The Tribe has been an integral part of our road decommissioning program

	the resources on which those rights depend." Klamath Tribes v. Forest Service, 24 Ind. Law Rep. 3017 (D. Or. 1996).		Forestwide.
Fisheries/Upward Trend	A claim is made in DEIS Section 3.1.5 and Table 3-1 that all streams in the project area (except for the mainstem and Middle Fork Clear Creek) are experiencing an upward trend in fish habitat conditions. According to the Nez Perce Forest Plan, timber harvest can only proceed in streams that are below Forest Plan standards if a positive upward trend is evidenced. All project areas streams were considered to be below their standards when the Forest Plan was signed. …	06/10	The Forest Plan allows harvest activities to occur in watersheds not meeting their water quality objective as long as an upward trend is occurring. The FEIS includes additional clarifying information regarding upward trend for Pine Knob, Middle Fork and the mainstem of Clear Creek. These are the only watersheds that don't currently meet their objective.
Fisheries/Upward Trend	With the 1987 Forest Plan, the critical issue is cobble embeddedness (substrate sediment, p. 3-5 DEIS). In order to determine compliance with the Forest Plan objective, you need to compare 1987 CE levels (plus additional years) with the 2012 CE data (hopefully measured with the same technique) for a valid comparison. The DFC fisheries model was developed in the early 1990s. It is unlikely that data collected prior to the 1990s and used in the 1987 Nez Perce Forest Plan could validly be utilized in the DFC model derived from different survey methodologies on the Clearwater National Forest. In any case, there is simply not enough reliable data to document a convincing argument of upward trend and compliance with the Forest Plan objective.	08/13	The DFC model uses generally accepted salmon and steelhead habitat preference information that is still valid and applicable to habitat in the current decade. The accuracy of the sampling methodologies for cobble embeddedness and % fines, however, has improved since the model was developed. We feel the sampling methodologies are therefore acceptable. Information other than cobble embeddedness is used to make the upward trend determination for streams not meeting their objectives. This clarifying information has been included in the FEIS.
Fisheries/Wildlife	There is no way that fish habitat and stream quality as well as the forest wildlife will not by seriously impacted by such a huge increase in this timber harvest.	31/03	The Aquatics section of the FEIS analyzes the effects on fish and their habitat. The expected effects are based mostly on recent monitoring and field reviews, as well as professional judgment. The effects to wildlife are discussed in the FEIS.
Grazing	Where livestock are permitted to graze, we ask that you assess the present condition and continue to monitor the impacts of grazing activities upon vegetation diversity, soil compaction, stream bank stability and subsequent sedimentation.	03/130	Additional information regarding the existing condition and potential cumulative effects of continued grazing are included in the FEIS. No monitoring associated with grazing is included in the Clear Creek project but will likely, and more appropriately occur under the Eastside Allotment EA which is currently in process.
Grazing	It does not appear that the effects of cattle grazing have been incorporated into the watershed analysis. On page 3-44 of the DEIS it is suggested that "grazing impacts could increase over a period of up to 20 years". How have grazing impacts been accounted for in the watershed analysis?	06/73	See response to Comment #03/130. The grazing impacts referred to are a result of potential increases in cattle grazing within harvested units where forage is expected to increase. No additional effects to streams are expected due to PACFISH buffer retention and the steep topography in a large portion of the area where cattle do not roam.
Grazing	What about impacts from grazing on watershed and fisheries?	28/15	See response to Comment #03/130,
Grazing	My next comment concerns the grazing allotments. For decades this has been poorly managed in the Clear Creek drainage, having some passed from one rancher to the next and poorly monitored	29/03	See response to Comment #03/130. While cattle can and do contribute to weed presence, it is difficult to separate their effects from vehicle traffic in the drainage which also spreads weeds.

	or reported. Weeds are a problem and there are no checks or certifications concerning the cattle that are moved into the drainage. Weeds are a big problem everywhere and that being said I would think it necessary to have some restraint involved on where the cattle have been before being moved to the Forest and some monies added to the lease cost to administer these rules. Or, my suggestion is get rid of the leases if we're just pretending and get to managing them at a higher level if we aren't.		These comments are more appropriately addressed in the Eastside Allotment EA (currently in process) which can address seasons of use, weed free feeding requirements prior to turn on dates, and monitoring. The Clear Creek proposal was not designed to alleviate issues associated with cattle grazing. We have forwarded your comments to the Eastside Allotment EA team leader for consideration in that project.
Harvest/Layout	Similarly, what prescriptions protocol will be used for logging? Will the agency mark trees or will the company be allowed leeway in determining what trees to cut? How are issues such as the likelihood of blowdown in the regeneration logging units factored into the prescriptions?	28/43	As required by law, each harvest unit will have a prescription prepared by a certified Silviculturist. The prescriptions include marking guides that enable field crews to implement the desired treatment correctly. The Forest Service will mark leave trees for retention in regeneration harvest units. The commercial thin units will either be leave tree marked or treated with a designation by description provision in a stewardship contract. The contractor selects the trees based on the written description (preferred species, size, spacing) with oversite by the Forest Service. Blow down in regeneration harvest units will be treated as accumulation of large woody debris to meet the guidelines for moist habitat types as outlined in Graham et al.
Heritage	This document lacks any form of cultural resource section, let alone an actual analysis. These resources are fairly richly present in the lower end of the Clear Creek drainage, probably less so up higher. The absence of this analysis is inexplicable and also unforgiveable.	01/06	An effects analysis for Cultural Resources has been added to the FEIS.
Heritage	The DEIS does not analyze cultural resources. Are there no cultural resources in the project area? It is hard to imagine there are none in an area over 40,000 acres.	28/46	An effects analysis for Cultural Resources has been added to the FEIS.
Heritage/Tribe	I think there is a serious lack of scientific insight into the role of people in the environment – both for restoration purposes, and for future proposals. A cultural anthropologist is needed to better consider the personal and community impacts of these options -- and economists and sociologists should work from the basis of those findings, not just stats; and an historical ecologist is needed to better understand documented restoration options and better prepare future thinning, planting, and prescribed fire (human ignitions) strategies. I also think you should be working hand-in-glove with the Nez PerceTribe with both of these approaches, rather than simply doing periodic "informational" presentations. The public and tribe should be more involved from the beginning of this project, and certainly during implementation and future planning opportunities.	30/02	An effects analysis for the Cultural Resources has been added to the FEIS. Consultation with the Nez Perce Tribe has been ongoing since April 2012.
Lindberg Lake/WUI	Why does the project area boundary exclude the cabins on Lindberg Lake? They are in the Wildland Urban interface. Drawing the project boundary down the middle of Lindberg Lake seems like an attempt to gerrymander the cabins out so the Forest	03/102	There is no o Lindberg Lake in the project area.

	Service doesn't have to include the impacts of the cabins in the project analysis.		
Logging Systems	Additionally, the Forest should consider staggering activities within the smaller sub-watersheds through time, allowing units to begin recovery before conducting additional activities. This may be possible with thoughtful planning. As this project is a restoration activity, consideration should be given first and foremost to accomplishing tl1e goals with the least impact possible.	21/09	Staggered treatment areas will be considered to assist in improving watershed conditions where needed. Both the NEZSED and ECA models analyzed all activities as occurring at the same time, providing a worst case scenario.. Staggering activities in time and space will help reduce potential effects.
Map/Fuels	More importantly, the fuel/fire hazard situation post-project on land of all ownerships within the WUI must also be displayed on a map.	03/104	see response to comment 3/111
Map/WUI	Since the project's goals are to reduce the chances that fire will destroy private structures, and harm people, the current fuel/fire hazard situation on land of all ownerships within the WUI (at least the WUI that's relevant to this area) must be displayed on a map.	03/103	see response to comments 3/110, 3/111, 06/20 and 3/107.
Maps	Disclose maps of the area that show the following elements: 1. Past, current, and reasonably foreseeable logging units in the Project area; 2. The cumulative effects of past, current, and reasonably foreseeable logging units; 3. Past, current, and reasonably foreseeable logging units in the Project area; 4. The cumulative effects of past, current, and reasonably foreseeable grazing; 5. Past, current, and reasonably foreseeable grazing allotments in the Project area; 6. Density of human residences within 1.5 miles from the Project unit boundaries; 7. Hiding cover in the Project area according to the Forest Plan definition; 8. Old growth forest in the Project area; 9. Big game security areas; 10. Moose winter range;	03/36	A map showing past activities by decade in the Clear Creek Integrated Restoration project area has been added to Appendix A of the FEIS. Two grazing allotments cover the entire analysis and are expected to continue into the future. Additional information on cumulative grazing effects is included in the Aquatics section of the FEIS. Figure 3-7, "Clear Creek Verified and Unverified Old Growth" shows the locations of old growth forest in the Clear Creek project area.
Maps	Please provide a map showing the WUI and the locations of all homes in comparison to the project area.	03/37	Please see the response to 03/36.
Monitoring	Disclose the Nez Perce-Clearwater National Forest's record of compliance with its monitoring requirements as set forth in its Forest Plan;	03/11	This comment addresses monitoring at the Forestwide scale; however it may not be pertinent at the project level. For example, there are no Forest Plan water quality monitoring stations in Clear Creek. The most recent monitoring reports have been added to the project file.
Monitoring	Disclose the Nez Perce-Clearwater National Forest's record of compliance with the additional monitoring requirements set forth in previous DN/FONSIs and RODs on the Nez Perce-Clearwater National Forest;	03/12	No monitoring requirements from previous documents in the Clear Creek area were found. Monitoring requirements for NEPA projects outside the area are outside the scope and have no bearing on the Clear Creek project.
Monitoring	While monitoring is directed for CFLRA projects, the Forest should	13/26	We are currently assisting the CBC in development of the

	be judicious in clearly defining the problem/issue to be monitored. Monitoring should be carefully designed to address ONLY the problem/issue.		CFLRA monitoring plan and agree that monitoring needs to address current issues.
Noxious Weeds	Disclose the level of current noxious weed infestations in the Project area and the cause of those infestations; Disclose the impact of the Project on noxious weed infestations and native plant communities;	03/14	Current noxious weed inventories display a low level of infestations mostly confined to existing roads. Weeds typically disperse by seed from wind, water, animals, people, and machinery. The spread of noxious weeds would be mitigated by design criteria including chemically treating any noxious weed populations along the existing road systems before and after project implementation; monitoring and cleaning any equipment of loose debris prior to entering the Project area to prevent "new invader" weed establishment; and revegetating project –related exposed soils) i.e. landings, skid trails, road sides, etc.) using certified noxious weed free native seed mix and fertilizer (as necessary) upon project completion. All seeding would follow Region 1 guidelines.
Noxious Weeds	Is it true that noxious weeds are one of the top threats to biodiversity on our National Forests?	03/45	Yes, weeds are a threat to biodiversity on national forests in general. Since the current weed density is extremely low in the treatment area, there are no species being removed from the ecosystem and thus existing biodiversity would be maintained.
Noxious Weeds	How can the Forest Service be complying with NFMA's requirement to maintain biodiversity if it has no legal standards that address noxious weeds?	03/46	NFMA implementing regulations have been recently revised (2012) and make it clear that the intent of meeting NFMA is focused at the planning unit level through implementation of the Forest Plan. There are no project specific NFMA requirements except to be consistent with applicable Forest Plans.
Noxious Weeds	Will this Project exacerbate existing noxious weed infestations and start new infestations?	03/60	Most of the current weed infestations occur along the road systems in the project area. The spread of noxious weeds would be mitigated as outlined in the Design Criteia ~~2.2.6~~ as answered in the response to comment #3/14 ~~on page 23 above~~
Noxious Weeds	The Forest Service's own management activities are largely responsible for noxious weed infestations; in particular, logging, prescribed burns, and road construction and use create a risk of weed infestations.	03/73	see response to comment 03/60
Noxious Weeds	The removal of trees through logging can also facilitate the establishment of noxious weed infestations because of soil disturbance and the reduction of canopy closure.	03/74	Thank you for your observations. The FEIS has been updated to include a section on invasive plants in Chapter 3.
Noxious Weeds	Roads are often the first place new invader weeds are introduced. Vehicle traffic and soil disturbances from road construction and maintenance create ideal establishment conditions for weeds. Roads also provide obvious dispersal corridors. Roadsides throughout the project area are infested with noxious weeds. Once established along roadsides, invasive plants will likely spread into adjacent grasslands and forest openings.	03/75	We would agree that roads are often the primary spread vectors for weeds, however, we disagree that weeds often spread into adjacent areas, particularly in the forested and heavily vegetated areas that typify the Clear Creek project area. Weeds within Clear Creek are generally confined to roadways where they are easily inventoried and treated; or recently disturbed sites where their persistence is limited due to reforestation or revegetation by

			native plants.
Noxious Weeds	Please address the ecological, social and ascetic impact of current noxious weed infestations within the project area. Include an analysis of the impact of the actions proposed by this project on the long and short term spread of current and new noxious weed infestations. What treatment methods will be used to address growing noxious weed problems? What noxious weeds are currently and historically found within the project area?	03/78	The FEIS has been updated to provide an analysis of the impacts of the project in relation to the potential spread of noxious weeds
Noxious Weeds	Please include a map of current noxious weed infestations which includes knapweed, Saint Johnswort, cheat grass, bull thistle, Canada thistle, hawkweed, hound's-tongue, oxeye daisy and all other Category 1, Category 2 and Category 3 weeds classified as noxious in the MONTANA COUNTY NOXIOUS WEED LIST.	03/79	This project is not located in Montana. A map of the current infestations is included in the project record. Idaho's noxious weeds are plant species that have been designated " noxious" by law in the Idaho Code (title 22 chapter 24). There are 64 noxious weed species that make up the list. Canada thistle and spotted knapweed account for most of the current inventory.
Noxious Weeds	Are yellow and orange hawkweeds present within the project area?	03/80	There are 4 small populations of hawkweed (some orange, some yellow); 3 near Pine Knob drainage and 1 near the South Fork Clear Creek. All are along roads. The Weed Cooperative has been notified of their presence.
Noxious Weeds	Please address the cumulative, direct and indirect effects of the proposed project on weed introduction, spread and persistence that includes how weed infestations have been and will be influenced by the following management actions: road construction including new permanent and temporary roads, and skid trails proposed within this project; opening and decommissioning of roads represented on forest service maps; ground disturbance and traffic on forest service template roads, mining access routes, and private roads; removal of trees through commercial and pre-commercial logging and understory thinning; and prescribed burns. What open, gated, and decommissioned Forest Service roads within the project area proposed as haul routes have existent noxious weed populations and what methods will be used to assure that noxious weeds are not spread into the proposed action units?	03/81	The FEIS has been updated to provide an analysis of the impacts to the project in relation to the potential spread of noxious weeds.
Noxious Weeds	What commitment to a long-term, consistent strategy of application is being proposed for each weed infested area within the proposed action area?	03/82	The Forest is a cooperator in the Clearwater Basin Weed Management Area (CBWMA). Commitment to this partnership ensures that inventory, treatment and monitoring of identified priority areas are accomplished at a strategic level that transcends property boundaries and makes best use of manpower and resources. The CBWMA was formed in 1995 and will continue to be the forum for strategic management of invasive plants across the Clearwater Basin.

Noxious Weeds	Which units within the project area currently have no noxious weed populations within their boundaries?	03/85	A map of the current weed infestations is included in the project record. Although surveys may not have found an infestation in a particular unit, that does not mean there are no weeds in that unit. The majority of weeds are found along roads.
Noxious Weeds	What minimum standards are in the Nez Perce-Clearwater National Forest Plan to address noxious weed infestations?	03/86	The Forest Plan does not define any standards for noxious weeds; however we continue to conduct weed management under the Nez Perce Forest Noxious Weed Control Program Environmental Assessment (1988) and the (2009) Biological Opinion Endangered Species Act – Section 7 Consultation on the effects of the Nez Perce National Forest Noxious Weed Programmatic.
Noxious Weeds	The failure to include preventive standards violates NFMA because the Forest Service is not ensuring the protection of soils and native plant communities.	03/88	The design criteria common to all alternatives is found in the FEIS in Chapter 2.
Noxious Weeds	Additionally, the omission of an EIS alternative that includes preventive measures would violate NEPA because the Forest Service would fail to consider a reasonable alternative.	03/89	The FEIS considers a range of alternatives. The ROD will identify the environmentally preferred alternative. Noxious weed design criteria are the same for all alternatives.
Noxious Weeds	Local native vegetation has evolved with and is adapted to the climate, soils, and natural processes such as fire, insect and disease infestations, and windthrow. Any management or lack of management that causes these natural processes to be altered may have impacts on native vegetation, including threatened and sensitive plants.	03/90	Thank you for your observations. We agree. The design for this project considered and incorporated the natural successional processes that shape disturbance dependent ecosystems.
Noxious Weeds	…the NEZ PERCE-CLEARWATER NF continues the large-scale propagation of weeds, and fails to monitor the effectiveness of all its noxious weed treatment plans to date. There is no guarantee that the money needed for the present management direction will be supplied by Congress, no guarantee that this amount of money will effectively stem the growing tide of noxious weed invasions, no accurate analysis of the costs of the necessary post-treatment monitoring, and certainly no genuine analysis of the long-term costs beyond those incurred by site specific weed control actions.	03/126	The Forests have a very successful history of weed management through our participation as a cooperator in the Clearwater Basin Weed Management Area. Inventory and monitoring is done pre and post treatment so that effectiveness can be determined and inform future management options. Funds from the Collaborative Forest Landscape Restoration Program have allowed us to accelerate weed inventory, treatment and monitoring in this project area as well as across the greater 1.5 million acre Selway Middle-Fork project area. The CFLRP is a 10 year program and it is expected that many infestations will be in a custodial mode at the end of the program as a result of the additional funding.
Noxious Weeds	Please disclose how the productivity of the land been affected in the project area and forestwide due to noxious weed infestations, and how that situation is expected to change in the coming years and decades.	03/134	"Land productivity" in the context of your comment is rather qualitative and difficult to measure, however the Nez Perce – Clearwater Forests have been described as some of the most productive inland forests in the country. At that level, weed infestations are not having an effect on productivity nor will implementation of the project increase weed infestations to the extent that they will have an influence on land productivity. The FEIS has been updated to include an analysis of the impacts to

			the project in relation to the potential spread of noxious weeds.
Noxious Weeds	Will this Project exacerbate existing noxious weed infestations and start new infestations?	03/156	Please refer to comment as 3/60.
Noxious Weeds	The DEIS does not evaluate the impacts of the Project on the establishment, spread, and/or control of invasive plant species, referencing such issues only incidentally (pp. 2-9, 3-54, 3-76). The lower Selway River corridor is known to suffer from spotted knapweed invasion, among other species. It is important that this Project be designed and evaluated in ways which at least prevent, if not reverse, the spread of this and other invasive species. The DEIS currently affords little opportunity to evaluate the effect of the Project on these species.	21/12	The FEIS has been updated to include an analysis of noxious weeds. See response to comments 3/14 and 3/74. Spotted knapweed and Canada thistle account for the largest area of infestation in the project area, with most infestations occurring along roads. Design criteria are included in Chapter 2 to minimize the spread or introduction of noxious weeds.
Noxious Weeds/Alternatives	Please include an alternative in the DEIS that includes land management standards that will prevent new weed infestations by addressing the causes of weed infestation.	03/87	see response to comments 3/14 and 03/78.
Noxious Weeds/BMP's	How effective have BMPs been at stopping (i.e. preventing) new weed infestations from starting during logging and related road operations?	03/42	BMP's have had good success in stopping/preventing new weed infestations on the Moose Creek District. Early Detection Rapid Response (EDRR) is key component in the Forest Service and State of Idaho's effort to stop new invaders before they become established populations. In 2005 a small isolated population of Yellow star thistle was reported to the Moose Creek District on one of our logging roads The spot was treated and retreated to kill off any seed. Monitoring indicates that n plants have ever come back to that site..
Noxious Weeds/Fire	Prescribed burning activities within the analysis area would likely cumulatively contribute to increases to noxious weed distribution and populations. As a disturbance process, fire has the potential to greatly exacerbate infestations of certain noxious weed species, depending on burn severity and habitat type (Fire Effects Information System 2004). Soil disturbance, such as that resulting from low and moderate burn severities from prescribed fire and fire suppression related disturbances (dozer lines, drop spots, etc.), provide optimum conditions for noxious weed invasion.	03/76	The FEIS has been updated to include an analysis of the impacts to the project in relation to the potential spread of noxious weeds. Design criteria are included in Chapter 2 to reduce the spread of noxious weeds.
Noxious Weeds/Forest Plan	Will the Forest Service be considering binding legal standards for noxious weeds in its revision of the Nez Perce-Clearwater Forest Plan?	03/41	We cannot speculate on the final product of Forest Plan revision process that is currently underway. Until that time we are guided by the current 1987 Forest Plan.
Noxious Weeds/Forest Plan	Why isn't the Forest Service considering a Forest Plan amendment in this Project to amend the Forest Plan to include binding legal standards that address noxious weeds?	03/44	Design criteria have been included in the project design to minimize the spread of noxious weeds. No amendment is needed.
Noxious Weeds/Monitoring	What long term monitoring of weed populations is proposed?	03/83	Long term monitoring is done in cooperation with the Clearwater Basin Weed Management Area, which includes partners from the

			Forests, State of Idaho, Idaho County, Nez Perce Tribe and private landowners. Periodic inventory of susceptible habitats and spread vectors is accomplished by field crews and data electronically uploaded to the Natural Resource Manager database. Treatments are also entered into this database. Access to this information ensures that managers can monitor population trends over time as well as treatment effectiveness. No specific monitoring of weed populations is proposed under the Clear Creek project.
Noxious Weeds/Monitoring	Please disclose the results monitoring of weed treatments on the NEZ PERCE-CLEARWATER NF that have been projected to significantly reduce noxious weed populations over time, or prevent spread.	03/138	Monitoring results of treated areas are entered into the FACTS database, and reports are periodically produced from the database to determine program efficacy.
Noxious Weeds/Native Plant Restoration	What native plant restoration activities will be implemented in areas disturbed by the actions proposed in this project? Will disturbed areas including road corridors, skid trails, and burn units be planted or reseeded with native plant species?	03/84	Only Native tree species would be planted after logging operations are complete (including skid trails) and native grasses would be planted in the grassland restoration areas.
Noxious Weeds/Roads	Is it true that new roads are the number one cause of new noxious weed infestations?	03/43	The use of roads provides a vector for new weed invasions; however no new permanent roads would be constructed and all temporary roads would be obliterated after use so that they are not usable to motorized traffic. Design features would be implemented to reduce the risk of weed spread or new invasions. The greatest risk for new weed infestations is the loss of native plant habitat. By restoring and keeping native ecosystems intact we promote healthy plant communities that can better withstand invasive species.
Noxious Weeds/Yellow Star Thistle	While the proposal discusses treating weeds along the roads in the project area it does not mention other areas of weeds and concerns…. There is a large infestation of yellow star thistle in T31N R6E Sec 3 SE ¼, which is not near a road. The initial infestation was reported to the forest service about 11 years ago but it was never addressed. This is part of the area where prescribed fire treatment is planned. Fields studies have shown that fires are usually not severe enough to kill yellow star thistle seed and that fire stimulates germination of yellow star thistle seed in the soil seed bank, reduces competition in the plant community, reduces the thatch layer, and exposes mineral soil. Yellow star thistle plants that germinate following fire may grow larger and have more flower heads the following year. It has been suggested that heat from prescribed fire may stimulate germination of yellow star thistle seed in the soil. While fire can be an effective treatment of yellow star thistle it has to occur at the correct time in the life cycle and must be followed up with intensive management practices. Without these parameters yellow star thistle infestations will become worse, and the infestation could spread to other tracts scheduled for burning since the newly burned areas will be more susceptible to infestation. Given the mentioned lack of concern or	11/01	The district has no record of this initial infestation report. Current inventories do not show any large infestations in that Section. Idaho County Weed crews are currently treating the road systems in that area and have been made aware of this old report.

	treatment of the initial infestation in the area I am inclined to believe little or no follow up treatment will occur after the area is burned, let alone any "aggressive" treatment.		
Old Growth	Disclose the current level of old growth forest in each third order drainage in the Project area;	03/19	The Forest Plan requires that old growth levels be described by Old Growth Analysis Areas (OGAA), not third order drainages. The DEIS, pg. 3-66 provides the amount of verified old growth in each OGAA.
Old Growth	Disclose the method used to quantify old growth forest acreages and its rate of error based upon field review of its predictions;	03/20	The method used to determine old growth is the Common Stand Exam protocol developed by the USFS Region 1 forest inventory staff. The rates of error can be found in the old growth reports located in the project file.
Old Growth	Disclose the historic levels of mature and old growth forest in the Project area;	03/21	Historic levels of mature and old growth can be estimated by each vegetation response unit (VRU) within the project area which characterizes the natural disturbance pattern. VRU 3 20 - 50%; VRU 8 10-40%; VRU 7 35-65%; VRU 10 35-65%; VRU 17 25-55%; VRU 1 5-10%.
Old Growth	Disclose the level of mature and old growth forest necessary to sustain viable populations of dependent wildlife species in the area;	03/22	The amount of old growth necessary to sustain species viability is dependent on the individual species. Currently we are meeting Forest Plan standards for Old Growth. The project's design using VRU's incorporates a range of age classes, species compositions and patch sizes that would been present if natural disturbance (fire) were allowed to occur. Chapter 3 wildlife section of the FEIS further documents the projects effects to individual species and habitats.
Old Growth	Disclose the amount of mature and old growth forest that will remain after implementation;	03/23	Mature will be reduced by 2%, there will not be any changes to verified old growth.
Old Growth	Disclose the amount of current habitat for old growth and mature forest dependent species in the Project area; Disclose the amount of habitat for old growth and mature forest dependent species that will remain after Project implementation;	03/24	See the response to 03/22 and 03/23
Old Growth	Disclose the method used to model old growth and mature forest dependent wildlife habitat acreages and its rate of error based upon field review of its predictions;	03/25	See response to comment 03/20. The criteria used to determine wildlife species habitat was shown in the DEIS, pg. 3-84. This information is based on the habitat needs for each species and the Forest Service vegetation database.
Old Growth	Please disclose how stands to be treated compare to Forest Plan or Regional old-growth criteria. In order to disclose such information, please provide all the details, in plain language, of these areas' forest characteristics (the various tree components' species, age and diameter of the various tree components, canopy closure, snag density by size class, amounts of down logs,	03/124	Stands that met the definition of old growth according to Old Growth Habitats of the Northern Region (Green et al) were removed from consideration for regeneration treatment in order to be consistent with the CFLR program emphasis on retention of old growth. A site specific Forest plan amendment to utilize the Green et al definitions has been proposed to be consistent with USFS Region 1 direction. These definitions include the habitat

	understory composition, etc.).		and structural characteristics in your question. We incorporate these definitions by reference in response to your comment.
Old Growth	I did a rough calculation using the "age class" table on page 14 of the "NFMA Assesment" document, and it looks like to me that in 30 years 45% will be in the +150 year category VS. 30% now. Way at the upper end of HRV or desired. It looks to me like 75% of the project area will be in the "mature" class (+100) in 30 years.	05/09	Your rough calculations appear to be correct
Old Growth	Why is this amendment limited to the Clear Creek Integrated Restoration Project? If the proposal is appropriate for Clear Creek it should be appropriate for the remainder of the Forest. As the document which provides guidance for ongoing site specific projects, the Forest Plan should not be amended at the project level for every site specific conflict that comes up. This is also true for the proposed soil quality amendment.	06/03	Separate NEPA would be required for a forestwide amendment. It is expected that the Green et al definitions will be incorporated into the Revised Forest Plan. For this reason, the Forest Supervisor has decided not to do a forestwide amendment for either old growth or soils at this time
Old Growth	There appears to be an erroneous conclusion regarding the Green et al. 1992 paper which was never intended to describe definitions of old growth types. The numbers were intended to be minimum screening criteria for possible old growth stands from the timber stand data base. According to the Green et al. 1992 the final determination of old growth status was to be made by a qualified ecologist or wildlife biologist. Strict reliance on data base queries from the timber stand database has been shown to give unreliable results in past court cases (Iron Honey Timber Sale, Idaho Panhandle National Forest – 9th U.S. Circuit Court of Appeals in San Francisco, 2004) and is no substitute for field investigation by qualified professionals.	06/04	All stands that are being proposed for treatment have been field checked by a certified Silviculturist and wildlife biologist. During field verification many stands were removed from consideration for treatment due to the fact that field verification revealed that they currently meet the definition of old growth. During project development additional stands were field verified as old growth.
Old Growth	Your old growth analysis is somewhat difficult to understand. You have a long discussion on unverified old growth, but it is unclear how these stands fit into your old growth retention strategy. The difference between unverified old growth and verified old growth is unclear and there is no discussion on the methods that were used to determine the stands in each category.	06/29	The unverified old growth appears to meet old growth definitions based on legacy data but was never verified on the ground.
Old Growth	You also indicate that old growth blocks are supposed to be over 50 acres in size according to the Forest Plan, but yet 42% of the stands you have selected are less than 50 acres in size. You suggest that PACFISH buffers connect these areas, but make no mention of the condition of these buffers and do not consider that narrow connecting buffer strips may place some species at risk. The Forest plan suggests large old growth patch sizes of over 300 acres to avoid edge effects and vulnerability of species that may be attracted to these areas.	06/30	Figure 3-1 is a map showing vegetation successional stages within riparian habitat conservation areas (RHCAs) in the Clear Creek Integrated Restoration project area. When combined with Figure 3-7, which is a map showing verified and unverified old growth in the project area, you can see where the two overlap. PACFISH buffers would be managed for old growth over the long-term which means in time there would be a minimum of 10,700 acres of old growth, all of which would be connected over time. Also the 9,200 acre Clear Creek Roadless Area will provide a large security minimize edge effect for wildlife species over the long term.
Old Growth	You state that you have used the Green et al. (1992) guidelines	06/31	See the response to 06/04.

	(Inappropriately cited as Green et al. 2008) for identifying old growth. However, you fail to mention that the Green et al. 1992 numbers are just screening criteria to identify possible old growth stands. It is suggested in Green et al. 1992 that stands be field verified by a qualified ecologist or biologist to confirm old growth status. Has this been done?		
Old Growth	You suggest that up to two miles of temporary road will be built in old growth stands under alternatives B and C, and one mile on Alternative D. However, you dismiss these impacts and suggest "the effects would be indistinguishable when compared to natural diversity and openings in old-growth habitats". Excuse me! A straight line road corridor, even if it has been perfectly re-contoured is still going to look like a rehabbed road prism rather than a natural opening in an old growth stand.	06/32	This comment portrays the temporary road construction as a single road through a single stand. The EIS clearly states that the average length is 0.1 miles in 17 road segments in Alternative B & C, and 13 segments in D with an average opening size 0.4 acres. This is similar to natural gap development that occurs as stands in stem exclusion stage progress towards the old growth stage.
Old Growth	While the timber interests will make great profits, the old growth trees should be more protected and the forest should be sustainable…Consider preservation of this resource for generations to come	07/01	Old growth has been identified and will not be harvested during implementation of this project.
Old Growth	Discuss old growth by geographic area (not timber compartment/sub-compartment). Based upon the stand exam data collected in the analysis area, the term 'unverified old growth' is unclear as to why/what this refers. What is important to disclose is the plan actions will treat some old growth to reduce the threat of uncharacteristic fire removing these stands.	13/23	See response to comments 03/19, 06/24, and 6/29. You are correct; treatments within old growth are designed to reduce fire effects which would help to retain old growth on the landscape.
Old Growth	all old growth should be untouched	14/01	No old growth will be harvested with this project.
Old Growth	is there, in fact, zero old growth left?	14/04	Currently there are 4,654 acres of verified old growth within the project area as noted in the DEIS on pg. 3-66.
Old Growth	The Forest Service must not allow logging of any old-growth forest here.	20/02	No old growth will be harvested with this project.
Old Growth	I am concerned with the impacts to old growth, as well as fragmentation of forested areas.	22/03	See response to comment 06/32. Impacts to old growth are associated with by temporary road construction. This project was designed to reduce fragmentation by creating larger patches that better represent natural patterns (FEIS, Ch. 1).
Old Growth	There need to be alternatives that do not involve logging in old growth habitat. Logging to improve old growth habitat creates its own problems-removing trees impacts flora and fauna.	22/06	No old growth will be harvested with this project. Improvement harvest on 330 acres is designed to retain the large trees and reduce the risk that they would be lost in a wildfire (DEIS, pg. 2-7).
Old Growth	Do not cut any old growth trees as it would be in violation of the Forest Plan and would harm public lands and degrade wildlife	24/01	See response to comments 07/01 and 22/06. It would not be a violation of the Forest Plan as the Forest currently meets its

	habitat.		requirements for old growth (DEIS, pg 3-65
Old Growth	Harvest of "old growth" timber remnant in the area should be discouraged, as that remnant should serve as a model for the vegetative succession we would like to see.	26/03	See response to comment 22/06
Old Growth	Finally, while we understand that the proposal amends the old growth definition consistent with best available science, the FEIS should describe how the project "fully maintains the structure and composition of old growth stands (according to the pre-fire suppression character appropriate to the forest type)."	27/07	This is discussed in the Vegetation section of the FEIS. Also see response to comment 22/06.
Old Growth	Green et al. was not designed to replace either a forest plan definition or field work. It was designed as a screening protocol to aid in the identification of old growth stands. Why amend the forest plan here and not everywhere on the forest? This creates a serious policy problem.	28/22	See response to comments 21/15 and 06/03. The Forest Supervisor has decided not to do a forestwide amendment at this time.
Old Growth	The actual amount of old growth is a serious question. Have field surveys by qualified ecologists been done to identify the old growth stands? If not, did ecologists or foresters conduct the stand exams? How can old growth function when only 16% meet the preferred size criterion? Are all PACFISH buffers indeed intact and creating connectivity?	28/23	See response to comments 06/04 and 06/30. Old growth exists where it does based on topography, moisture and past fire regimes.
Old Growth	why will some old growth forests be logged? It seems that alternatives should have been adopted that don't log in old growth .	31/02	See response to comments 13/23 and 22/06.
Old Growth	We should not be logging old growth forest.	32/01	See response to comments 13/23 and 22/06.
Old Growth/Age Classes	I saw a table in the EIS that listed how what percent of the project area was in the >21" DBH category. I got a feeling that after 30 years 80% of the area will be in that category. With your rainfall, I got a feeling that the "60's clearcuts" will be in that category in 30 years.	05/06	The project area in general is trending towards older bigger trees. This assumption is correct.
Old Growth/Design Criteria	Design Criteria #4 states "old growth will be treated with improvement harvest." Instead, we suggest that this element be restated "old growth could be considered for improvement harvest. It should be made clear that improvement harvest would not remove large trees and that existing old growth stands would continue to meet old growth criteria after harvest.	27/22	Your clarification is correct, old growth trees will not be harvested, however ladder fuels in the understory will be removed to reduce the risk of loss of large trees during a wildfire.
Old Growth/Design Criteria	Specific contract provisions (C2.3 and C6.32) should be disclosed, or a link provided with details on how snag retention will be implemented.	27/23	The design criteria in Chapter 2 describes in detail how trees will be selected for retention.
Old Growth/Roads	How is the creation of roads in old growth protection? This would actually negatively affect the stands by creating more edge effect,	28/25	See response to comment 03/62.Ample snags are expected to be retained in untreated areas including PACFISH buffers and

	which is known to harm species such as cavity nesters.		the Clear Creek Roadless Area.
Philosophy	Disclose when and how the Nez Perce-Clearwater National Forest made the decision to suppress natural wildfire in the Project area and replace natural fire with logging and prescribed burning; Disclose the cumulative impacts on the Forest-wide level of the Nez Perce-Clearwater National Forest's policy decision to replace natural fire with logging and prescribed burning;	03/31	It is not clear what "decision" the commenter is referring to. However, the purpose and need and proposed action are consistent with programmatic direction in the Nez Perce Forest Plan. The Nez Perce Forest Plan includes goals, objectives and standards related to fuel reduction which are outlined in the FEIS. The project is designed to move the area toward those goals and the project is consistent with applicable standards. The Forest Plan is clear that the standards are intended to supplement, not replace, the National and Regional Policies, standards and guidelines found in Forest Service manuals and handbooks (USDA 1987, p. II-14). The project is consistent with national and regional priorities for treating wildland urban interface areas and addressing firefighter and public safety. The description of alternatives in Chapter 2 of the FEIS discloses that 1,371 acres of prescribed burning are included in all action alternatives. The proposed treatments do not emphasize fuel conditions over ecological processes. Rather, the alternatives address the purpose and need for action. The alternatives are designed to balance competing interests. The existing condition for forest health, fuel conditions and economics is included in Chapter 3 of the FEIS. Forest health is discussed in the analysis and there will be some benefit by improving forest resiliency. The FEIS discusses insect and disease activity in the project area. The spatial boundary for the cumulative effects analysis is defined by resource in Chapter 3. In accordance with NEPA direction, the effects analysis is limited to potential direct, indirect and cumulative impacts from the proposed action and alternatives.
Philosophy/Fire	Specifically analyze the decision to prioritize mechanical, human-designed, somewhat arbitrary treatments as a replacement for naturally-occurring fire.	03/39	See the response to 03/31.
Philosophy/Forest Plan	Disclose and address the concerns expressed by the ID Team in the draft Five-Year Review of the Forest Plan regarding the failure to monitor population trends of MIS, the inadequacy of the Forest Plan old growth standard, and the failure to compile data to establish a reliable inventory of sensitive species on the Forest;	03/28	Monitoring data that has been collected for the project area has been added to the project file to address this concern.
Public Involvement/CBC	Conclusion: I'm impressed with the whole "collaborative" nature of this project. I'm impressed that the Idaho Conservation League is on board with it. I read the "collaborative website," and I'm impressed with the wide range of participants.	05/19	Thank you for your observations. We feel that up front involvement with a broad range of partners will ultimately lead to improved management of our Forests.

Public Involvement/CBC	In general, our comments and concerns will be contained in the joint comments submitted on behalf of the Clearwater Basin Collaborative that will be submitted Monday, June 3. We do have some questions with regards to water quality, temporary roads, wildlife, old growth/large tree retention, and soils and are confident that these issues will be further discussed and disclosed in the FEIS. In general, we feel that our concerns are appropriately disclosed in the CBC comments.	19/01	Your comments were received and will be addressed through that comment letter.
Public Involvement/Collaboration	This project, and its collaborative development, represents the beginnings of a fundamental shift in the way the Forest Service is approaching timber management activities. The use of timber harvest as a tool for landscape level ecological restoration, as opposed to ecological restoration as a justification for timber harvest, may seem like a small change in semantics, but it has broad implications for management changes on the ground. For example, this project proposes both variable retention harvest methods and the landscape patch concept as a basis for treatment design. Both of these strategies put ecological need at the forefront, while using harvest and prescribed fire to meet those needs.	17/01	We appreciate you observations and concur. The ID team spent a great deal of time examining the ecological need across the landscape while at the same time assessing the tools at our disposal to create the desired conditions. We are fortunate to have a viable and competitive timber at our disposal, making harvest a viable tool that can also benefit the rural economies in the basin. We are also fortunate that the value of our timber can generate funds to be put back into other restoration projects across the Forests, a point that is extremely significant as budgets continue to decline.
Rare Plants	Disclose the results of the field surveys for threatened, endangered, sensitive, and rare plants in each of the proposed units;	03/13	The FEIS has been updated to include an analysis of the impacts to the project in relation to threatened, endangered, sensitive and rare plants
Rare Plants	Spring and early summer burns could negatively impact emerging vegetation and destroy annual plant seed.	03/91	Please see response to comment #03/13
Rare Plants	What threatened, endangered, rare and sensitive plant species and habitat are located within the proposed project area?	03/92	Please see response to comment #03/13
Rare Plants	What standards will be used to protect threatened, rare, sensitive and culturally important plant species and their habitats from the management actions proposed in this project?	03/93	Please see response to comment #03/13
Rare Plants	Describe the potential direct and indirect effect of the proposed management actions on rare plants and their habitat.	03/94	Please see response to comment #03/13
Rare Plants	Have sensitive plant species been surveyed in the area? Will they be surveyed before implementation of this project? Given the massive scale, how will sensitive species be protected?	28/42	Please see response to comment #03/13
Rare Plants/Fire	Will prescribed burning occur in the spring and early summer; please give justifications for this decision using current scientific studies as reference.	03/95	Landscape burning would generally occur during drier weather patterns in the mid to late summer or early fall. We attempt to ignite these fires at times that mimic natural processes. Burning of slash piles in harvest units may, however occur during the spring, early summer or late fall periods in order to prepare sites for reforestation.

Rare Plants/Tribe	The DEIS fails to evaluate the impacts of the Project on plant species proposed for or currently listed under the Endangered Species Act or those classified as Sensitive Species by Region 1 of the Forest Service. In addition, the DEIS fails to evaluate the impacts of the Project on plant and fungi species considered culturally important to the Tribe, including huckleberries, various Lomatium spp., and edible mushrooms. It is important that this Project be designed and evaluated in ways which are sensitive to species such as these. The DEIS currently affords little opportunity to evaluate impacts to these resources.	21/11	Please see response to comment #03/13. Burning is expected to improve conditions for morel mushrooms and logging appears to improve huckleberry growth for a couple of decades after harvest or until the overstory closes in and shades out the plants. Lomatium is found in rock outcrops and open habitats. Timber harvest and prescribed fire activities are likely to improve habitat for this species.
Recreation/Design Criteria	The Clear Creek Trail #723 will be impacted by this project. A commercial thinning unit is within the trail corridor. We are concerned about the effects the commercial thinning will have on the Clear Creek Trail. The following design features helps to protect this trail and other trails in the project area. 1. As a part of the planning process, consider designing trail corridors to protect the integrity of the trails (i.e. do not harvest timber in the trail corridor). 2. Relocate the trails around the logging activity on either a temporary or permanent basis. 3. Provide recreationists on the trails with an alternate route around the sale during the logging activity. 4. Require in the sale contract that trails be re-established upon completion of the logging.	16/02	The design criteria in Chapter have been updated to address this concern.
Recreation/Design Criteria	There are other design features that can be successfully used to allow some recreation use while the logging operation is going on. These features include not allowing weekend and holiday logging, only working on one section of the project area at a time, and removing fallen timber from the trail tread before weekend use starts….The district staff should also not allow timber skidding down the trail corridor. Skidding can widen the trail and encourage ATV use on a single-track trail. Most important is the protection of the switchback on the trail. These facilities are difficult to construct and can be several damaged by skidding activities.	16/03	The design criteria in Chapter have been updated to address this concern.
Recreation/Design Criteria	The draft EIS noted on page 3-32, that the South Fork of Clear Creek Trail #130 and the Trapper Creek Trail #728 would be temporarily affected during the implementation of the prescribed fire. Prescribed fires and wildfires can negatively impact trails. The increase water flow after the fire can wash out the trail tread. Fire-killed trees can fall into the trail corridor, blocking access….The Nez Perce-Clearwater National Forest needs to clear the trail corridor of hazard trees after the prescribed burns. The forest should also clean out all water control devices such as water bars and drain dips to accommodate the increased water flow. These two design features will help protect these trails from the impacts of the prescribed burn.	16/06	Trails and trail structures that are impacted during prescribed burning operations will be returned to their original operating condition.

Road Decommissioning	Decommissioning of 13.2 miles in this project is addition to the previous decommissioning of 85 miles and is of grave concern. Have future fire and timber access along with local use been fully considered? It appears that the proposed action (pg 1-7) speaks to 2-5 miles of decommissioning yet the alternative are at 13.2 miles.	04/04	The ID team reviewed all roads in the project area for future needs. Timber, Fire, Silviculture, Recreation, Fisheries, Wildlife, and Hydrology were all involved and made recommendations for each road. Those not needed for future management were recommended for decommissioning. The 2-5 miles was the original proposed action that was scoped prior to the completion of the full roads analysis. The roads analysis found 13.2 miles of road not needed in the future.
Roadless	The one exception--the small remnant roadless area--is not being proposed for any form of road construction or commercial activity, which makes sense to me.	01/03	No response required
Roadless	Some fire ignitions are planned in this small part of the planning unit. That seems likely a really fine idea to me, and does NOT violate the Idaho Roadless Area rule.	01/10	No response required.
Roadless	Disclose how Project complies with the Roadless Rule;	03/32	The Clear Creek Integrated Restoration project lies entirely within the state of Idaho. All management activities proposed for the project are consistent with the requirements of the 2008 Idaho Roadless Rule. The FEIS discusses the Idaho Roadless Rule in detail in various sections throughout Chapters 2 and 3.
Roadless	Please utilize the NEPA process to clarify any roadless boundary issues. It is not adequate to merely accept previous, often arbitrary roadless inventories—unroaded areas adjacent to inventoried areas were often left out. Additionally, there is a lot of public support for adding unroaded areas as small as 1,000 acres in size to the roadless inventory.	03/128	The 2008 Idaho Roadless Rule confirmed the geographic boundaries and clarified management direction for roadless areas within the state of Idaho.
Roadless	The Clear Creek Roadless Area is a relatively small roadless tract, which is bordered by private holdings. In my mind this makes it a very valuable, both to wildlife of all species and to humans seeking quiet solitude and nature. This is a rare area that is close to home and accessible year round. In our neighborhood it has the first wildflowers and abounds in wildlife and bird sightings.	11/04	All management activities proposed for the project are consistent with the requirements of the 2008 Idaho Roadless Rule.
Roadless	The DEIS states that no logging would occur in the roadless area. However, the maps are not so clear. Furthermore, the DEIS does not analyze whether any land contiguous to the roadless area is indeed roadless. Since many logging units border the roadless area, this is a major failure of the DEIS to consider whether any contiguous areas might be affected. Case law in Kettle Range Conservation Group v.USFS makes it clear the on-the-ground situation is what determines roadless nature of an area, not past analyses or documents or faulty inventories.	28/44	The roadless analysis and maps have been updated in the FEIS to address this concern.
Roadless/Wilderness	this entire site should get wilderness designation for protecting species.	14/06	The U.S. Forest Service does not have the authority to designate Wilderness.

Roads	Alternatives B and C propose a LOT of "temporary" road building, and also have a more severe impact on sediment production that Alternative D--and without vastly more in the way of commercial outputs either.	01/07	Alternatives B and C propose 36 miles of temporary road, compared to Alternative D that proposes 18 miles (DEIS, page 3-39). The FEIS document watershed and soils sections were updated to further describe effects from temporary roads. The economic impact of using less roads in alternative D is an 18 to 28% reduction in volume outputs and acres treated and a $1.5 million to $2.4 million reduction in revenue generated, in part due to higher logging costs.
Roads	This timber sale once again reflects Brazell's obsession with road construction in spite of the fact there is no manmade action in the forest that causes more long-term ecological damage. Since Brazell started to mismanage the Nez Perce/Clearwater National forests in 2009 his timber sales will construct and reconstruct 544.2 miles of road.	02/04	No new permanent roads would be constructed under this project. Only temporary roads would be built and then obliterated within 1-2 years of construction. In addition 13.2 miles of system roads would be decommissioned. This is in addition to the 85 miles already being decommissioned. Road reconstruction and culvert replacement is designed to reduce road-related impacts to streams. Doing no road improvement runs counter to the Forest Plan and PACFISH direction.
Roads	Disclose the current, during-project, and post-project road densities in the Project area;	03/09	Overall road densities and road densities within the RHCAs are presented in the DEIS and the FEIS for pre- and post- activities. Temporary roads and non-system roads are not included in the road density calculations.
Roads	Will this Project address all Project area BMP needs, i.e. will the BMP road maintenance backlog and needs from this Project all be met by this Project?	03/47	Proposed road improvements would allow for the majority of road backlog to be maintained. Most of roads are currently in stable shape (Aquatics section, FEIS). As outlined in the DEIS Appendix B, all roads used for timber harvest will be brought up to standards to meet BMP objectives
Roads	Any desire to keep a road in the project area WUI must be in harmony with the alleged priority goals (again, to reduce the chances that fire will destroy private structures and harm people), not driven by timber production goals. The analysis must show how all roads will in fact be in harmony with the priority goals.	03/115	A transportation analysis has been completed for the project area. It designated which roads were needed based on input from all resource specialists, including consideration for watershed enhancement, fire protection and vegetation management.
Roads	In section 3.1.6.2.1 it is documented that non-system roads were not included in the road density calculations, but in numerous locations of the DEIS road density is used to document watershed condition (NOAA 1998) and impacts to wildlife. For example, in the following Section 3.1.6.2.2 it is suggested that the RHCA road density for the entire Clear Creek watershed would move from 2.2 mi/mi2 (poor condition) to 2.0 mi/mi2 (moderate condition). What would road density be if non-system roads were included?	06/18	Most of the non-system roads are old skid trails or jammer roads that have been re-vegetated and do not have stream crossings. There is no motorized use on these roads. All non-system roads in the South and West Forks of Clear Creek are currently being decommissioned as a result of previous NEPA. The proposed Clear Ridge Non-system Road Decommissioning Project (to be scoped in the Spring of 2014) would address the remaining non-system roads in the rest of the drainage. After completion of the project, road densities will be as shown in the DEIS and FEIS.
Roads	In section 3.2.6.2 it is suggested that timber sales could be active for 13 years (8 years of harvest and 5 years of post-sale activity). I wonder if "temporary" roads will be open this long? The DEIS only states that they will be closed after use (Section 2.2.6.2) and	06/21	Design Criteria #10 describes how temporary roads would be decommissioned. Temporary roads will be built, used, and decommissioned in a 1-2 year time period. Temporary roads are planned to be closed and re-contoured immediately after their

	does not specify if that will occur immediately after logging or if the roads will remain open through post-sale activities. Temporary roads should be closed and re-contoured immediately after logging and not be allowed to remain open during the winter and spring to reduce erosion risk. Please clarify what will happen to temporary roads in the FEIS.		use for logging. They are not intended to be kept open for post-harvest/reforestation activities.
Roads	It is unclear if non-system roads have been included in the table 3-34 as previous discussion (DEIS page 3-14) suggests they have been excluded.	06/70	The road densities in Table 3-34 do not include non-system roads. The 10 miles of decommissioning noted in the tables footnote associated with the SF/WF Road Decommissioning Project are system roads.
Roads	The DEIS includes no summarization of past decisions and if there are additional opportunities for road closure and obliteration in the project area. If current watershed conditions could be improved such actions should be considered.	06/71	The existing condition includes all past road obliteration activities. The DEIS and FEIS describe the proposed project activities as well as the foreseeable Clear Ridge Decommissioning project. A full interdisciplinary roads analysis was completed and no further roads are proposed for decommissioning. Road closures/access were not addressed.
Roads	Our staff was pleased to see that none of the roads proposed for decommissioning are designated for motorized use either on a year round or seasonal basis. The project will not have a long term impact on designated motorized routes.	16/05	Most of the roads proposed for decommissioning have been impassable to motorized vehicles, due to brush, for a long time.
Roads	There should have been alternatives that do not involve building new roads.	22/07	See response to 12/03.
Roads	Some CBC members felt strongly that the lack of site-specific watershed impacts resulting from temporary road construction negated the need to further consider Alternative D, the reduced temporary roads alternative. There is widespread appreciation that none of the temporary roads cross water and are generally located on ridge tops, away from Riparian Habitat Conservation Areas. There was also discussion about how the lack of temporary roads could in fact increase impacts as a result of an increased number of excavated skid trails. Also, limiting the use of temporary road would reduce treatment acres resulting in a reduction of the vegetation objectives that would be met. CBC recommends the FEIS strengthen discussion and analysis of expected, or lack of expected, detrimental effects from temporary roads, road reconstruction, decommissioning and other road-related management activities. CBC members recognize that to access the suitable timber acres on the forest requires the existence of a well maintained system road network and strategic use of well-located temporary roads in order to provide access for treatment, while avoiding or minimizing detrimental watershed effects. A clear explanation of how this will be accomplished is critically important so that the project can be implemented to achieve the purpose and need, and to build understanding and support for appropriate road management activities.	27/08	Ridge top / no water crossing temporary road locations have been an important consideration to minimize watershed impacts. Monitoring has also been conducted to verify these impacts. The FEIS document watershed and soils sections were updated to further describe effects from temporary roads. The Aquatics section has been updated with additional discussions on road improvement effects. Implementation of Alternative D would have some additional soil impacts over not using a temporary road due to long skidding distances and trail excavation, which has been analyzed and still meets resource objective. As mentioned in the comment, a big impact is the loss of treatment areas, which equates to reduced objective accomplishments along with reduced income to the community and reduced revenue to complete other rehabilitation objectives.

Roads	Roads are a big concern. How does the DEIS meet the direction to establish a minimum road system? How can roads be considered temporary when they will be on the landscape for up to 13 years?	28/12	A transportation analysis was conducted on the project following guidelines to determine a minimum road system. This resulted in about 100 miles of roads to be proposed for decommissioning, including the SF/WF Clear Creek Roads EA. Temporary roads would be used for harvest and then decommissioned either the year they are being used or the year after. If held over for the winter, they will be waterbarred to reduce erosion and prevent access by motorized vehicles. ~~The~~
Roads	We should not be building new roads in this watershed.	32/02	New road construction is being limited to temporary roads that have a limited (1-2 years) life span and then are recontoured. Approximately 9.0 miles would be located on existing disturbed soils (old skid trails or jammer roads). In addition, the temporary roads are located in areas that have been determined to not have a watershed impact. The effects of temporary roads are discussed in the FEIS.
Roads	The DEIS includes information on the "prescription watershed" area, road density, road name and proposed activity in Table 3-38 that lists estimated reduction in road density from activities and Appendix B "Clear Creek Road Work." All of the watersheds include road densities above the recommended <I mi/mi2 to achieve a "good" watershed condition. The proposed decommissioning would result in a 16% reduction of roads from riparian habitat conservation areas and reduce densities in RHCAs to 1.0 mi/mi2. We support this effort and commend the Forest for the robust ongoing efforts (including past projects) to reduce road density, particularly in RHCAs. However, it is unclear how the proposed activities support the overall goal to reduce road density in the watershed and whether or not there are opportunities to minimize proposed road construction activities (e.g., similar to Alternative D) while still meeting the project purpose. The effects analysis related to roads is included in the Watershed Section, Section 3.8. The effects and cumulative effects are combined for all action alternatives. Therefore, it is unclear how impacts from Alternative D (reduced road construction) differ from the other alternatives. To better illustrate this topic, we recommend including a map of the prescription watershed, harvest treatments, and proposed road activities for each alternative. We also recommend that the EIS include a discussion of how minimizing road construction would reduce potential impacts to the watershed.	33/02	The FEIS document was updated to address this concern. Please see the Watershed section direct effects analysis. Temporary roads are not considered in road density calculations since they are built and decommissioned within 1-2 years.
Roads/Decommissioning	Are there opportunities to put one or more system roads into storage (watershed stable/closed to motorized access) not needed for timber harvest re-entry in the next 2+ decades?	13/28	No roads were proposed for storage during the interdisciplinary roads analysis. Most are currently stable and many are needed for the Clear Project. It is possible that storage could be proposed after the project is complete but would require separate NEPA.

Roads/Decommissioning	One of the action items common to all alternatives is 13.2 miles of system roads will be decommissioned. Frequently with these projects on the Nez Perce-Clearwater National Forest, the amount of roads proposed for decommissioning is common to all action alternatives. The Nez Perce-Clearwater National Forest needs to start provide a range of road decommissioning across the range of alternatives. For example, one alternative could do the vegetation treatment without decommissioning roads.	16/04	It is the goal of the Forest to decommission all roads not needed for future management (recreation, timber, silviculture, fire, administration are all considered). Road maintenance costs are increasing and budgets for maintenance are being reduced. Through decommissioning we can focus our budget focused on those roads most used by the public and the agency. An alternative that doesn't decommission any roads was not considered in detail, because it would not meet the project purpose and need and it would not follow National direction to develop a minimum transportation system.
Roads/Decommissioning	there is broad support for the proposed decommissioning of unnecessary roads that are included as part of this project, and those that were recently approved as part of the South and West Forks Clear Creek Road Decommissioning Decision Notice.	27/10	Thank you. Road decommissioning has been an integral part of watershed restoration and in meeting National direction for developing a minimum roads transportation plan.
Roads/Decommissioning	Design Criteria #10 suggests that existing temporary road templates would be treated differently than newly constructed temporary roads. The CBC suggests that all temporary roads, whether existing or newly constructed, should be scarified, decompacted and decommissioned.	27/21	The differences between decommissioning the existing prism temporary roads and the newly constructed ones is related to how stable the soils is and how established the vegetation is. Some of these old roads are on ridge tops and are stable with revegetated fill slopes and cutbanks. To completely recontour them would promote unnecessary soil exposure and potential watershed impacts. The objectives on the old roads will be to make sure they are hydrologically stable and that they will grow trees, which means some could be recontoured while others will just be decompacted..
Roads/Noxious Weeds	The actual of the local National Forests in genuinely putting an end to temporary roads is not great, and weed invasion on such sites has also been a real and continuing problem	01/08	The Forest recently has an excellent record of obliterating temporary roads so that they are not available for motorized travel. While weeds may invade, they typically survive only until the young trees shade them out. The addition of large wood and duff from the areas surrounding the roads has improved the re-establishment of native plants better than just grass seeding the area.
Sensitive Plants	There is no mention in the DEIS of possible effects on several sensitive plant species. Have any surveys been conducted for these species and what were the results of that work? How will sensitive plants be impacted by the proposal?	06/74	Please see response to comment #03/13. Information has been added to the FEIS.
Silvicultre/Design Criteria	Are there no Design Criteria specific to vegetation management (timber harvest; grass/shrub restoration)?	13/27	There are no specific design criteria other than meeting forest plan standards and guidelines, meeting the requirements under the National Forest Management Act, and compliance with USFS Manual and Handbook direction. The design criteria in Chapter 2 of the DEIS and FEIS do describe what vegetation is to be retained. Grassland restoration is described in the DEIS, pg. 3-39.
Silviculture	Regeneration has rarely been a problem here, so I think that you can safely argue that region is suited for all of the new actions	01/02	The Nez Perce Forest Plan 2012 Monitoring report states that there is currently an 80% success rate in certification of stands

	being proposed.		being fully stocked within the 5 years required following regeneration harvest. The additional 20% is due to delays in site preparation activities due to a lack of burn windows.
Silviculture	Lodgepole pine is particularly subject to blowdown, once thinned. And any forest condition that is maintained through mechanical manipulation is not maintaining ecosystem function. The proposed management activities would not be integrated well with the processes that naturally shaped the ecosystem and resulted in a range of natural structural conditions.	03/116	No thinning of lodgepole pine is proposed as part of this project. The forest has been preventing the processes that naturally shaped ecosystems by suppressing fire in the project area. This project is designed to reintroduce the natural processes that would have occurred if fires were not suppressed.
Silviculture	The justification for regeneration harvesting of immature stands under Alternative C (Section 2.2.4) and any other proposed alternative is very weak. The Forest Service does not need to regenerate these stands until they reach culmination of mean annual increment given the large number of stands proposed for treatment that have already reached culmination.	06/05	The regeneration of younger stands, comprised of Douglas-fir and grand fir, within the focus areas was based on the need to: increase patch size and reduce fragmentation; increase the amount of early successional stands and wildlife foraging habitats; improve forest structure; and increase the distribution of early seral species. Additionally, minor incidences of root disease have been observed in the stands proposed for commercial thinning.
Silviculture	The figures all suggest that the upland areas are at or near "Desired Conditions", and significantly refute the Forest Service's claim that immediate action is needed in these types. A more moderate proposal (particularly in mesic uplands) could still meet the project purpose and need and better protect other resource values.	06/25	The current condition of the uplands in the young age class is skewed based on the broad range of ages represented within that age class. There is also a significant shift during the temporal scale of the analysis from the young age class to the mid-seral age class. This shift to mid-seral is predominantly being targeted for treatment to increase the amount of true early seral species within the project area (shrubs, forbs, coniferous seedlings, etc). Please refer to the FEIS for further discussion.
Silviculture	There is a major flaw in thinking presented in the vegetative composition discussion that is leading to erroneous conclusions regarding the need for action within the project area. This error in thinking is most applicable to VRU 10 and VRU 17 where western red cedar habitat types dominate. The DEIS analysis lumps a relatively short lived species (grand fir) with one of the longest lived species in the project area (western red cedar). Western red cedar has very little problem with disease and stands composed of this species have relatively long life spans (several hundreds of years). In upland settings like are found in VRU 10 and 17, western red cedar stands can persist for long periods of time (hundreds of years). Such stands are self-thinning and are not at risk to encroachment from grand fir and Douglas fir. Fire risk in mature cedar stands is generally very low. In Northern Idaho, western red cedar is commonly associated with old growth characteristics.	06/26	We agree with your assessment that western red cedar is long lived species and resistant to endemic root diseases. VRU 10 and VRU 17 are dominated by western red cedar habitat types, however based on field verification is has been determined that they are dominated by the grand fir cover type. Stands that are dominated by the western red cedar cover type mostly occur within riparian areas and protected coves. Stands that meet this description have not been included in the project for treatment.
Silviculture	On moist sites like those found in VRU 10 and 17 species competition in the primary factor influencing stand composition and understory fire plays a relatively minor role. While other species	06/27	We agree, thank you for your observations and input.

	(including grand fir) may be present for long time periods following stand replacement fire, they generally have difficulty competing with long lived and disease resistant cedar.		
Silviculture	Please reconsider your vegetation analysis in the FEIS particularly as it relates to lumping of western red cedar and grand fir in VRU 10 and 17. I believe you have overestimated the importance of understory fire in this setting due to lumping of these two species.	06/28	See response to comment 06/26. Although some stands included in the proposal are indeed on cedar habitat types, the majority are dominated by grand fir cover types. The majority of the stands proposed for treatment are on the drier end of the grand fir habitat types. Based on field verification these stands are currently showings signs of decline and susceptibility to insect and disease change vectors.
Silviculture	this DEIS does not address how the proposed timber sale will damage the countless non-vegetative natural resources in and downstream from the sale area. You are well aware that most available scientific literature authored by respected scientists explains how logging and road construction will considerably harm these important resources.	10/01	The Forest Service has established a policy for using ecological restoration to manage National Forest System lands in a sustainable manner (Forest Service Manual 2020). Ecological restoration focuses on establishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions. Consistent with this policy, the purposes of the Clear Creek Integrated Restoration project are to manage forest vegetation to restore natural disturbance patterns; improve long-term resistance and resilience at the landscape level; reduce fuels; improve watershed conditions; increase elk forage; improve early seral wildlife habitat; and maintain habitat structure, function, and diversity (FEIS, Purpose and Need for Action). Timber harvest is one of the tools that will be used to achieve the vegetation objectives. The EIS and supporting documentation in the Project File demonstrate that the project will improve tree health and vigor, reduce the likelihood that treated areas will support high severity fire, improve water quality, stream function, and aquatic habitat over the long-term, will not affect the viability of sensitive plant species, will improve forage conditions for elk, and will not adversely affect wildlife species or habitat (EIS, Chapter 3, Environmental Consequences).
Silviculture	ban all logging.	14/02	Management activities proposed in the project area are consistent with current law, policy, and Nez Perce Forest Plan direction. Forest Plan direction is discussed in detail in the FEIS.
Silviculture	Another question deals with the entry standards. The forest plan was originally envisioned as a ten year plan. Doesn't decade mean the life of the plan until revised? There is serious question as to whether the entry requirements are being	28/13	We have no comment on the life span of the current forest plan, however forest plan revision efforts are currently underway.
Silviculture	The DEIS is not clear on whether the project will meet requirements that trees be logged only after meeting culmination of mean annual increment (CMAI). Given the acreage that meets CMAI in the project area, how does the project comply with NFMA	28/39	See response to comment 06/05. Forest Service Handbook 2409 allows the Forest Service variance in these situations.

	by proposing to log areas that don't meet CMAI?		
Silviculture	Have the brush fields been inventoried recently? The number of emerging conifers within my brush fields is notable and increasing annually. Of course stronger numbers are recorded nearer the existing seed source.	29/02	Formal inventories have not been complete in the shrub fields; however the majority of the brush fields were assessed by Idaho State Fish and Game wildlife biologist who was part of the interdisciplinary team. The conifer species regenerating in the understory are dominated by shade tolerant grand fir and Douglas-fir that would have been removed during the high frequency low intensity that would have been common in the area. It is felt that reapplication of low intensity fire will restore historic fire regimes and conditions.
Silviculture/Age Classes	I think the biggest missing ecosystem component of forests in the Northern Region isn't old growth, it's early seral. What is the existing percentage of early seral on the Nez Perce now? 5-10%? What is the "desired" range? Is the Nez Perce meeting their goals for early seral? Isn't the USFS required by law to manage for "species diversity?" Therefore isn't the USFS "breaking the law" by not "actively managing" for early seral species? Rolling the dice waiting for a wildfire is NOT active management, especially in areas slated for fire suppression	05/10	We appreciate your observations and input, we have no estimate of early seral across the forest, however, within this project there is a deficit of early successional habitats and the species that depend on them.
Silviculture/Age Classes	throughout the Region, and I'm sure on the Nez Perce also, that the USFS is way below it's management goals for "desired" early seral. I'm guessing your forest plan calls for so much percent of old growth "per 6th order watershed" (or some such criteria); does the same apply for "early seral?"	05/11	Desired early seral habitat is defined by ecological process and vegetative dynamics on any given landscape. The forest plan supports this but does not specify specific amounts.
Silviculture/Age Classes	Three points to "hammer home to the public." 1-the vast majority of the logging is on clearcuts from the 60's. In 30 years the average DBH of those stands will be (?). 2-we are presently NOT meeting early seral habitat goals on forest and project area. 3- in 30 years, we will be at the "upper range" of old growth (45%), and there will be more mature forest than ever likely existed historically.	05/18	Thank you.
Silviculture/Alternatives	The IDT is to be commended for recognizing that the Proposed Action (Alt. B) warranted reconsideration based on silvicultural needs, leading to the development and consideration of Alternative C. Some CBC members prefer to call this alternative the "maximum silvicultural flexibility" alternative rather than "maximum species conversion." Some feel that selection of this alternative would provide flexibility to treat root disease infected younger stands without adequate composition of seral species inside and out of focus areas with a regeneration harvest prescription rather than deferral. Deferral would result in continuance of stands outside of desired condition while Alternative C would provide increased flexibility to apply commercial thin or regeneration prescriptions where appropriate. Some CBC members prefer	27/11	Thank you for your comments and suggestions

	providing this flexibility for silvicultural implementation to help achieve desired conditions.		
Silviculture/CFLRA	In general, we feel that the DEIS adequately disclosed how the project meets the intent and is consistent with the CFLRA regarding incorporation of best available science, avoiding the establishment of any new permanent roads, and ensures a commitment to decommission any temporary roads constructed. CBC members are also aware that the Selway-Middle Fork CFLRP proposal indicates that vegetation treatments will emulate natural disturbance patterns, address fragmentation results from historical harvest, and create early seral habitat through regeneration harvests with patch sizes appropriate for the forest type. At the same time, some CBC members feel that the FEIS should provide further discussion and elaboration on how the project is consistent with guidance to focus on small diameter trees, thinning, fuel breaks and fire use, when a significant component of the project targets larger-diameter mature trees (101-149 years) for regeneration harvest. CBC members recognize that much of the guidance language in the CFLRA was written with dry forest types in mind where small diameter thinning would be expected to be a dominant silvicultural prescription. Some further elaboration on silvicultural prescriptions appropriate for this forest type should be included in the FEIS.	27/05	Thank you for your comments and suggestions.
Silviculture/CFLRA	Similarly, the act further requires that retention of large diameter trees (appropriate to the forest type) is maximized. Some CBC members are concerned that while the project may "consider" retention of large diameter trees, that it may not adequately disclose how the project "maximizes" retention of large diameter trees. At the same time, CBC members have expressed strong support for retention of large/old long lived serals or "legacy trees" within all harvest areas regardless of silivicultural prescription. Finally, some CBC members feel that this should not be interpreted as supporting the maximum retention of large diameter grand and Douglas-fir trees that could hamstring the ability of the project to meet long-term silvicultural objectives.	27/06	Thank you for your suggestions, the FEIS has been updated to include a brief discussion on how the project is consistent with CFLRA language that requires projects "maximiz[e] the retention of large trees, as appropriate for the forest type, ***to the extent that the trees promote fire resilient stands***." (***emphasis added***)
Silviculture/CFLRA	As part of the project's design, it is critical that the FEIS provide appropriate rationale for how the project complies with tree retention requirements. Guidance suggests that the project "maximiz[e] the retention of large trees, as appropriate for the forest type." While the CBC concurs that the project will increase structural diversity across the project area, reduce road density, increase patch size and promote restoration of long-lived seral species, some members feel that the FEIS should provide additional discussion on this key issue.	27/14	See response to comment 27/06.
Silviculture/CFLRA	Some also feel that while the project "considers" large tree retention, that it may fall short of "maximizing" retention of large trees. We support the use of scientifically-appropriate old growth	27/15	See response to comment 27/06

	definitions (Green et al, 1992 as amended), yet some are concerned that the regeneration prescription, in areas with mature trees, may deserve closer scrutiny to ensure that current direction is appropriately applied, and that the effects to large trees are fully disclosed and discussed, and that appropriate alternatives are developed and considered to respond to this issue.		
Silviculture/Clearcutting	This timber sale once again reflects Brazell's obsession with clearcutting public land in spite of the fact there is no action in the forest more disliked by the public. Although the information at the following link is about California the public c feels the same throughout the nation: http://stopclearcuttingcalifornia.org/	02/03	Much of the public supports the project, and timber harvest, as noted in the comments they provided. The website provided is specific to concerns with the way the California Department of Forestry conducts clearcut logging on state lands. Federal land management is generally more restrictive than that found on state lands.
Silviculture/Comm Thin	The plan also has a large amount of commercial thinning. However, the Forest Service claims this area will be left alone for a few decades after this project. While such a promise cannot be made, it doesn't even seem genuine given the prescriptions for commercial thinning. It looks more like a ten year logging plan.	28/40	We would agree that future management of this landscape is beyond the scope of this document. Our intention is maximize opportunities in this entry and create conditions that are more resistant and resilient then they currently are while providing a commercial product. Timing of entry into stands that have been commercially thinned is generally on the order of 30 to 50 years. These stands will all have prescriptions written by a silviculturalist that will track the timing of what the next entry would be. It is also our intention to leave tracks for future managers as to what we are trying to accomplish with this landscape level project. We feel the unique relationship with all of our partners and the emphasis of the CFLR program will ensure our intentions are carried into the future
Silviculture/Comm Thinning	I think it's pretty cool that you can "commercial thin" 50 year old clearcuts, which I'm going to guess are 10-12" DBH. I read this in the press release in the Missoulian, and since I'm a land Surveyor by trade, so I confirmed it by comparing the map of "thinning units" to past regen harvests. I would constantly "hammer this home" to the public. Who could be opposed to thinning past clearcuts?	05/04	Yes, it is pretty cool that we have such a productive and resilient land base.
Silviculture/Comm Thinning	I would suggest including an "average DBH in 30 years" table, that would show the public what the size of these trees will be after the "thinning release." How about a photograph of a recently cut "butt slab" that clearly shows the increased size of growth rings from a thinning 30 years ago.	05/05	We have installed permanent photo plots within the project area to monitor the change and growth on the vegetation prior to and following vegetative treatments.
Silviculture/Comm Thinning	For aesthetic reasons, the public does have an affinity for "large diameter trees," so for future "restoration" EIS's, I would suggest you "hammer home" the benefits and results of the "thinning release."	05/07	Thank you for your comments and suggestions.
Silviculture/Cumulative Effects	This part of the forest has already been extensively managed for timber harvest as a commercial use of the public lands. This past management has obviously been imperfect, since some past sins	01/01	Thank you for your observations, management in the past was imperfect, however, as evident by the on the ground condition these stands have recovered. The biggest issue with past

	are now being proposed for repair and undoing.		management was the fragmentation of the landscape which this project seeks to restore natural disturbance patterns in scale and severity.
Silviculture/Desired Conditions	We are aware that some outside interests may raise concerns over the application of Vegetative Response Units (VRUs) desired conditions, thresholds and benchmarks for vegetative age, size and species. As a result, the FEIS should discuss how the project is consistent with best available science, and how benchmarks, thresholds and desired conditions were identified. The FEIS should also describe how the current trajectory of stand development will fail to achieve the desired conditions, with a focus on the predominant VRUs identified for commercial thin or regeneration treatments. Further, recognizing that the issue of regeneration harvests in areas of mature forest have the potential to raise concern, the FEIS should clearly spell out how the project will improve the function of forest stand dynamics over time (i.e. variability in stand structures, early seral restoration, old growth development and retention, protection of biological legacies/structure, etc.).	27/12	Thank you for your comments and suggestions.
Silviculture/Documentation	I'm a big fan of using a "projection table" that would tell the public what the forest would look like in 30 years. You used a 5 year projection on the table on page 3-64, why not a 30 year? It was an effective visual when you projected out 5 years to show that a large amount of the present forest would be "leaving" the mid-seral range into the mature category.	05/08	Thanks for the suggestion, however, due to time constraints and sequestration this is not currently feasible.
Silviculture/Documentation	Use more photographs! I love the photo of the "variable retention" harvest on page 13 of the NFMA Assessment. Of course, I realize that the only people who read these EIS's are nerds like me! LOL. But I know what a variable retention looks like, a lot of people don't. I think more use of "after" photos would be helpful for the public to "visualize" what it will look like upon project completion.	05/17	Thanks for your comments. We have inserted pictures in the FEIS to depict a regeneration harvest unit. We have installed photo points to accomplish this very thing.
Silviculture/Focus Areas	The DEIS is unclear on page 3-71, where it states that “[a]ll activities would occur within Focus areas.” On the preceding page, upwards of 3,144 acres or commercial thin are included outside the Focus Areas (see table 3-20). Table 3-20 also indicates upwards of 3,940 acres of “[r]etention.” The FEIS should clarify whether these retention acres are PACFISH buffers, designated patches or clumps within harvest units. For the purpose of designating tree retention in regeneration units, the 14-28 trees per acre should be interior to the harvest units and PACFISH buffers should not be counted as the retention areas (Franklin and Johnson, 2011 and Perry et al, 2011). The FEIS should clarify how retention areas will be designated over time, as it is unclear whether these areas will have a special designation in TSMRS or other Forest Service databases.	27/24	Thank you for your suggestions, the updated FEIS will clarify tree retention within the focus areas.

Silviculture/I&D	What beneficial ecological roles do beetles play? Can the forest survive without beetles?	03/54	In the absence of fire beetles and root disease become the primary change agents within forested landscapes. We cannot speculate whether or not the forest can survive without beetles, but it is a very interesting question. We expect the beetles would always be present at some level on the forest.
Silviculture/I&D	What beneficial ecological roles do beetles play? Can the forest survive without beetles?	03/150	See the response to 03/54. Beetles kill trees, trees fall over and create homes for ants, bears eat ants (Wuerthner 2009).
Silviculture/Imp Cuts	There needs to be a better description of the old forest improvement cuts described on page 2-7, item 4. How much volume will be removed and what will happen to the understory after removal of the grand fir. Will prescribed burning or other slash treatments occur? Will any of the large diameter trees be removed including large diameter grand fir and what will happen to dead snags? How will logger safety be accomplished while still maintaining dead trees? What will happen to large diameter downed logs? What are the habitat types of the stands where these treatments will occur? What is the VRU of the stands proposed for treatment?	06/33	See the vegetation section in the FEIS for a full description of the improvement cuts. The goal of the improvement cut is to remove small diameter trees in the understory while maintaining the larger diameter dominant trees in the understory. These units will produce on average 7 MBF per acre. Retention of leave will occur in leave areas and groups of green tree retention. Individual snags considered a threat may be felled for safety but will be left on site. In general the largest diameter snags are the most stable and have the highest potential to remain on site. Post-harvest evaluation will determine additional treatment needs. Also see the FEIS for maps of VRU's and Habitat Types.
Silviculture/Imp Harvest	Where would cutting occur in old growth? The DEIS approves improvement cuts but later claims there would be no impact on old growth. What peer-reviewed science do you have that suggests improvement cutting works or is needed that contradicts the agency's own research that shows thinning affects species like pileated woodpeckers (see Bull et al. 1995, PNW, GTR, 353)? What trees will be logged? Will any large grand fir be logged? What about dead snags? How will old growth characteristics be maintained given requirements for removal of dangerous trees like snags for safety reasons? Why was no forest plan amendment approved to log in old growth when the Forest Service, in the past, considered it was necessary to comply with the forest plan and MA 20? We also provided information in our scoping comments about the erroneous assumptions concerning ponderosa pine types in this area and that large fires are not unnatural, as the DEIS seems to suggest. Indeed,these cuts in old growth are justified on an irrational fear of fire.	28/24	Tree removal would occur in the understory of large old ponderosa pine and in some cases Douglas-fir. Correct. Improvement cutting is being proposed on 331 acres of a 48,000 acre project area. There may be slight detrimental effects to pileated woodpeckers on those 331 acres positive on other species like the flammulated owl and pygmy nuthatch. See above for answers about snags. We are not treating any ground in MA 20. We agree that large fires are natural and the project attempts to create conditions that improves the chances of survival of the large trees in the event of a large stand replacing fire.
Silviculture/Patch Size	The 'shift in average patch size' (Table 3-25) is 'over-thinking' (misleading) in the change in patch metrics.	13/03	No response necessary
Silviculture/Patch Size	As discussed in the vegetation section 3.6, changes in patch sizes should be addressed by VRU and focus only on stand-replacing practices.	13/04	Thank you for your comment, we feel at this time analyzing the patch size at the project scale is sufficient to show the effects of the proposed actions. Changes in patch size are focused on regeneration activities as these are the only activities that affect patch size.

Silviculture/Patch Size	It would be worthwhile to disclose if vegetation management practices were altered (for example deferring to commercial thinning in lieu of stand-replacing timber harvest) to retain one or more patches within the desired range.	13/07	See the response to 13/04.
Silviculture/Patch Size	Although the Forest's modeling indicates that over the entire project area there should be little impact, the Tribe is concerned with large-sized regeneration harvest patches concentrated in very small watershed sub basins. The Tribe is concerned with the largest patches and their potential to change the magnitude of overland and stream flows, causing "blow outs" in these small sub basins and producing sediment that may migrate downstream and interfere with the operation of the Kooskia Hatchery. There is also concern that the timing of stream flows may be altered, affecting stream temperatures or flow levels which may impact fish.	21/07	Anywhere from 14 to 28 trees per acre would be left within all harvest units. On average, that would be a tree every 50 to 100 feet. They would occur as clumps and as individual trees. In addition, patches will be bisected by 150 to 300 PACFISH buffers and other no treatment areas within the larger patch. The FEIS document watershed section discussing water yield was updated to address this concern. Water yields remain well below the threshold where flow alterations may be seen and channel changes could occur. Additional information on temperatures and the potential effects on the hatcher are included in the Aquatics section of the FEIS.
Silviculture/Patch Sizes	The discussion on patch size (page 3-74 and 3-75) is very misleading. The implication given to the reader is that patch sizes for all successional stages are larger after implementation of Alternatives B, C and D. In reality, “average” patch size only increases because several small patches of older forest are harvested from the existing landscape. There is no real change in size of the largest patches and the only real change is that stand initiation patches are now bigger and there is less old forest because the small patches have been removed. Please drop this misleading discussion from the FEIS and explain what is happening in a more upfront manner.	06/34	Thank you for your comment, however we feel that the discussion is presented adequately and disagree that it is misleading.
Silviculture/Philosophy	Why is logging that removes all/almost all trees considered regeneration (and not loss of existing forest), when a stand-replacing fire is considered loss of the forest (and not regeneration)?	03/56	This is not necessarily true. Stand replacing fires can also lead to regeneration. A major difference with regeneration cuttings is that the timing, extent, and location are chosen by the agency to meet multiple objectives and provision is made for the species and stocking levels demanded by the Forest Plan. Stand replacing fires consume the resource without public benefit and may cause other detrimental effects that can impact adjacent ecosystems and private land owners. The Silviculture section of the EIS discusses regeneration harvest.
Silviculture/Philosophy	Why is logging that removes all/almost all trees considered regeneration (and not loss of existing forest), when a stand-replacing fire is considered loss of the forest (and not regeneration)?	03/152	See response to comment 03/56
Silviculture/Species Comp	In our scoping comments we provided significant information about the interface between fire and vegetation in this area. The Forest Service seems to consistently deny that cedar and grand fir types are predominant through much of this area. The conversion away	28/37	Yes, species conversion is legal under NFMA. We are not denying that cedar and grand fir cover types exist in the project area. See response to comment to 06/26 and 06/28. The stands we visited on our field trip last fall are examples of the stands we

	from cedar to other species is misguided. Cedar is a very resilient species, supposedly the criterion for this project. Is such a massive type conversion legal under NFMA?		will be treating.
Silviculture/Tree Retention	The DEIS (Pg. 3-71) indicates that overall residua] tree retention will range between 14 and 28 trees per acre. If these large harvest areas are necessary, the Tribe recommends retention of the greatest number (28 (or more) trees per acre) of the largest and most biologically diverse trees available. Leave trees should not be chosen merely by desired species, but rather, by those trees best suited to the soils, elevation, topography, and aspect of the area. All leave tree designs and physical marking of the trees should be completed by qualified Forest personnel. Leave trees should be arranged within units to minimize the potential effects of increased snow accumulation, snow melt, and loss of root strength. Harvest should be avoided on any landslide susceptible areas. Riparian areas need to be laid out according to PACFISH guidelines and harvest activities such as yarding corridors across streams should be avoided OR there should be a requirement for full lift so that riparian vegetation is left unharmed by harvest activities.	21/08	Site specific silvicultural prescriptions will be prepared and include specifications for green tree retention that incorporates areas of 100% retention and RHCAs. All design criteria for soils and water described in Chapter 2 of the FEIS will be incorporated into these site specific silvicultural prescriptions. No yarding corridors across streams are proposed.
Silviculture/VRU's	The DEIS suggests that all upland areas are currently meeting of very near the "Desired Conditions" for the amount of young forest, but the Forest Service still thinks more is needed. In VRU 7 it is stated on page 3-55 that the "young forest stage is in excess of the desired condition by 150 acres". The Forest Service response is to basically double the amount of harvest over the desired amount of 250-500 acres (Table 3-24 – Page 3-74). Various action alternatives harvest an addition 253 to 427 acres over the existing amount of 590 acres (Table 3-24 – 2017 values).	06/22	The current condition of the uplands in the young age class is skewed based on the broad range of ages represented within that age class. There is also a significant shift during the temporal scale of the analysis from the young age class to the mid-seral age class. This shift to mid-seral is predominantly being targeted for treatment to increase the amount of true early seral species within the project area (shrubs, forbs, coniferous seedlings, etc). Please refer to the FEIS for further discussion.
Silviculture/VRU's	In VRU 10 the Forest Service states that there "is the need for a slight increase in the young forest". The current condition is reported at "9%" and the desired condition is reported at "10-20%" in Table 3-13 (Page 3-56). For some reason, the Forest Service does not report the amount of young forest that will be harvested in VRU 10. These figures should be displayed in the FEIS.	06/23	See the response to 06/22.
Silviculture/VRU's	In VRU 17 the Forest Service states on page 3-57 that "No departures from desired conditions occur". Under the action alternatives harvest of an additional 1233 to 2349 acres is proposed over the existing situation of 2744 acres (Table 3-24 – 2017 values). Are such extensive actions really needed in an area where there are "no departures from desired conditions"?	06/24	See the response to 06/22.
Silviculture/VRU's	For many of the VRUS, existing conditions are within the range of desired conditions, with some exceptions. For instance, both young and old forest in VRU 3 and 7 are well outside their range,	27/13	See the response to 06/22.

	for VRU 8: mid-seral is outside the desired range. However for VRU 10 and 17 existing conditions are within the desired range for all size classes. It is important to note that VRUs 10 and 17 make up 59% of the project area. Similarly, of the proposed regeneration treatments, 59% occur in VRUs 10 and 17. At the same time, the CBC does recognize that while age classes may be within desired ranges, current species, patch sizes, composition and/or structure may be outside of natural ranges due to past management, fire suppression and fragmentation. It would be helpful in the FEIS to display acres of commercial thinning and regeneration logging by VRU in tabular format.		
Silviculture/Whitebark Pine	What surveys have been conducted to determine presence and abundance of whitebark pine re-generation? If whitebark pine seedlings and saplings are present, what measures will be taken to protect them? Please include an alternative that excludes burning in the presence of whitebark pine regeneration (consider 'Daylighting' seedlings and saplings as an alternative restoration method). Will restoration efforts include planting whitebark pine? Will planted seedling be of rust-resistant stock? Is rust resistant stock available? Would enough seedlings be planted to replace whitebark pine lost to fire activities? Have white pine blister rust surveys been accomplished? What is the severity of white pine blister rust in proposed action areas?	03/101	Whitebark pine is not present in the project area. Restoration of whitebark pine is not part of the purpose and need of this project.
Snags	14-28 standing trees/ac: What is the source/rationale for 14-28 standing trees/ac Per 2009 Snag Analysis for Northern Idaho (I believe this represents the document), during early-seral conditions on low/mid-elevation moist forests, an average of 5.5 snags/ac (>15" dbh) and 2.6 snags/ac (>20"dbh) are appropriate. I would assume that live culls (both existing snags and future recruitment for snags and large, down wood) would be included in this density and that legacy trees would be either included. It is both difficult and unrealistic to expect that designating dead trees to remain standing on-site will meet these densities.	13/24	The Nez Perce-Clearwater Target Stand guide (2012) was developed by an interdisciplinary team and incorporates fire, wildlife, timber, silviculture, and soil recommendations and can be found in the project file. The retention of 14-28 tpa is for future recruitment of downed woody material needed for soils, as well as for providing snags for wildlife. The target stand development also incorporated information from the 2009 Snag Analysis for Northern Idaho.
Soils	Brazell proposes to amend the Nez Perce National Forest plan soil standard because the Clear Creek timber sale will violate the current soil standard that has done the job since 1987. He proposes to weaken the standard to allow more detrimental soil disturbance resulting from logging.	02/05	See response to #21/14
Soils	Disclose the amount of detrimental soil disturbance that currently exists in each proposed unit from previous logging and grazing activities; Disclose the expected amount of detrimental soil disturbance in each unit after ground disturbance and prior to any proposed mitigation/remediation; Disclose the expected amount of detrimental soil disturbance in each unit after proposed mitigation/remediation;	03/15	There was very little ground disturbance associated with livestock grazing noted in the field surveys. It accounted for less 1% of the detrimental disturbance for those units where livestock grazing was noted. Unit specific detrimental disturbance information is located in the project file. The excel spreadsheet consists of 42 printed pages and will not be presented in the FEIS due to its length; however the DEIS and the FEIS both contain a summary of the requested

			information, including mitigation measures (see Soils section). The expected amount of detrimental soil disturbance, without the implementation of design measures would increase by 4 to 21% for any given unit. The existing soil detrimental disturbance ranges from 0 to 22%. For those units currently over the 15%, they would initially exceed 15% after timber harvest implementation. However, after restoration activities, these units would show an improving trend towards meeting the standard.
Soils	Disclose the analytical data that supports proposed soil mitigation/remediation measures;	03/16	See pages 3-46, 47of the DEIS and reference documents: *Rebecca A Lloyd, Kathleen A Lohse, and TPA Ferré 2013. Influence of road reclamation techniques on forest ecosystem recovery. Frontiers in Ecology and the Environment **11**: 75–81.* *Curran, M.P., R.L. Heninger, D.G, Maynard, and R.F. Powers. 2005a. Harvesting effects on soils, tree growth, and long-term productivity. In: C.A. Harrington and S.H. Schoenholtz eds. Productivity of western forests: A forest products focus. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. General Technical Report PNW-GTR-642.* *Curran, M.P., R.E. Miller, S.W. Howes , D.G. Maynard, T.A. Terry, R.L. Heninger, T. Niemann, K. van Rees, R.F. Powers, S.H. Schoenholtz. 2005b. Progress towards more uniform assessment and reporting of soil disturbance for operations, research, and sustainability protocols. Forest Ecology and Management 220 (2005):17–30.*
Soils	Prescribed fires and mechanical treatments may adversely affect soil productivity. NFMA requires the FS to “not allow significant or permanent impairment of the productivity of the land.” [36 C.F.R. § 219.27(a)(1).] NFMA requires the Forest Service to “ensure that timber will be harvested from National Forest System lands only where—soil, slope, or other watershed conditions will not be irreversibly damaged.” [16 U.S.C. 1604 (g)(3)(E).]	03/133	All units would meet NFMA guidance and regional soil guidelines, as well as Forest Plan standards, as amended (DEIS and FEIS, Soils Section).

Soils	Please provide estimates of current detrimental disturbance in all previously established activity areas in the watersheds affected by the proposal.	03/135	See response to 03/15
Soils	Please disclose measures of, or provide scientifically sound estimates of, detrimental soil disturbance or soil productivity losses (erosion, compaction, displacement, noxious weed spread) attributable to off-road vehicle use.	03/137	Off-road vehicle use was noted within the units, mostly in association with firewood cutting. Disturbance from off-road vehicle use accounted for less than 1% detrimental soil disturbance within units that this activity was noted (see DEIS, pg 3-44).
Soils	Please disclose how the proposed “treatments” would be consistent with Graham, et al., 1994 recommendations for fine and coarse woody debris, a necessary consideration for sustaining long-term soil productivity.	03/139	The DEIS and FEIS describes consistency with Graham et al. Design criteria #12 also addresses this issue. All units would have 7-33 tons/acre of coarse woody material retained.
Soils	Please drop all timber harvest from units not currently meeting regional soil standards and schedule the necessary improvements to bring these areas up to regional standards. The Forest Service should be working to meet existing standards, instead of modifying the standards to accommodate increased levels of management activity.	06/02	See response to #21/14 above.
Soils	The analysis of the Clear Creek proposal has not utilized the best available science. Watershed, fish, and wildlife analyses have used old, tired science. Much more recent, accurate models with credible analytical procedures and data are available. The use of NEZSED is very limited.	08/07	We are required by the Forest Plan to use NEZSED and FISHED to compare alternatives for impacts to watersheds and streams in relation to Forest Plan sediment yield guidelines. Recent monitoring and newer literature was used to discuss the potential effects of the proposed activities on those resources and can be found in the FEIS. Further discussion on NEZSED is also provided in the FEIS Watershed section.
Soils	Logging impacts soils and fauna and flora.	22/04	No response required
Soils	I would hate to see this area become deserving of interpretive signs along the roadway like those on US 12 at Lolo Pass, noting the desertification of the areas logged by Plum Creek Timber,	26/04	Design criteria have been created to reduce the likelihood of impacts to soils (FEIS, Ch.2). These include direction for tree retention, coarse woody material retention, logging system

	where the thin soils have vanished without the forest to hold them in place.		design, soil improvement, and landslide prone exclusion and buffering. There is no evidence of desertification of previously forested stands in the project area. All harvested areas are growing dense stands of trees.
Soils	Soil considerations (notably detrimental disturbance, compaction, etc.) have been one of the long-standing concerns resulting from timber management, road construction, fire and other management activities. In general, the CBC does support the amendment to the Forest Plan to adopt the Regional Soil Quality Standard that provides consideration for management activities in areas that exceed 15%, so long as restoration measures are incorporated that "provide for a net improvement in soil quality." Based on the importance of soils, as one of the fundamental building blocks for ecosystem health and function concerns, we encourage you to fully disclose the anticipated detrimental soil disturbance resulting from the project, by harvest unit.	27/17	See response to soils comment 03/15. Unit specific detrimental disturbance information is located in the project file and is 42 pages in length. Design criteria (FEIS, Ch.2) provide direction for soil restoration measures. An appendix was added to the FEIS to display design criteria requirements for each unit
Soils	How does the soil amendment comply with regional soil standards? It seems to be contradictory to the regional direction and NFMA. What evidence do you have that soils can be recovered? Why was there no alternative that excluded logging in places where soil standards are exceeded?	28/18	See response to comment #21/14 and 03/16. There was no need for an additional alternative – if the final decision does not include the soil amendment, a total of three units would be excluded from treatment.
Soils	The need to allow activities to occur in areas with over 20 percent detrimental soils disturbance is precisely the reason the standard exists, to prevent that from occurring. This is akin to beating up a mugging victim while in the ambulance on the way to the hospital. It makes no sense. Rather, if any amendment would be offered, it would defer logging in the units that exceed 15 percent detrimental soil disturbance and only do real restoration work in those areas. Several other projects have had a similar amendment. There seems to be a pattern that repeats itself. Furthermore, the DEIS notes that mechanical site preparation would be used instead of burning. How does that affect the amount of detrimentally affected soils in the units?	28/19	See response to comment #21/14. Mechanical piling or mastication would occur primarily on tractor ground areas (less than 35% slope). Mechanical treatment allows for better leave tree survival and downed wood retention, but could increase soil detrimental disturbance. Equipment would be used on existing skid trails to the extent possible (FEIS, Design Criteria).
Soils/Alternatives	How does logging in landslide prone areas meet NFMA requirements and regional soils standards? Why are there no alternatives that don't log in those areas?	28/20	No harvest activities would occur in landslide prone areas. Design criteria #4 was established so that no harvest or road activities would occur on landslide prone soils.
Soils/Amendment	The proposal to make a site specific amendment to modify regional and forest plan soil standards is self-serving and does not meet the intent of regional and forest plan guidelines. The proposal merely allows more timber harvest from previously logged areas that currently do not meet not meet the regional guidelines. There is no good reason why these areas could not be restored to regional standards prior to additional timber harvest.	06/01	See response to comment #21/14. The soil amendment does not modify Regional standards. Regional soil guidance allows for activities to occur in units that are not currently meeting standards in order to achieve multiple resource objectives while also providing a net improvement in soil quality. By utilizing existing skid trails and landings, there

			would be little to no increase in detrimental soil disturbance.
Soils/Amendment	I object to the proposed site-specific amendment to soil quality standard #2 for the Clear Creek project area. This is just another effort to reduce quality standards and accountability in order to allow additional development and degradation.	08/05	See response to comment #21/14
Soils/Amendment	The agency has presented another variation of the specious upward trend proposition. The change in the standard allows for more degradation with the promise that the "check is the mail" for future net improvement and significant recovery. The problem is that the "check" seldom arrives. It is time for the Nez Perce Forest to meet their Forest Plan standards without equivocation.	08/06	See response to comment #21/14. Soil improvement activities would occur concurrently with the harvest activities. We have had very good successes in achieving soils improvements with our current harvest activities.
Timber Harvest	I am very concerned about the big increase in the annual timber harvest in the Nez-Perce Clearwater National Forest.(62-85 million board feet of timber)	31/01	Management activities proposed for the Clear Creek Integrated Restoration project are consistent with Nez Perce Forest Plan direction. If an action alternative is selected by the decisionmaker, the Economics Environmental Consequences section of the FEIS indicates that the timber volume is scheduled to be sold through 5 different sales over a 5-year period.. Typical sale duration would be 4 years each; the last sale would be completed in 2023, for a total of about 8 years of harvest activities. Post-harvest reforestation and site preparation work could continue for up to 5 years following harvest on the last sale, creating a potential end date of 2028, for a total of 13 years of harvest plus post-harvest activities.
Tribe	The Project is located on the Moose Creek District and entirely within the Tribe's ceded territory as well as within the area determined by the Indian Claims Commission to be the exclusive use and occupancy area of the Tribe.	21/01	No response required
Tribe	DFRM and Watershed staff would like to be kept apprised of this project through time. Project status updates should continue to be presented through the NEP A Quarterly Meeting process. Any project implementation information (i.e. harvest/haul dates, prescribed burn info) should be sent to Kent Hill at the Kooskia Hatchery (kenth@nezperce.org). Any incidents that may affect the Kooskia hatchery should be reported to the Tribe immediately.	21/10	Thank you. We will keep the Tribe informed as project activities are being implemented and will notify the Hatchery of any incidences that may affect it.
Tribe	The DEIS does not include an economic analysis of the impact of the project on the Nez Perce Tribal economy and the health and welfare of its people. The socioeconomic analysis should include economic factors unique to the Tribe and its treaty rights and resources. This analysis should include the Tribe's efforts to restore fish runs to the area, and the economic benefits that will flow to the non-Tribal public from the re-establishment of healthy and harvestable fish runs in the area.	21/21	Coordination with the Nez Perce Tribe has been a crucial part of this project to insure that Tribal treaty rights are not being impaired. Please see response to Comment #21/04 regarding effects to tribal treaty rights. We acknowledge that both economic and social benefits are provided to both the tribal members and the non-tribal public by the Kooskia Hatchery. Avoidance of impacts to the Tribal Hatchery on Clear Creek has been a top priority of the project and has resulted in many of the design criteria displayed in the FEIS Chapter 2.

Tribe/Environmental Justice	The DEIS contains no environmental justice discussion of disproportionate impacts of the project on the Tribe or its members. Any impacts on salmon, steelhead, or other trust resources, will have a disproportionate impact on the Tribe due to their reliance on fish and the importance of fish to Tribal culture, spirituality and economy. Tribal members consume a substantially higher rate of fish than the non-Tribal communities.	21/20	The DEIS on page 3-3-16 discusses Executive Order 12898; Environmental Justice.. The Environmental Justice discussion in the FEIS has beenupdated to address this concern.
Tribe/Heritage	The FS spent considerable time conducting archaeological surveys of the project area, through 2 external contractors and FS staff archaeologists. The FS has not provided the Tribe with copies of the survey reports, nor did they consult with the Tribe prior to the survey projects being conducted, so the Tribe cannot evaluate the effectiveness of the survey coverage or methodology. However, the archaeologists only found 2 pre-contact lithic scatters and two historic trails, one of which is the Southern Nez Perce Trail. The agency did not identify traditional cultural properties, so the agency cannot consider these properties when making decisions. The Tribe recommends that additional work be performed for Southern Nez Perce Trail. It would be helpful to get Tribal staff out to this section of the Trail to identify cultural features and locations, as well as an ethnographic review to help identify non-archaeological resources.	21/22	The survey coverage and methodology has been approved by the Idaho State Historic Preservation Office following the "North Idaho" Programmatic Agreement (PA). The PA was crafted between the Idaho State Historic Preservation Office and the National Advisory Council on Historic Preservation. The Forest Service does not consult with the Nez Perce Tribe to gain concurrence on low-level, routine matters related to general PA compliance. The project was presented to the Nez Perce Tribe Historic Preservation Officer on April 8, 2013. A map of the project was given to him at that time. No indication was received then, or at anytime later, that there are Traditional Cultural Properties within the project area. The Tribe is welcome to report to the Forest Service any cultural features they know of along the Southern Nez Perce Trail. This information would be helpful as the Forest Service engages in the project planning process. Similarly, the Tribe is welcome to fund and conduct an ethnographic review of the project area. The position of the USDA Region-1 is that Forests do not pay for ethnographic reviews on a project-by-project basis.
Visuals	Please list each visual quality standard that applies to each unit and disclose whether each unit meets its respective visual quality standard. A failure to comply with visual quality Forest Plan standards violates NFMA.	03/64	Commercial or precommercial thinning are the only activities proposed in Management Area 14. A Visual quality analysis has been added to the FEIS.
Visuals	For the visual quality standard analysis please define "ground vegetation," i.e. what age are the trees, "reestablishes," "short-term," "longer term," and "revegetate."	03/65	A visual quality analysis has been added to the FEIS.
Visuals	Please list each visual quality standard that applies to each unit and disclose whether each unit meets its respective visual quality standard. A failure to comply with visual quality Forest Plan standards violates NFMA.	03/160	see response to comment 03/64
Visuals	For the visual quality standard analysis please define "ground vegetation," i.e. what age are the trees, "reestablishes," "short-term," "longer term," and "revegetate."	03/161	see response to comment 03/65

Water Quality/BMP's	Disclose the Nez Perce-Clearwater National Forest's record of compliance with state best management practices regarding stream sedimentation from ground-disturbing management activities;	03/10	Best Management Practices (BMPs) effectiveness is discussed in Ch. 3 of the DEIS and FEIS Aquatics section.
Water Quality/Public Involvement	Solicit and disclose comments from the Idaho Department of Environmental Quality regarding the impact of the Project on water quality;	03/05	We received comments from the IDEQ and have addressed them, including the use of BMPs and the assessment of effects to Beneficial Uses in Clear Creek and the Middle Fork of the Clearwater River (Watershed section of the FEIS and DEIS).
Water Quality/WQLS	Disclose if there are any WQLS streams in the project area and if TMDLs are completed;	03/06	There are no water quality limited streams, and therefore no TMDL requirements in the project area (see Watershed section of the DEIS and FEIS). All streams are supporting their beneficial uses.
Watershed	Will all WQLS streams in the project area have completed TMDLs before a decision is signed?	03/55	See response to comment 03/06.
Watershed	How will the project improve watershed health?	03/57	Management activities that encourage forest health, provide for greater resilience, and restore natural disturbance regimes are in the best interest of long term watershed health and function. Road improvement and decommissioning work will have long term positive effects on sediment in streams. Providing a variety of forests age classes and patch sizes will provide habitat for a large number of wildlife species when compared to monotypically forested areas.
Watershed	We request the FS design a restoration/access management plan for project area streams that will achieve recovery goals. The task of management should be the reversal of artificial legacies to allow restoration of natural, self-sustaining ecosystem processes. If natural disturbance patterns are the best way to maintain or restore desired ecosystem values, then nature should be able to accomplish this task very well without human intervention (Frissell and Bayles, 1996).	03/127	The ID team recognizes that the greastest effects to streams are roads. We conducted an extensive roads analysis for the project area (see response to comment #04/04). The Clear Creek Project, when combined with previous road decommissioning and culvert replacement activities, provide the greatest opportunity to restore aquatic patterns of sediment loading, flow regimes and aquatic habitat connectivity. The majority of stream sediment related recovery will occur over the long term as a result of these projects.
Watershed	Please disclose the link between current and cumulative soil disturbance in project area watersheds to the current and cumulative impacts on water quantity and quality. Please disclose if there are any WQLS streams or TMDL streams in the project area.	03/136	Soil disturbance can lead to reduced water infiltration, increased surface flow, and erosion. This eroded soil material could enter stream channels reducing water quality. Effects to water quality and soils were addressed in the Soils and Watershed sections of the DEIS and FEIS. Minimal effects to water quality are expected. See response to comment 03/06 regarding TMDLs.
Watershed	Will all WQLS streams in the project area have completed TMDLs before a decision is signed?	03/151	See response to comment 03/06
Watershed	How will the project improve watershed health?	03/153	See response to comment 3/57

Watershed	The Forest Service has developed a much better watershed model and analysis procedure—the Watershed Erosion Prediction Model (WEPP). This model is available for use and has been developed by the Forest Service research staff in Moscow, Idaho. The WEPP model includes long-term climatic data plus a stochastic climate (storm) generator.	08/08	The FEIS document was updated to address this concern. The Forest, is, however, required by the Forest Plan to use the NEZSED model to compare alternatives.
Watershed	I have concerns regarding cutting old growth - ostensibly to improve fish habitat - and the building of new roads - also damaging to fish and wildlife habitat. This is a massive sale with 500-acreclearcuts producing possibly 80 mmbf; that won't help water clarity in the watershed.	09/01	No old growth will be harvested; however small trees around old growth would be removed in order to reduce ladder fuels around those legacy trees. Only temporary roads of short duration would be built. Approximately 9.0 miles would be located on existing disturbed soils (old skid trails or jammer roads). These are located in areas where no effects to streams are expected. The FEIS provides a picture of what current regeneration harvest areas look like after harvest. We will be leaving 14 to 28 trees per acre within the units as well as retaining PACFISH buffers and other no- treatment areas. All action alternatives stay well below the Forest Plan allowable sediment yield guideline. Instream beneficial uses in Clear Creek and Middle Fork Clearwater River would be maintained.
Watershed	No logging should take place in any watershed not meeting forest plan water quality or fish habitat objectives.	12/01	See response to comment 24/02. Logging can occur concurrent with watershed improvements in watersheds not meeting Forest Plan objectives.
Watershed	There is no way you are going to log from 62 to 85 million acres of land without seriously impacting Clear Creek and the Middle Fork. Sediment erosion will cover the substrate, fill pools with fines, cover submerged logs that serve as fish shelter, affect width/depth ratios, and create unstable bank conditions.	18/01	The DEIS and FEIS both provide information and monitoring of previously harvested areas that have shown little sediment effects to steams or stream channels. Design features and proposed road improvement and decommissioning activities will protect or help to improve instream conditions over the long term.
Watershed	The Forest states that all major streams in the project area would have improved or maintained water quality conditions (EA pg. 3-129) and that all activities should maintain or improve water quality (DEIS pg. 3-131). The Forest goes on to explain that NEZSED and FISHSED were the models used to analyze potential sediment created through this proposaL Unfortw1ately, both NEZSED and FISHSED are limited in their modeling abilities. The DEIS (pg. 3-15) states that culvert replacements or decommissioning activities cannot be modeled in NEZSED or FISHSED. The Forest's Implementation Guide to Appendix A (pg.18) clearly documents that NEZSED is invalid for "Road use for recreation or log hauling; the model only evaluates presence or absence of roads, not level of use." Therefore, use of roads for log haul and associated maintenance activities, culvert replacements, and	21/05	The Aquatic and Watershed sections of the FEIS were updated to address these concerns. Additional literature was also cited regarding log haul, road decommissioning and the effects of culvert replacement on instream sediment.

	decommissioning activities have not been evaluated for potential sediment input to the stream systems. This causes concern for the Tribe when models exist (such as WEPP and GRAIP) that could predict sediment from these activities are available and currently used by the Forest for other projects.		
Watershed	Concerns are magnified when the amount of timber harvest and associated haul are considered. The project seeks to cut between 65 million board feet to 85 million board feet depending on alternative. This will result in an estimated 27,000 to 38,000 round trips by log trucks. Additionally, there will be increased traffic to the area by other heavy equipment needed to carry out operations and daily trips during harvest activities by logging personnel Before a final decision is made, the Tribe recommends more robust analysis of the potential sedimentation caused by log haul and increased traffic. This analysis should provide an overall estimate of the increased amount of sediment generation by this project, as well as, identification of potential problem areas that could be specifically addressed before any harvest activities take place.	21/06	All the main haul roads associated with the timber harvest have a gravel covering to reduce surface erosion. Any areas lacking surfacing will be upgraded to bring it to required standards. Some of the roads will require additional surfacing to bring them up to a high quality standard. In addition, the roads will be treated with an environmentally friendly dust abatement solution to eliminate dust that could potentially contribute to stream sedimentation.
Watershed	I am concerned with impacts to water quality and fisheries. Some of the watersheds may not be meeting water quality standards.	22/02	Please see response to Comments #23/06 and #24/02
Watershed	Logging should not occur in watersheds not meeting water quality or fish habitat standards or objectives.	22/05	See response to Comment #06/12
Watershed	I am familiar with the NEZSED model having used it to assess impacts to fish habitat, water quality from 1988 to 2008 when I retired. The DE IS Table 3-37 estimates sediment yield for the action alternatives associated with this timber sale. The percentages over base numbers shown here are not believable. I would like to see how mitigation was applied to land disturbing activities. How long will the 36 miles of temporary road be modeled to exist on the landscape and what language will be applied to the timber contract to assure applied mitigation measures will be contractually required?	23/07	The FEIS document was updated to address this concern in regards to NEZSED.All design criteria outlined in the DEIS and FEIS Ch. 2 have been reviewed and accepted by the project timber specialist and the Forest contracting officer and will be incorporated into the timber sale contract.
Watershed	No timber harvest should occur in any watershed not meeting forest plan objectives for water quality, and for fish habitat, which is an indicator of water quality.	26/02	See response to Comment #06/12
Watershed	The chart on page 3-6 shows the forest plan water quality objective. How are streams meeting that objective now?	28/09	See response to Comment #06/17. The footnote at the end of the table in the FEIS clarifies that the Water Quality Objective and Fishery Habitat Potential are one and the same.
Watershed	Regarding log hauling, there is a study from the agency itself (Randy Foltz) that notes more sediment is produced on areas with logging traffic. How many log truck trips are expected under the various alternatives? What about road maintenance such as ditch cleaning and blading? How does that effect sediment production?	28/11	Approximately 12,360 to 17,000 loads of logs would be hauled over the project area roads. As outlined in the DEIS Appendix B, road ditch cleaning, surface blading, cross drain additions, and culvert maintenance would be done to to control water runoff and reduce sedimentation. Dust abatement would be implemented to

			control fugitive dust associated with log haul .
Watershed/Cumulative Effects	How can cumulative impacts be adequately considered when the analysis of logging analyzed is limited to the national forests only (page 3-137)? What about the fact that non system roads were not analyzed in terms of road density calculations? What about the lack of analysis of impacts from national forest logging on Big Cedar Creek in terms of sediment even though logging is proposed there? What about the analysis for sediment at the mouth of Clear Creek only being from the national forest? How is this a cumulative impacts analysis? This is a particularly important issue as there are downstream interests, including private residences and a fish hatchery, which could be affected by impacts to water quality in Clear Creek(including sediment and temperature) from this timber sale and other cumulative actions.	28/14	Non-system roads are not used in road density calculations because they are not generally accessible, can be grown over, and usually have minimal effects to the environment as a result of lack of use. In the case of Clear Creek they will all be physically decommissioned through the SF/WF Clear Cr Road Decom (already NEPA cleared and being implemented) and Clear Ridge Road Decom Projects (to be scoped in the Spring of 2014 with implementation in 2015 and beyond). The cumulative effects analysis for Watershed and Aquatics did include state and private, as well as federal lands in the drainage as noted in the DEIS and FEIS. Additional information has been included in the FEIS.
Watershed/ECA	Why are ECAs that exceed 15% considered for the analysis? According to the DEIS, ECAs of 15% are considered good and ECAs 15-30% are considered moderate. In all action alternatives, Upper Clear Creek is allowed to move into the moderate category under all alternatives. Lower Clear Creek moves to the moderate category under Alternative C.	06/72	The FEIS was updated to address this concern.
Watershed/Fisheries	Disclose the baseline condition, and expected sedimentation during and after activities, for all streams in the area;	03/35	This information is provided in the DEIS and FEIS under the Watershed and Aquatics sections of the documents.
Watershed/Fisheries	We request a careful analysis of the impacts to fisheries and water quality, including considerations of sedimentation, increases in peak flow, channel stability, risk of rain-on-snow events, and increases in stream water temperature. Please disclose the impacts to bull trout and other TES species. Please disclose the locations of seeps, springs, bogs and other sensitive wet areas, and the effects on these areas of the project activities.	03/129	This information is included DEIS and further clarification occurs in the FEIS. All springs, seeps, bogs, and other wet areas will be buffered using PACFISH buffer guidelines therefore there should be no impacts to them.
Watershed/Fisheries	The DEIS notes FISHSED and NEZSED were used to model impacts from various alternatives. However, the aquatics section does not include any quantitative information about FISHSED. There is a NEZSED section in the watershed. Why doesn't the DEIS discuss the weaknesses of FISHSED and NEZSED in terms of analysis including critiques of the model(s) such as was done by Gloss (see Gloss1995), the critique contained in the agency's own implementation guide to Appendix A, how these models don't consider sediment produced from log hauling, and how NEZSED was found inadequate (Memorandum Decision Order, page 18, of CASE NO.CV 04-447-S-MHW, an injunction issued against the Whiskey South Integrated Resource Project)? What about other models the agency itself has developed including WEPP? What about inventory techniques developed by the agency including GRIAP to assess the impacts that roads have on watersheds	28/10	See response to comments #08/07 and 21/05. FISHSED results were discussed in the DEIS andt the FEIS was updated to address these concerns. Extensive road surveys were conducted and crossings examined and discussed in the Aquatics section of the DEIS and FEIS. Project activities would reduce sediment input from log haul through dust abatement, road decommissioning and road reconstruction activities. A recent decision on the Little Slate Project upheld the use of both NEZSED and FISHSED as they are required by the Forest Plan (Memorandum Decision and Order Case No. 3:12-cv-00466-MHW).

	(used in O'Hara Creek, for example)?		
Watershed/PACFISH	The DEIS suggests that 250 acres of landslide prone areas have been included in the harvest units and suggests that PACFISH buffers will be maintained in these areas to avoid known landslide risks (Section 2.2.6.1). No data is presented to justify that PACFISH buffers will be effective in preventing landslides. If landslides do occur the impacts could have detrimental and unforeseen impacts on the watershed, fish and other aquatic resources. The impact of landslides has not been included in the watershed analysis and one landside could make all of the conclusions of the watershed analysis and impacts to aquatic resources mute. Timber harvest and road construction should be avoided on all landslide prone areas.	06/07	As noted in the DEIS and FEIS, no harvest activities would occur in landslide prone areas. Only one road-related landslide was noted the drainage (Aquatics section FEIS). Design criteria #4 was established so that no harvest or road activities would occur on landslide prone soils.
Watershed/PACFISH	Are PACFISH buffers intact? If not, how does that affect issues like projected sediment yield, habitat for MI and TES aquatic species, soils stability, and other factors in terms of watershed/aquatics and soils.	28/21	The DEIS and FEIS show that roughly 91% of the buffers are intact. A discussion of the status of PACFISH buffers and the expected effects of proposed activities on watershed and aquatic species/habitat is found in the Aquatics and Watershed sections of the DEIS and FEIS.
Watershed/Roads	I would encourage this plan to develop alternatives that would take advantage of existing roads, which evidently have remained stable over the years, to minimize cost to contractors and/or the public, rather than to construct new roads that would pose additional hazard to slope stability and increase silt and debris loading of watercourses.	26/01	All alternatives will use existing roads. Only temporary roads would be constructed, meaning they will be recontoured following use. Also any new road would be located on ridge tops or other areas that do not pose threats to water quality or slope stability. The current road system is very well located as noted in the Aquatic section of the DEIS and FEIS.
Watershed/FP Standards	Your agency should not even consider any logging when that watershed cannot now meet Forest Plan objectives for water quality and wildlife habitat.	20/03	Please see response to Comment #06/12 and #06/17 regarding water quality objectives. All Elk Habitat Effectiveness Units and Old Growth Analysis Units meet Forest Plan objectives as noted in the DEIS and FEIS.
Wildlife	Disclose the amount of big game (moose and elk) hiding cover, winter range, and security currently available in the area; Disclose the amount of big game (moose and elk) hiding cover, winter range, and security during Project implementation; Disclose the amount of big game (moose and elk) hiding cover, winter range, and security after implementation;	03/26	This information is discussed in the DEIS, pgs. 3-120 to 3-128 and in the FEIS.
Wildlife	Disclose the method used to determine big game hiding cover, winter range, and security, and its rate of error as determined by field review;	03/27	See response to comment 03/26.
Wildlife	The EA is not clear if any MIS were found. What MIS did you find, how many and how did you look for these MIS?	03/48	MIS species observed in the project area between 2010 and 2012 include pileated woodpecker, elk, and moose. Habitat for marten and goshawk does occur in the area however none were observed. The DEIS and FEIS discuss habitat for these species..

Wildlife	How will the decreased elk security and thermal cover affect wolverines? Please formally consult with the US FWS on the impact of this project on wolverines.	03/49	Wolverines prey and scavenge on many species, not just elk. As noted in the DEIS pg. 3-86, wolverines were not analyzed in detail due to a lack of suitable habitat in the area or that the effects to the species would not occur.
Wildlife	Which wildlife species and ecosystem processes, if any, does fire-proofing benefit? Which species and processes do does making the forest more fire resistant harm?	03/50	Fire 'proofing' may benefit species that prefer more open habitat; while displacing species that favor more closed habitat. The effects of the project on different species are discussed in the DEIS and the FEIS.
Wildlife	Will this project leave enough snags to follow the Forest Plan requirements and the requirements of sensitive old growth species such as flammulated owls and goshawks?	03/58	The design features discussed in Chapter 2 of the DEIS and FEIS would meet snag requirements for these species.
Wildlife	After snags are cut down for safety for OSHA requirements will there still be enough snags left for old growth sensitive species?	03/59	No old growth would be harvested within the project area. Snags would continue to be available in both treated and untreated areas throughout the project area. In many situations, we are able to retain snags by leaving them in areas where they present less of a safety hazard to logging operations, such as in clumps or near the edges of units away from yarding corridors.
Wildlife	Please disclose whether you have conducted surveys in the Project area for this Project for whitebark pine, bull trout, wolverines, pine martins, northern goshawk and lynx, grizzly bears as required by the Forest Plan.	03/66	See response to comment 03/101. No recent surveys have been conducted. No sightings or surveys of grizzly bear or wolverine in the project area have been recorded. No lynx have observed in the project area as noted in the DEIS, pg. 3-92. No bull trout have been observed as discussed in the Aquatic section of the DEIS and FEIS. Sightings from the Idaho Conservation Database were reviewed for species presence. The DEIS and FEIS discuss the acres of potential habitat for these species.
Wildlife	Please disclose the last time the Project area was surveyed for whitebark pine, bull trout, wolverines, pine martins, northern goshawk, grizzly bears and lynx.	03/67	See the response to 03/66.
Wildlife	Please disclose how often and how the Project area has been surveyed for wolverines, bull trout, pine martins, northern goshawks, grizzly bears and lynx. Is it impossible for a whitebark pine, wolverines, pine martins, northern goshawks, grizzly bears and lynx to inhabit the Project area?	03/68	See the response to 03/66.
Wildlife	Would the habitat be better for bull trout, whitebark pine, wolverines, pine martins, northern goshawks, grizzly bears and lynx if roads were removed in the Project area?	03/69	The project area does not provide preferred or high quality habitat for bull trout due to naturally warm stream temperatures (FEIS Aquatics section). The roads are currently in excellent locations on the landscape. A discussion of road effects on aquatic habitat and species can also be found in the Aquatics section. See response to 03/101 regarding whitebark pine. Many animals are known to use roads as travel corridors as has been seen during field surveys of the project area (wolf, bobcat, bear,

			elk, moose, deer, coyote, snowshoe hare).
Wildlife	What is the U.S. FWS position on the impacts of this Project on bull trout, wolverines, pine martins, northern goshawks, whitebark pine, grizzly bears and lynx? Have you conducted ESA consultation?	03/70	Consultation with the USFWS is currently in process. The preliminary determination for bull trout and lynx is not likely to adversely affect the species. There is no designated critical habitat for either species in the drainage. There would be no effect to grizzly bears and the activities would not jeopardize the existence of the wolverine. Prior to the ROD, the BA will be submitted to the USFWS for review.
Wildlife	The project allows unpermitted take of lynx, bull trout, grizzly bear, wolverine, whitebark pine.	03/96	Consultation has not yet been completed and the project would either have no effect or would not likely adversely affect these species, therefore no take is expected
Wildlife	…the agencies' failure to implement legally adequate and scientifically sound management direction for grizzly bears, lynx, wolverines, and whitebark pine at both the Nez Perce-Clearwater National Forest level, through the Forest Plan, and at the regional level, also violates the ESA as set forth below.	03/97	This concern relates to the Forest and region level scale and does not need to be addressed at the project level. The Forest follows regional direction for these species which is based on the best available science.
Wildlife	For the proposal to be consistent with the Forest Plan, enough habitat for viable populations of old-growth dependent wildlife species is needed over the landscape. Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et. al., 1994), the cumulative effects of carrying out multiple projects simultaneously across the NEZ PERCE-CLEARWATER NF makes it imperative that population viability be assessed at least at the forestwide scale (Marcot and Murphy, 1992).	03/119	See response to comment 03/97. See DEIS 3-65 to 3-67. Verified old growth in the project area meets the Forest Plan Standard. No activities are planned in any of the old growth in the Project area. A recent judgment on the Little Slate Project confirmed that population viability is best considered at the forest or regional level (Memorandum Decision and Order Case No. 3:12-cv-00466-MHW).
Wildlife	Since almost all of the proposed project is within management area 20 (MA-20) which is to managed to be maintain and enhance grizzly bear habitat, please show how this project will benefit grizzlies bears and how it will negatively impact them. Please do the same for lynx. Please examine how this project will affect all ESA listed, MIS and sensitive species.	03/125	This comment does not pertain to this project or this forest. MA-20 on the Nez Perce Forest is to be managed for old growth, and no treatment activities are planned in this management area. The effects to lynx, MIS, and sensitive species is provided in Chapter 3 of the DEIS and FEIS Wildlife section..
Wildlife	The EA is not clear if any MIS were found. What MIS did you find, how many and how did you look for these MIS?	03/142	See response to 03/48.
Wildlife	How will the decreased elk security and thermal cover affect wolverines? Please formally consult with the US FWS on the impact of this project on wolverines.	03/143	See response to 03/49.
Wildlife	Which wildlife species and ecosystem processes, if any, does fire-proofing benefit?	03/144	See response to 03/50.
Wildlife	Which species and processes do fire-proofing harm?	03/145	See response to 03/50.

Wildlife	Will this project leave enough snags to follow the Forest Plan requirements and the requirements of sensitive old growth species such as flammulated owls and goshawks?	03/154	See response to 03/58.
Wildlife	Please disclose whether you have conducted surveys in the Project area for this Project for wolverines, pine martins, northern goshawk and lynx, fisher, whitebark pine, grizzly bears as required by the Forest Plan….Please disclose the last time the Project area was surveyed for wolverines, pine martins, northern goshawk, grizzly bears ,fisher, whitebark pine, and lynx….Please disclose how often the Project area has been surveyed for wolverines, pine martins, fisher, whitebark pine, northern goshawks, grizzly bears and lynx. Is it impossible for a wolverines, pine martins, whitebark pine, fisher, northern goshawks, grizzly bears and lynx to inhabit the Project area?	03/162	See response to comment 03/101, 03/66, 03/67, and 03/68 Refer to the DEIS, Chapter 3, wildlife section for information on other species.
Wildlife	What is the U.S. FWS position on the impacts of this Project on wolverines, pine martins, fisher, northern goshawks, grizzly bears, whitebark pine and lynx? Have you conducted ESA consultation?	03/163	See response to 03/70.
Wildlife	Please provide us with the full BA for the wolverines, fisher, pine martins, northern goshawks, grizzly bears, whitebark pine and lynx.	03/164	BA will be included in the FEIS.
Wildlife	can you give me a list of other species that are also dependent on early seral? How about birds, insects, butterflies, rodents, etc. It stands to reason, that with the extreme lack of early seral, especially as it relates to the HRV, there are possibly less glamorous "early seral" species that are threatened with extinction.	05/13	The Forest is required to assess potential effects on Forest MIS, sensitive, and federally listed species. Early seral species have not been identified that are threatened with extinction, otherwise they would be assessed.
Wildlife	The methods used in the wildlife analysis (Section 3.7.4) appear to be very questionable. The entire analysis appears to be based on stand exam queries and includes very little information on actual habitat use of the various species of concern within the study area. Many of the suitable habitat numbers presented in table 3-28 don't appear to be consistent with numbers presented in the vegetative section of the DEIS. For example, the tables in the vegetation section suggest that there are 16,387 acres (All VRUs) of stands 21 plus inches in diameter, yet only 8,160 acres of nesting habitat is displayed for the pileated woodpecker and 2,066 acres of nesting habitat for the goshawk. Both of these species are known to be associated with older and larger diameter stands for nesting and it is hard to believe that more of the existing stands are not potential nesting habitat. Suitable habitat acreage for several other species appears to have been grossly underestimated. For, example the table only identifies 510 acres of upland habitat that would be suitable for the Western Toad in the entire 43,700 acre project area.	06/35	See page 3-85 for methodology rationale. The wildlife habitat numbers differ from the vegetation numbers in part due to canopy cover requirements. The vegetation data only extracted the stands with trees over 21" without assessing canopy cover, while pileated woodpeckers and other habitat queries include it. Acres can also differ based on the primary tree species as noted in table 3-28.

Wildlife	A habitat analysis (Bush and Lundberg 2008) that was done for the entire Nez Perce Forest is referenced for many of the species. However, no updates are given for this report despite the fact that it is reported that over 200,000 acres burned in 2012 on the Nez Perce and Clearwater National Forests and there have been numerous logging projects since 2008. No information is given on how the report relates to the project area and if the habitat acreages reported for the various species in the DEIS are the same as those used by Bush and Lundberg (2008).	06/36	The Bush and Lundberg study was used in concert with regional information to discuss viability and potential trends in several species. A relation is presented in the DEIS/FEIS by looking at those numbers in relation to the acres within the project area, Viability is best discussed at the Forest and Region level, not the project level. No update to the Bush and Lundberg report has occurred since 2008. See pages 3-22 to 3-23 for Fire Occurrence, History & Risks. See page 3-61, table 3-15 for Past Harvest Activities in the project area.
Wildlife	A report by Samson (2006) is also referenced. This publication is an internal Forest Service document that has never been published in a peer reviewed journal. According to the DEIS this report is supposed to calculate the acreage that would be required to support a viable population of the various species in the 25 million acre Northern Region. The numbers presented in the DEIS appear ridiculously low if species are to be maintained across their existing and historical ranges as would be required if any of the species were listed under the Endangered Species Act.	06/37	See response to comment 06/36. None of the species are listed under the ESA therefore viability must be being maintained at the regional level. For instance, within Clear Creek, pileated woodpeckers appear to be fairly common based on field surveys and discussions with IDFG personnel and others. DEIS pages 3-84 to 3-86 explain analysis methodology. Table 3-28 shows the various criteria used to identify suitable habitat
Wildlife	I question why the bald eagle, Coeur d Alene salamander and wolverine were dropped from the analysis. The reasons why species were dropped should have been summarized in the DEIS.	06/39	Please see the DEIS Page 3-86= Species Dropped from Detailed Analysis.
Wildlife	The bald eagle should find suitable wintering habitat in the lower reaches of Clear Creek and nearby wintering ranges. Evidence of similar use is well documented along the Clearwater and Lochsa rivers. The Coeur d' Alene salamander should also be found in the area. A check of information from the Idaho Fish Game suggests there are several known locations in and near the project area http://fishandgame.idaho.gov/ifwis/cwcs/pdf/Coeur%20d'Alene%20Salamander.pdf.	06/40	Bald eagle winter surveys have been conducted for over a decade. At most 2 birds were observed in the drainage downstream on private lands. No observations of Coeur d'Alene salamanders have been recorded in the Idaho Conservation Database for the project area or nearby. Habitat for these salamanders would be protected through PACFISH buffer retention.
Wildlife	There is a reasonable probability that the wolverine could utilize the project area during the winter when it would be attracted to the area because of wintering big game. The project area is adjacent to several large roadless areas that are known to support this species.	06/41	The U.S. Department of Interior, Fish and Wildlife Service published a proposed rule for the North American wolverine on Monday, February 4, 2013 in the Federal Register (Vo. 78, No.23). In reviewing the proposed rule and the activities proposed in the Clear Creek Restoration project, none of the proposed federal action Alternatives is likely to jeopardize the continued existence of the wolverine. The threat to wolverine is loss of habitats with persistent snow cover as a result of climate change and increasing temperatures. The proposed rule found that dispersed recreational activities, infrastructure development, transportation corridors, and land management activities do not pose a threat to wolverines. Thus, the land management activities in the Clear Creek project for the action alternatives are not considered a threat to wolverine. Alternative activities include

			vegetation management, fuels reduction, prescribed fire, road improvement, grassland restoration, temporary road construction and road decommissioning projects.
Wildlife	The amount of existing habitat for all bat species appears to have been significantly underestimated. The vegetative section of the DEIS identifies over 16,387 acres of stands that have an average DBH of over 21 inches in diameter and 10,786 acres that are in the 9-21 inch size class category (All VRUs). Yet, the DEIS only identifies 8,157 acres of potential habitat for the long-eared and long-legged myotis bats and 192 acres for the fringed myotis bat. These figures suggest that the amount of suitable habitat for these three species has been significantly underestimated. This in turn has resulted in significant underestimates of potential habitat loss for all three of these bat species.	06/43	See response to comment 06/35. See DEIS Table 3-28 on page 3-84 for estimating habitat criteria.
Wildlife	Second, the importance of suitable habitat on National Forest lands has likely been underestimated by the failure to examine nearby private lands in the analysis. Areas along lower Clear Creek would likely be attractive to bats because of the increased insect abundance that would be found along the stream.	06/44	That is quite possible; however we do not have vegetation data for private lands which limits our ability to calculate available acres there. We agree that foraging habitat is available, cannot verify roosting habitat.
Wildlife	Third, there appears to be an overestimation of the impacts of fire suppression on bat habitat for the no action alternative.	06/45	We do not agree. Dense stand conditions can lead to high severity fire and the loss of bark on fire killed trees. The DEIS does not estimate acres of potential loss, only describes the process that might occure. DEIS; pp. 3-87 & 3-88
Wildlife	Again there seems to be a great deal of underestimation of potential black-backed woodpecker habitat in the project area and the analysis suggests there are only 2,357 acres of potential habitat. Again this is despite the fact that over 27,173 acres of the 43,731 acre project area is composed of stands in size classes greater than 9 inches DBH (DEIS Vegetation Section). With this low estimate of existing habitat it is not surprising that impacts are only predicted to be 420 acres for alternatives B and C and 363 acres for Alternative D.	06/46	See response to comment 06/35. As noted in the DEIS, black backed woodpeckers prefer post-fire areas within 1-6 years of a burn. No burning has occurred in the project area in that time frame. See Analysis Methodology and table on DEIS pages 3-84,85.
Wildlife	it is cited in the DEIS that Bush and Lundberg (2008) identified 700,000 acres of black-backed woodpecker habitat on the Nez Perce National Forest in 2008. What has happened to those 700,000 acres since 2008? Has any of it been logged? How much of the 700,000 acres will be affected by the Clear Creek proposal? Are the acreages identified by Bush and Lundberg (2008) the same as those identified in the DEIS? How has the 200,000 acres of wildfire mentioned in the DEIS affected the existing stands identified by Bush and Lundberg? Have some stands been eliminated because the fire burned too hot or has more habitat actually been created in new areas? I have no real	06/47	See response to comment 06/36. The DEIS, pgs 3-89 to 3-91 discusses how many acres are expected suitable habitat in the Clear Creek project area and how many of those would be affected by the project.

	idea from the information presented in the DEIS.		
Wildlife	No real cumulative effects analysis has been done nor have any site specific estimates of population loss for each of the alternatives been conducted. Habitat loss has been used as a proxy for population impact, but even that does not appear to have been accomplished in a realistic and professional manner.	06/48	As discussed in response to comment 06/36 and 03/119 population viability is best conducted at the Forest or Regional scale. Given the long cumulative effects time frames for some species, it would not be realistic to try and estimate population changes. We can, however determine how much habitat would be affect by proposed activities in combination with future foreseeable activities in the cumulative effects analysis area. See DEIS: 3-83, Species Viability
Wildlife	How many black-backed woodpeckers can be supported in the project area prior to the project and how will that change after the project is implemented? Are there portions of the area that are no longer suitable habitat? Do activities on nearby private land cause greater importance to be assigned to the National Forest? For example, have snag and diseased tree density been significantly reduced on private land?	06/49	Please see DEIS and FEIS Chapter 3 for information on this species. These woodpeckers prefer recently burned habitats. Habitat acres are used in lieu of the number of birds. We are unaware of the amount of available habitat on private lands.
Wildlife	The approach presented for the fisher appears to be very similar to that which was conducted for other species. The whole analysis is based on database queries that supposedly identify suitable habitat. However, it this case suitable habitat is split into summer habitat which the authors classify as older forest stands exceeding 13 inches in DBH and winter habitat which the authors suggest is saplings and other young stands. While the older forest stand designations (summer habitat) make sense for this species, the winter habitat designations do not. Fishers have been consistently tied to older forest stands in most studies and even by the author's own admissions the availability of large downed logs over 21 inches DBH are particularly important in the winter. These types of downed logs don't occur in sapling and other young stands. Even the study cited in the DEIS (Jones and Garton 1994) found that 54% of fisher use during the winter was in mature/old growth forest…. The winter range analysis seems completely inconsistent with the current literature for this species. I suggest it be completely revised with more recent literature citations in the FEIS. My remaining comments will only deal with the summer habitat conditions detailed out in the DEIS as I regard the winter range analysis to be in complete error and contrary to the existing literature for this species.	06/50	See DEIS: 3-99 for fisher observations. This information has been updated in the FEIS.
Wildlife	Once again suitable summer habitat values appear to be underestimated, but not as badly as for some of the other species. In this case 10,037 acres of old forest is identified as suitable summer habitat. Recall that the vegetation analysis shows over 16,000 acres in size class exceeding 21 inches and almost 11,000 acres in the 9-21 inch size class.	06/51	See response to comment 06/35. The FEIS has been updated to address this concern.
Wildlife	"Improving the distribution of hiding cover relative to foraging habitat." This objective could be re-written to state: Improve the	13/01	The FEIS has been updated to address this concern.

	availability and distribution of elk foraging habitats, particularly winter browse.		
Wildlife	Hiding cover is not the issue. Availability, distribution and sustainability of seasonal forages (winter browse and spring/fall grasses/shrubs) is the issue. Progressing toward desired vegetation conditions would, by default, provide for spring/fall forages. On the winter range, however, specific practices (dry season prescribed fire) must be applied to achieve the desired browse forage conditions.	13/02	See response to 13/01.
Wildlife	Wildlife Analysis This section of the DEIS seems disproportionate to the analyses documented for the other resources (The wildlife section included approximately 42 pages within the environmental consequences section of the EIS. Between 3 and10 pages were reported for all of the other resources). The wildlife analysis should address only the direct, indirect, and cumulative effects on the availability, distribution, arrangement and sustainability of selected (T&E, Sensitive and MIS) species habitats. The scale and conclusions related to the cumulative effects analysis is well beyond the Line Officer's authority to consider or conclude effects of the planned actions of species viability. Wildlife species should be addressed similar to that for fisheries/aquatics/watershed. Much of the wildlife assessment is irrelevant to the analysis and should only appear in a specialist report as supporting documentation.	13/22	Thanks for the observation. Other commentors would like to see more analysis.
Wildlife	A combination of prescribed burning, commercial and pre-commercial thinning~ forest 'improvements', and regeneration harvest are predicted to variably reduce habitat for several wildlife species dependent on late-seral forest conditions and/or large-diameter forest structure, notably northern goshawks, pileated woodpecker, flammulated owl, pygmy nuthatch, Canada lynx, fisher~ American marten, moose, and three species of bats. Foraging habitat for several of these species is predicted to increase in some cases. The DEIS relies heavily on the retention of suitable features and habitats within R1parian Habitat Conservation Areas (RHCAs), Roadless areas, and through silvicultural prescriptions to ensure the persistence of these species under the Proposed Action. Unfortunately, no information is presented quantifying the overall(%) reduction in habitat or the distribution of remaining habitat in the Project area for many of these species. It is therefore difficult to evaluate the impact of the proposed habitat reductions on populations of these species, including their persistence and distribution in the Project area.	21/16	The direct and indirect effects for each of the analyzed species discuss the acres of habitat affected by the treatment. Additional percentages of affected habitat is present is most of these discussions in the DEIS.
Wildlife	The DEIS references a 2008 report done for the Nez Perce National Forest and a2006 internal agency document that was not published in a peer-reviewed publication. There are assumptions that fail logic and science, including assumption that very little	28/27	See response to comment 06/35 and 06/36. DEIS: 3-22 & 23 discuss fire occurrence and history. Most fire occurred outside of this project area.

	habitat is needed to maintain species (the 2006 report) across the entire region (for example, see page 3-90 for black-backed woodpeckers). It also seems the broad habitat estimates are different than the ones used in the DEIS and they don't take into account recent logging and fires. For example, the DEIS recognizes 700,000 acres of black-backed woodpecker habitat on the Nez Perce National Forest (about 30 percent of the forest), yet less than 2,400 acres in the project area (about six percent of the project area). Another example is marten, where the amount of mature stands proposed to be clearcut are greater than the amount of habitat lost. It seems there are apples and oranges comparisons when looking at habitat on the larger scale versus on the site-specific scale. These problems are not confined to black-backed woodpeckers (or martens), but also include goshawks, pileated woodpeckers, fisher, the two bat species, and the western toad.		We are uncertain how the commenter assessed the acres for marten as the DEIS shows 17,328 acres of suitable habitat available with maximum of 1,229 acres proposed for treatment.
Wildlife	The DEIS does not differentiate between the two what many scientists now consider as separate marten species in North America based upon genetic studies, Martes americana and Martes caurina. Their ranges tend to meet somewhere in the northwestern Montana and northern Idaho. To what species (or subspecies) do the marten in the forest belong or are they both found here?	28/29	We acknowledge the research and dialogue on separate species. Whether both species are present in project area is unknown at this time; however habitat requirements would be similar for both species. The FEIS discusses the amount of suitable habitat for marten and the potential effects of proposed activities on them.
Wildlife	In essence, the DEIS fails to look at habitat actually used by the species like fisher, marten, goshawk, black-backed woodpeckers, and pileated woodpeckers. Forest plan monitoring has not been done (or reported) and this may be a reason for the inconsistency with the DEIS analysis of wildlife. Without on-the-ground field work, the agency cannot adequately project impacts to species either on a site-specific or cumulative level.	28/30	The DEIS and FEIS discuss habitat parameters assessed for each if these species (Wildlife section). A recent judgment on the Little Slate Project confirmed that population viability is best considered at the forest or regional level, not the project level (Memorandum Decision and Order Case No. 3:12-cv-00466-MHW).
Wildlife	The DEIS dismisses any analysis of wolverine, bald eagles, and Coeur d'Alene salamanders. Are there no spray zones in the entire project area for salamanders? What about Idaho giant salamanders? Bald eagles use the Clearwater River and may inhabit the project area. Wolverine may use the project area as well, especially in winter searching for carrion.	28/34	See response to comments 3/66, 6/39, 6/40 and 6/41. Idaho giant salamanders appear to be common and have been found in association with culvert replacements in Clear Creek; they are not listed as MIS or sensitive species.
Wildlife	My comment concerning wildlife habitat is that concerning Elk and Deer it isn't of much use anymore. The IFG has so poorly managed the Clear Creek basin that there are few elk left and having so few numbers left they are almost defenseless against large predators and therefore have basically moved close to town. The wolves are catching the blame and I agree that they do have ongoing impact but many of us forget that hunters legally and illegally shot the herds down using extended hunts, multiple weapons hunts, controlled hunts, depredation hunts, cow tags and a variety of other bull cow ratio data, which for the most part centered on the bull concerning elk management and now we are	29/04	Thank you for your comments

	suffering decades of three month long hunting seasons and blaming it on the wolves. Habitat is good for those that need it and I feel there is plenty of it out there that suits the purpose just fine.		
Wildlife/Alternatives	Alternative C does the most to trend the project area toward desired conditions described in the purpose and need section. This alternative would provide the earliest successional habitat, a feature that is drastically below desired levels, while variable retention harvest would assure retention of structural elements necessary for a wide variety of wildlife in both the short and long-term. By regenerating stands that are not composed of early seral species and are within the focus areas, this alternative creates the most opportunity for reestablishment of early seral species while maintaining patch size.	17/03	Thank you for your comments.
Wildlife/BABE	Disclose the biological assessment for the candidate, threatened, or endangered species with potential and/or actual habitat in the Project area; Disclose the biological evaluation for the sensitive and management indicator species with potential and/or actual habitat in the Project area;	03/07	The BE and the BA is included with the FEIS.
Wildlife/Cumulative Effects	The cumulative effects analysis is weak or non-existent for all wildlife species. A cumulative effects analysis should have at least been completed for the Clear Creek drainage. The fact that private land data is not readily available is no excuse for not conducting a cumulative effects analysis. The results of the analysis likely would have been much different if the impacts of past and proposed activities on nearby private lands had been included in the wildlife analysis.	06/38	The FEIS includes activities on private lands adjacent to or within the project area.
Wildlife/Cumulative Effects	The importance of the Clear Creek Roadless Area as bird habitat becomes much more consequential when the cumulative effects of landscape treatment by surrounding landowners is taken into consideration. Private landowners in the surrounding area have been strongly encouraged to aggressively treat ALL of their property for "fire mitigation" which includes clearing all the brush from large tracts of land. This despite the fact that numerous studies have shown that treatment beyond a 100 ft. radius of a structure bears little safety advantage in a fire event. Since bird habitat has already been severely compromised on private holdings the cumulative effects of further habitat destruction needs to be addressed. Song birds are in decline worldwide and destroying their strongholds puts further stress on populations.	11/03	DEIS page 1-3 shows about 33% of project area is privately or state-owned. Not all private land has been ~~is~~ treated for fire mitigation as seen in Google Earth. Project activities would create a mosaic of vegetation structure that would provide habitat for songbirds and their prey base of insects or plants.
Wildlife/Cumulative Effects	The DEIS ignores the adjacent private land in terms of impacts to wildlife species. This fails a cumulative impact analysis.	28/31	See response to 06/38.
Wildlife/Design Criteria	"…vegetative screen ("1 site potential tree height)…along open motorized traffic and regeneration harvest units to help maintain	13/12	Appendix B (page B-6) in the NPNF Forest Plan recommends buffer strips between open forest roads and openings that may

	elk habitat quality and reduce hunting season vulnerability." There is neither Forest Plan direction nor need to retain. This has not been a practice in this landscape. There is not direction in the Forest Plan to "reduce hunting vulnerability"; that is addressed (de facto) with the Forest Plan direction for elk habitat effectiveness.		be used as foraging areas for elk
Wildlife/Design Criteria	"For non-legacy trees, the objective would be for a majority of the leave trees to survive prescribed burn." First, this should not even appear in the wildlife section of design criteria. Second, for what species-specific (T&E, Sensitive or MIS) purpose would this serve "wildlife", given retention of forested riparian areas, legacy trees and snags. Saving fire-intolerant conifers from prescribed burn is contrary to what occurs across the landscape in both mixed- and stand-replacing fire regimes. It would be more an appropriate Design Features in the vegetation section to state: "Retain a majority (70%+) of the legacy trees to survive prescribed burn."	13/13	See Appendix G, Target Stands for Multiple Objectives.
Wildlife/Design Criteria	Addressing noxious weeds is not in the purview for wildlife design criteria for this project.	13/15	Weeds may displace native vegetation. The latter provides forage for wildlife.
Wildlife/Design Criteria	Wildlife (12): Unclear the intent of this design criteria. If there are specific factors not already addressed in the vegetation section, include specifics. Otherwise, delete this text.	13/16	Design criteria are used in combination with desired conditions, objectives, and suitable uses to guide the management of the NP-CNF. Wildlife design criteria #12 is specific to moose habitat.
Wildlife/Design Criteria	Wildlife (13): A "to" statement should be added to indicate why this is necessary. For example, to support long soil nutrient cycling and small animal habitats…. This could appear in either the soils or wildlife sections of the Design Criteria.	13/17	The FEIS has been updated to address this concern. See the design criteria in Chapter 2.
Wildlife/Design Criteria	Wildlife (14): The Design Criteria, as written, should appear in the soils section (if even appropriate to include).	13/18	See response to comment 13/15. It is designed to maintain a seedbank of native vegetation and future forage for big game.
Wildlife/Design Criteria	Wildlife (15): There is nothing in the DEIS or referenced literature to support this Design Criteria. Given the amount of untreated landscape, while perhaps desirable to limit disturbance, there is no need to put another burden on project design or scheduling. If so, then a "to" statement should be added as to why this is important.	13/19	Thanks for the observation. The DEIS pg. 2-9 states that this is a Forest Plan Standard (FP, pg. II-19).This design criteria provides protection & still allows flexibility for the project.
Wildlife/Design Criteria	Please add Design Criteria: • To support the availability, distribution and sustainability of quality browse species (particularly redstem ceanothus, service berry, willow, and mountain maple); prescribed fire prescriptions should be developed for implementation during summer or fall. Spring burns would be appropriate only to prepare fuel breaks for summer/fall burns. It may be necessary, in specific areas, to prepare fuel beds via mechanical slashing, to promote burning conditions that achieve desired browse response.	13/20	The design criteria in the FEIS have been updated to address this concern.
Wildlife/Design Criteria	Please add Design Criteria: To support short- and long-term snag survival, retain broken-top (>8" at the break), live trees as snags.	13/21	DEIS pages 2-7 & 2-8 shows design criteria for dead and live

	(Unsound snags could not be expected to survive logging or prescribed fire practices. Live (green) trees with broken tops are typically lower risk to for forest works and have a higher probability of surviving prescribed fire.		recruitment trees. Broken top trees would be included.
Wildlife/Elk	Elk are above Idaho management goals now in the project area, but how long will the clearcuts from the 80's in the area provide quality forage? USFS Elk HABCAP (if that's still the term) models are relics from the era of big timber harvest. They're weighted to much towards "road density" and practically ignore forage(as it was most likely assumed forage would be plentiful with timber harvest).	05/12	Both winter and summer ranges show declining forage potential under a no action alternative. The proposed action would increase forage as shown in the FEIS.
Wildlife/Elk	Why aren't the latest elk habitat effectiveness guidelines being utilized in the analysis? The guidelines were updated in 1997 by Idaho Fish and Game, Forest Service and Tribal biologists to include the latest research and are considered an improvement over the 1994 version which the Forest Service utilized for the DEIS. Please update the analysis to include the best available science which in this case is the 1997 version of the guidelines.	06/66	The Forest Plan requires the use of the 1994 guidelines (Forest Plan Appendix B) and has not been updated. It is currently under revision and will use more recent literature.
Wildlife/Elk	On page 3-125 of the analysis it is stated that the Clear Creek 3 EAA "is not likely to ever meet security recommendations due to the number of open roads that occur throughout it."	06/67	That is correct. It won't meet 30% security habitat with this project.
Wildlife/elk	The large amount of burning and cutting proposed for alternatives B, C and D will create a boom or bust situation for elk. The new cuts and prescribed burn will create an overabundance of new forage for a short time (20-30 years), but when the stands grow up that abundance will be lost. I believe a more moderate proposal would have less impact on elk over the long run and preserve future opportunities to create new forage areas 20 to 30 years down the road.	06/68	Thank you for the comment. The project is anticipated to take 13 years to completion: creating a small difference in stand ages. Potential for prescribed burns on elk ranges may be available for maintaining forage in a longer term.
Wildlife/Elk	The use of the 1984 elk habitat effectiveness model (summer range) is unfortunate. Newer versions are available. Consultation with your Forest Wildlife Biologist or State Wildlife Biologists should be able to provide the necessary updates.	08/10	See response to 06/66.
Wildlife/Elk	The Nez Perce Forest plan directs that elk habitat effectiveness achieve certain levels. Unless a specific issue related to elk security was developed in scoping, there is neither direction nor need to address whether an elk analysis unit provides 30% elk security. Common to all alternatives, each elk analysis unit meets the Forest Plan objective of 50%. No need to discuss in detail.	13/08	Thanks for the comment. The concern was brought up during scoping and as a result the information was presented in the DEIS.
Wildlife/Elk	On elk winter range in the Clearwater Basin (Bitterroot Mountains Breaklands landscape), timber harvest, followed by summer/fall prescribed fire, provides the most predictable and reliable means	13/09	Thanks for the comment.

	of successfully promoting redstem ceanothus germination from seed. Burning or logging followed by burning led to a higher percent cover of redstem ceanothus than logging alone.		
Wildlife/Elk	This issue could have readily been dismissed. All elk analysis areas meet the Forest Plan objectives/standards(?) for elk habitat effectiveness…. A more relevant issue related to 'roads' would have been to put system roads into long-term storage {watershed stable/closed to motorized vehicles (unless considered and approved through NEPA to serve as a motorized recreation route)}. Reducing watershed impacts, disturbance/displacement of wildlife from preferred habitats, and road maintenance costs are all significant benefits to putting roads into storage.	13/11	Yes, in every alternative, all EAAs would remain above 50% in habitat effectiveness, see table 3-31 in DEIS. Thanks for the comment.
Wildlife/Elk	The DEIS acknowledges that cow elk numbers currently meet, and bull numbers exceed, IDFG population objectives of 800-1,200 and 175-250 individuals, respectively, in GMU 16….Finally, the DEIS notes that elk were relatively rare in this area historically, increasing only as a result of predator suppression and major fire events in the early 20th century….Against this backdrop of a rising elk population which meets or exceeds current management objectives, it is unclear why "[increasing] elk forage" (p. 1-5) is among the Purposes of the Project.	21/17	DEIS page 3-120 also mentions that calf to cow ration is decreasing, which can be an indicator of a declining herd. Without vegetation management, range forage quality & quantity will decrease. Part of the purpose of the project is to maintain or increase forage habitat. Maintaining elk numbers would continue to provide hunting opportunities for tribal members.
Wildlife/Elk	The DEIS states that an overall decline in calf:cow ratios may be related to reductions in forage quality (poor condition of cows and low calf weights), high predation rates, less security area, and greater human disturbance and/or hunting pressure" (p. 3-120; emphasis added). However, the Proposed Action would reduce elk hiding cover by 10% through regeneration harvests and a further 9% through prescribed burns on MA 16 Winter Range (p. 3-124). Hiding cover on elk summer range would be reduced 10% as well under Alt. B. Factoring in the anticipated benefits of increased forage availability to elk, overall summer range Elk Habitat Effectiveness (EHE) would still decline by an average of 5%. It is therefore unclear how "elk populations are expected to respond favorably to proposed treatments due to increased foraging opportunities" (p. 3-124) in the face of static or increasing tribal and non-tribal harvest pressure, a 10-19% decrease in hiding cover on the winter range, and a 5% average decrease in overall summer habitat effectiveness. On the contrary, model results indicate that the net effect of the Proposed Action on elk will be negative.	21/18	In every alternative, all elk analysis units would remain above 50% in habitat effectiveness, see table 3-31 in DEIS. The prescribed burns on MA-16, Winter Range are maintenance burns to promote vigor in elk forage. Hunting ('pressure') is regulated by the state.
Wildlife/Elk	Large forest openings, though a natural characteristic of forests exhibiting mixed-and high-severity wildfire, can pose problems for a number of wildlife species. Such areas can impede dispersal, reduce foraging opportunity, and increase vulnerability to predators and/or human harvest relative to smaller forest openings, even if the overall burned acreages are equal. The presence ofRHCAs in low-lying portions of the units may provide	21/19	See the FEIS, Appendix A. The maps for the Action alternatives show no contiguous series of units as mentioned by the commentor. Riparian and other areas will not be treated, maintaining movement corridors and hiding cover. Riparian areas are continuously vegetated throughout the drainage as noted in the Aquatics section of the FEIS. Over 13 miles of road will be decommissioned during the project will increase security.

	little benefit for upland species. Conversely, riparian-associated species may be impacted through the loss of forest cover connecting discontinuous riparian zones. For some populations already facing demographic stress due to other factors, the added stressor of large forest openings may threaten viability…For elk, these openings are expected to increase sight distances and thus vulnerability in areas which are already heavily roaded. For example, along the southwest boundary of the Project area, the Proposed Action would treat a nearly contiguous series of units 5.5 miles long and up to 0.5 miles wide. Other units proposed for regeneration harvest appear to be up to I .5 miles long without any discontinuities at all. Such areas are likely to seriously impact elk vulnerability for several years post-treatment, as EHE modeling makes clear…Unfortunately, no information is presented quantifying the anticipated size and configuration of regeneration harvest openings in the Project area. It is therefore difficult to evaluate the impact of the proposed acreage exemption on many other wildlife species, including their persistence and distribution in the Project area.		This is in addition to the previous 85 miles of road decommissioning in the southwest portion of the project area. The majority of area is not considered heavily roaded and 45% of the roads are closed to motorized use which limits easy access into the area by hunters. See Chapter 2 for the proposed acres each alternative offers.
Wildlife/Elk	None of the alternatives meet the elk security recommendations for the Clear Creek elk analysis area. How does this comport with the forest plan? Why wasn't an alternative developed that met this standard?	28/32	Only one EAA does not meet security recommendations for elk in the project area. Road closures in this affected area (which may improve security habitat) may be considered by the deciding official. The only Forest Plan standard is fore elk habitat effectiveness. There is no standard for elk security.
Wildlife/Elk	Also regarding elk, what protocol was used? Was the latest version of the elk habitat guidelines used in the analysis? If not, why not? Does the agency believe it needs to amend the forest plan to use the latest scientific protocol in this instance? If so, why wasn't an amendment proposed, at least for this project area?	28/33	See response to comment 06/66. The 1987 Forest Plan provides the direction for elk analysis
Wildlife/Fisher	Again I see references to the Bush and Lundberg (2008) study which supposedly shows 400,000 acres of suitable summer habitat on the Nez Perce Forest. Again there is no quantification of how this might have changed due to logging and wildfire since 2008. There is no display of the Bush and Lundberg (2008) data for the project area and there is again no discussion on how the Bush and Lundberg (2008) numbers relate to the figures cited in the DEIS. I see the Sampson (2006) study also cited once again and this time it is suggested that only 100,078 acres would be needed to maintain a viable population across the 25 million acre Northern Region.	06/52	See response to comment 06/36.
Wildlife/Fisher	Regarding fisher, the DEIS divides winter and summer habitat. However, even the research cited in the DEIS notes the need for old growth during both winter and summer. Thus, it seems the DEIS underestimates the impacts to fisher. Given the high level of accidental trapping of this species in the region, it is of grave	28/28	Both GIS analyses for winter and summer habitat included all old growth as fisher habitat.

	concern.		
Wildlife/Fisheries	What evidence do you have that this logging will make the forest healthier for fish and wildlife?	03/51	As discussed in the DEIS and FEIS, logging is expected to have no effect on fish species. Road decommissioning and improvement will benefit aquatic habitats over time. The only expected direct effects to fish would come from these activities where culverts are removed or replaced.Heterogenous habitats offer more opportunities for wildlife than homogenous habitats. Logging in this project would create more diverse habitats for wildlife.
Wildlife/Fisheries	What evidence do you have that this logging will make the forest healthier for fish and wildlife?	03/146	See response to comment 03/51.
Wildlife/Flammulated Owl, Pygmy Nuthatch, Ringneck Snake, Mt Quail	I agree that all of these species would find limited habitat in the analysis area and that the areas of primary importance occur on project area breaklands (VRU 3). I encourage treatments that favor the retention of larger Douglas fir and ponderosa pine in VRU 3 and to some extent in VRU 4 and feel that such treatments will be particularly important for the flammulated owl and the pygmy nuthatch. However, I am concerned when such treatments are extended into moister upland habitat types in the name of restoration	06/54	Prescribed fire treatments should be beneficial to the habitat. Regeneration would leave 14-28 tpa/acre as clumps or individuals. The harvest in moister units would remove the shade tolerant species, and favor ponderosa Pine or Douglas-fir.
Wildlife/Goshawk	Once again the amount of available nesting habitat appears to have been significantly underestimated. The idea that only 2,066 acres out of the available 16,387 acres of forest over 21 inches DBH and 10,786 acres of forest between 9 and 21 inches DBH doesn't make any sense. It appears that impacts to goshawk habitat have been significantly underestimated as a result of this estimate. There is also no discussion regarding the distribution of this habitat which is likely critical to a territorial species like the goshawk. For example, if the entire nesting habitat is located in one area it will only be useful to the goshawks nesting in the territory that contains that nesting habitat.	06/59	See response to comment 06/35. Goshawk nesting habitat is well distributed around the perimeter of the project area. A map is available in the project file.
Wildlife/Goshawk	Second the same approach that has been cited for several other species is presented once again. The study by Bush and Lundberg (2008) suggests there are 275,000 acres of post-fledgling habitat on the Nez Perce Forest. Again, there is no analysis how this study relates to the project area and determinations of suitable habitat actually used in the analysis. In fact there is not even any discussion regarding post-fledgling habitat in the DEIS as only nesting habitat is considered. No attempt has been made to track how this habitat may have changed since 2008 and once again I see assertions that only 30,147 acres of post-fledging habitat is needed to meet the requirements of goshawks across the 25 million acre Northern Region (Samson 2006). Such an assertion again seems fairly ridiculous given the current range and distribution of the species.	06/60	See response to comment 06/36. See DEIS 3-84 for analysis methodology and Table 3-28 for habitat criteria. Post fledgling habitat is mentioned on page 3-116.

Wildlife/Goshawk	The analysis talks about estimated population size of goshawks in Idaho (5,600 birds) and the Northern Rockies (3,900 birds), but makes no mention of how many nesting pairs of goshawks could be supported in the project area. As territorial species with territory sizes of approximately 4000-6000 acres (Reynolds et al. 1992) this should be a relatively easy calculation for the project area.	06/61	Not all the acreage is contiguous, and not all the goshawks are paired up, which makes a simple approximation unrealistic.
Wildlife/Goshawk	I believe the current goshawk analysis is inadequate because it fails to account for how the project area is actually being utilized by goshawks. There is not attempt to figure out existing habitat use and how that use might be impacted by the project proposal. The analysis presented in the DEIS relies on nebulous habitat assessments that are neither current nor accurately reflect the existing habitat potential for this species. Under this approach, no timber sale will ever impact goshawk habitat because there is always habitat "somewhere else" that will support the species. However, no actual accounting of this habitat and its changing condition is ever presented.	06/62	Refer to the Response to Comment 06/60. Also, design criteria in the DEIS Chapter 2 discuss retention of trees that provide potential goshawk habitat, as well as reporting to the biologist if den or nest sites are discovered during activities. Conservation measures would be implemented if nesting goshawks are found. The FEIS discloses how much suitable habitat, based on vegetation requirements of the species, would be affected by the project.
Wildlife/Goshawk	As an alternative method to the weak analysis presented in the DEIS, I suggest an approach that identifies potential goshawk territories in the study area.	06/63	Thanks for your suggestion.
Wildlife/Goshawk	"…maintain a minimum 40-acre yearlong no-treatment buffer around occupied goshawk nest trees. No ground disturbing activities would be allowed inside occupied post-fledging goshawk areas from April 15 to August 15." Please check/verify R1-C6.316, this is truly a standard. Goshawks typically have low nest-fidelity, year-to-year, moving nests each year. The analysis did neither disclose nor addressed the low-fidelity and attributes associated with a post-fledging area (400-600 acre forest patches). There is nothing in the DEIS relative to goshawk to support this design criterion.	13/14	Thanks for your comment, The design criteria is appropriate if a nest is found during operations. The biologist can mitigate for the impacts on the raptor, which aims for success of the clutch. These can be timing restrictions and/or the retention of more canopy. Post fledging areas are only important when there is an associated nest.
Wildlife/Grizzly Bear	A grizzly was recently illegally killed (2007) on the Clearwater National Forest. The two forests are administratively combined and are within the Bitterroot recovery zone for grizzly bears. Why wasn't any mention of grizzlies made in the DEIS?	28/35	See response to comment 03/66 and refer to DEIS, page 3-82 and 3-86.
Wildlife/Grizzly Bears	The DEIS says there are no grizzly bears in the area. A grizzly bear was killed in Kelly Creek on September 3, 2007. The Nez Perce-Clearwater National Forest is now known grizzly bear habitat and it is a violation of NEPA to not disclose this. It is also a violation of NFMA to not ensure a viable population of grizzly bears in the project area and is a violation of the ESA to not formally consult with the US FWS to see if this project will adversely affect grizzly bears.	03/165	The grizzly bear killed in Kelly Creek was over 45 miles to the northeast of Clear Creek. See response to comment 03/66 and 28/35 and the DEIS pg. 3-86 regarding the potential presence of grizzly bear in the project area.

Wildlife/Grizzly Bears	I saw a large grizzly bear crossing Highway 12 around 11:00 p.m. on August 3rd about 20-25 miles west of the Montana-Idaho border.	03/166	Thanks for your comment. We suggest you contact the IDFG with this reported sighting.
Wildlife/Lynx	Please formally consult with US FWS on the impact of this project on lynx. Squires 2010 found lynx are not using regenerated stands as originally thought. Therefore NEPA must be done on the exception in the NRMLD for lynx forage reduction within the WUI.	03/167	An analysis for lynx in relation to the NRLMD (DEIS, pgs. 3-91 to 3-99). The project is consistent with the NRLMD. A BA will be completed for the project.
Wildlife/Lynx	The DEIS states the project area could provide habitat for Canada lynx but the Forest is currently considered unoccupied habitat. What surveys have you done to prove this?	03/168	See DEIS: pages 3-91 and 3-92.
Wildlife/Lynx	This is violation of the ESA and an internal Forest Service memo according to Jim Claar from the Regional Office in Missoula. Mr. Claar told Arlene Montgomery from Friends of the Wild Swan, one of our member groups in a phone conversation that the Forest Service is directed to follow the Northern Rockies lynx management direction in historic lynx habitat. The project area is historic lynx habitat which means it is suitable habitat.	03/169	See response to comment 03/167. The project was analyzed according to the NRLMD. See DEIS: pages 3-91 to 3-93.
Wildlife/Lynx	The fact that continued implementation of the Forest Plans constitutes a "taking" of the lynx is not disclosed in the EA or in the EA's Biological Assessment. Such taking can only be authorized with an incidental take statement, issued as part of a Biological Opinion (B.O.) during a Section 7 consultation. The FS must incorporate terms and conditions from a programmatic B.O. into a Forest Plan amendment or revision before projects affecting lynx habitat, such as the North Butte Salvage Project, can be authorized.	03/170	The Clear Creek project is being conducted under an EIS, not an EA. The Biological Assessment will be prepared and available with the FEIS. See response to comment 03/96 and 03/169.
Wildlife/Lynx	The Programmatic BA's "likely to adversely affect" conclusion was based upon the following rationale (p. 4), all of which apply here. Forest Plans within the Northern Rockies: generally direct an aggressive fire suppression strategy within developmental land allocations. …this strategy may be contributing to a risk of adversely affecting the Lynx by limiting the availability of foraging habitat within these areas; allow levels of human access via forest roads that may present a risk of incidental trapping or shooting of Lynx or access by other competing carnivores. The risk of road-related adverse effects is primarily a winter season issue; are weak in providing guidance for new or existing recreation developments. Therefore, these activities may contribute to a risk of adverse effects to lynx; allow both mechanized and non-mechanized recreation that may contribute to a risk of adverse effects to lynx. The potential effects occur by allowing compacted snow trails and plowed roads which may facilitate the movements of lynx competitors and predators; provide weak direction for maintaining habitat connectivity within naturally or artificially fragmented landscapes. Plans within all geographic areas lack	03/171	Completing an amendment for Forest Plans within the Northern Rockies is beyond the scope of this project. The Clear Creek Project is consistent with NRLMD analysis and guidance (see response to comment 03/167)

	direction for coordinating construction of highways and other movement barriers with other responsible agencies. These factors may be contributing to a risk of adverse effects to lynx; fail to provide direction for monitoring of lynx, snowshoe hares, and their habitats. While failure to monitor does not directly result in adverse effects, it makes the detection and assessment of adverse effects from other management activities difficult or impossible to attain; forest management has resulted in a reduction of the area in which natural ecological processes were historically allowed to operate, thereby increasing the area potentially affected by known risk factors to lynx. The Plans have continued this trend. The Plans have also continued the process of fragmenting habitat and reducing its quality and quantity. Consequently, plans may risk adversely affecting lynx by potentially contributing to a reduction in the geographic range of the species; The BA team recommends amending or revising the Plans to incorporate conservation measures that would reduce or eliminate the identified adverse effects to lynx. The programmatic conservation measures listed in the Canada Lynx Conservation Assessment and Strategy (LCAS) should be considered in this regard, once finalized.		
Wildlife/Lynx	The BA notes that the LCAS identifies the following risk factors to lynx in this geographic area: Timber harvest and precommercial thinning that reduce denning or foraging habitat or converts habitat to less desirable tree species; • Fire exclusion that changes the vegetation mosaic maintained by natural disturbance processes; • Grazing by domestic livestock that reduces forage for lynx prey; • Roads and winter recreation trails that facilitate access to historical lynx habitat by competitors; • Legal and incidental trapping and shooting; • Being hit by vehicles; • Obstructions to lynx movements such as highways and private land development.	03/172	See response to comment 03/167 and the DEIS pages 3-94 to3-99. All measures of the NRLMD would be met for this project.
Wildlife/Lynx	It is clear, then, that the FS must do more than follow its Forest Plans to protect lynx. Nonetheless, and in spite of the inadequate analysis population viability following adverse modification of habitat perpetuated by the Project, the North Butte Salvage Project BA concludes that the implementation of the proposed action would result in a determination of “may affect but not likely to adversely affect.”	03/173	The comment is not referring to the proposed Clear Creek Project.
Wildlife/Lynx	The Programmatic BA’s analysis of the ability of the Forest Plans, as ‘amended’ by the LCAS, to prevent a “taking” of the lynx is based upon the Forests’ meeting management standards. As the Lolo NF has not adequately shown that it is in compliance with its old growth standards, or that it even has valid old growth standards, as detailed elsewhere in this appeal, the project BA and EA are not in compliance with the LCAS.	03/175	The Clear Creek Project does not occur on the Lolo NF.
Wildlife/Lynx	The NRLMD failed to consider the cumulative impacts of the loss of key winter lynx habitat on viability, and thus the BiOp for this	03/176	This comment addresses the NRLMD and is not specific to the

	NRLMD that is being applied to the Project is invalid.		Clear Creek project. It is beyond the scope of this project.
Wildlife/Lynx	The NRLMD failed to consider the cumulative impacts of the loss of key winter lynx habitat on viability, and thus the BiOp for this NRLMD that is being applied to the Project is invalid. There is no analysis, however, of the impact of this past logging on lynx. In the big game section of the EA, it was noted that past logging on private lands in the landscape peaked in 1917 (EA 3-334), and that logging on PCTC peaked in the 1980s (EA 3-344). Although it was noted in this big game section that lands in the Swan Valley landscape have fragmented forest cover as a result of past logging (EA 3-344), this fragmentation is never discussed for lynx or for critical habitat. The Project EA does note, however, that historic lynx foraging habitat is well below (5%) the 19% historic levels (Table 3-72 at 3-243), although the loss of lynx winter foraging habitat in old multistoried forest stands was not identified	03/177	See response to comment 03/175 and 03/176. Comment concerns another project.
Wildlife/Lynx	The Project Area is noted to be important lynx habitat. Chapter 3 of the DEIS notes that the Clear Creek area has important for lynx; this landscape is important for the recovery of lynx but apparently the DEIS concludes that it is alright to destroy lynx habitat because the Forest Service claims there are no lynx here even though there has been very little effort to survey for them. Thus application of the NRLMD to the Project will not ensure persistence or recovery of lynx in violation of the ESA, and NFMA.	03/178	Please see the lynx analysis in the DEIS pages 3-91 to 3-99. Limited habitat is available in the project area.
Wildlife/Lynx	There is no analysis in the NRLMD FEIS on the fragmentation impacts of clearcutting and forest thinning on lynx habitat use. This lack of analysis is not due to the availability of science. Squires et al. (2006) noted that clearcuts provide movement barriers to lynx in the winter. The adverse impacts of these barriers was not addressed by management criteria in the NRLMD, or the BiOp for the NRLMD. There is no limit to the percentage of the landscape that may provide movement barriers to lynx within a given LAU. The winter period is the most critical for lynx (Squires et al. 2010), so the impact of barriers in young forest created by logging will clearly affect the ability of lynx to survive and avoid winter starvation. The barrier effects of young forests on lynx is clearly demonstrated via radio-telemetry studies on lynx. Appendix B of this appeal includes 3 figures from McMillion 2009, Squires et al. 2006, and Squires et al. 2012 that show avoidance of logged areas by lynx.	03/179	See response to comment 03/176.
Wildlife/Lynx	Although there is a limit within LAUs that no more than 30% can be in the stand initiation phase, there is no analysis as to why this standard was developed. Why is 30% of the landscape in movement barriers to lynx in the winter acceptable, and what is the basis for assuming that this will ensure persistence?	03/180	See response to comment 03/176.
Wildlife/Lynx	The NRLMD and associated BiOp and ITS, including as is being applied to the current Project, is invalid because the agencies did	03/181	See response to comment 03/178.

	not address or consider the cumulative impacts of habitat fragmentation and loss of lynx winter habitat on lynx persistence in a given landscape.		
Wildlife/Lynx	The NRLMD and associated BiOp, as well as the updated BiOp for the Project on 2/13/2013, failed to address the fragmentation impacts of clearcutting and heavy forest thinning as barriers to winter lynx movement. The most obvious failure of the agencies to address this fragmentation is the failure of the NRLMD to define at what stage a clearcut no longer provides a movement barrier to lynx in the winter. This criteria is critical to management of lynx winter habitat.	03/182	See response to comment 03/176.
Wildlife/Lynx	Applying the NRLMD BiOp to the Clear Creek Project is clearly invalid as lynx persistence is not ensured by application of this conservation plan. Protection of the most key factors in lynx habitat (lynx winter habitat and fragmentation barriers) are not even addressed. Application of the NRLMD as a “proxy” for lynx persistence is invalid.	03/183	See response to comment 03/178. The Forest is required to follow the NRLMD (DEIS, pg3-91).
Wildlife/Lynx	The NRLMD and associated BiOp cannot ensure the viability of the lynx because recruitment of key winter habitat is not protected or required, and the impacts of logging younger forest stands on lynx is misrepresented; it is described as a beneficial impact when in fact it is highly detrimental.	03/184	See response to comment 03/176.
Wildlife/Lynx	The DEIS for the Project is invalid because the degradation of lynx habitat via clearcutting and forest thinning is incorrectly defined as “short term;” the long-term impacts of the Project on the lynx require an environmental impact statement using the best available science and formal consultation with the US FWS.	03/185	The project is being assessed under an environmental impact statement as noted by the commenter. See response to comment. 03/ 167 regarding consistency with the NRLMD.
Wildlife/Lynx	The agencies failed to identify the key importance of multi-storied forest stands as winter lynx habitat.	03/186	See DEIS: 3-95, Table 3-29, Standard VEG S6
Wildlife/Lynx	I agree with the conclusions you have presented in the lynx analysis.	06/53	Thanks for your comment.
Wildlife/Lynx	We recognize that the project area does not provide significant habitat for lynx. In general, it appears that the limited impact on “travel habitat” is consistent with the 2008 Northern Rockies Lynx Management Direction. At the same time, some CBC members question whether the limited number of acres in lynx habitat are critical to meet the project’s purpose and need.	27/25	Refer to lynx environmental consequences in the FEIS.
Wildlife/Lynx	While the DEIS does discuss lynx, it does not come to any solid conclusions, nothing inconsistences in lynx data and information. However, the DEIS does not discuss the adequacy of the NRLMD nor does it discuss the recent federal court decision in Montana	28/36	The adequacy of the NRMLD is beyond the scope of this project. The effects to Lynx habitat is small (0.5%) in this project. See DEIS, 3-99.

	that affects lynx and how the agency is supposed to deal with lynx habitat. Connectivity for lynx and other species is important and such a large timber sale will have negative impacts on connectivity.		
Wildlife/Marten	Your stand exam queries appear to have done a better job predicting marten habitat, but the impacts still seem to be low considering the size of Alternatives B, C and D. You regenerate over 2200-4,200 acres of mature stands with Alternatives B, C and D, yet only 800-1200 acres of suitable marten habitat is impacted.	06/57	The difference is that not all mature stands are over the 100 years of age as analyzed in the criteria for suitable marten habitat.
Wildlife/Marten	Once again the prediction by Samson (2006) that 17,297 acres would provide enough habitat to meet a minimum viable population estimate appears to be ridiculous. According to your analysis you could maintain the entire Northern Regions marten population within the project area since you supposedly have 17,328 acres of suitable habitat. I also have the same problems with the million acre estimate of suitable habitat from Bush and Lundbergh 2008 report that has been previously discussed for many of the other species.	06/58	See response to comments 06/35 and 06/26.
Wildlife/Monitoring	Also, temporal considerations of the impacts on wildlife population viability from implementing something with such long duration as a Forest Plan must be considered (id.) but this has never been done by the NEZ PERCE-CLEARWATER NF. It is also of paramount importance to monitor population during the implementation of the Forest Plan in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993).	03/120	The Forest Plan provides some temporal considerations on impacts to wildlife populations (NPNF LRMP 1987; Appendix 0). See response to comment 06/48 regarding Forest Plan monitoring.
Wildlife/Moose	Alternative C should be modified to meet the Peek et al. 1997 guidelines, or another alternative that does meet the guidelines should be selected.	06/69	Thanks for the opinion.
Wildlife/Moose	The Nez Perce Forest Plan recognized the unique value associated with moist mature forests with Pacific yew understories. In particular, the plan recognized the value for moose winter range. In the project area, there are significant stands of yew. The Forest Plan directs that steep slopes be classified as unsuitable timber ground and that patches be limited in size. Because of the potential inconsistency with the project, and because Alternatives B, C and D propose only 130, 161 and 29 acres of regeneration harvest, respectively, some members of the CBC suggest that these acres be reconsidered to determine whether they are essential to meet the project's purpose and need. Other CBC members suggest further elaboration in the FEIS is warranted to disclose impacts to moose winter range from proposed treatments. The CBC supports specific measures be considered to maintain and enhance vegetative attributes beneficial for moose, especially if moose use is evident in the proposed treatment area.	27/26	Thank you for observations. The responsible official will carefully consider all of the projects effects when making a decision. Chapter 3 wildlife section of the FEIS will disclose the effects of the proposed activities on moose and moose winter range.

Wildlife/Myotis Bats	this is overactive mgt and it is killing the myotis bats. this species cannot take the logging pressure.	14/07	As noted in the DEIS and FEIS analysis for myotis bat species, the project would have both positive and negative effects.
Wildlife/Patch Size	The patch size and opening sizes are of great concern. There are some huge blocks of regeneration logging (clearcutting), some of them a few hundred acres in size. How does this meet NFMA? What about the transition between old growth and clearcuts? How does this kind of contiguity, which occurs in some areas, affect the effectiveness of old growth habitat?	28/41	See response to comments 13/05, 3/22 and 6/30. Please refer to the Vegetation section of chapter 3 in the FEIS for a discussion of the effects of large openings. See DEIS 3-74 discussion below table 3-24. Connective corridors would be pursued for wildlife movements.
Wildlife/Pileated Woodpecker	Concerns for the pileated woodpecker are similar to those that have been previously described for many of the other sensitive wildlife species. Once again the analysis relies on large scale assessments that are not tracked or updated to reflect changed conditions. The analysis utilizes ridiculous estimates of the amount of habitat that would be required to maintain a viable	06/64	See response to comments 3/48, 06/35, 6/36 and 6/37. See Analysis Methodology and table on DEIS pages 3-84.
Wildlife/Pileated Woodpecker	Again the analysis refers to population numbers for the entire State of Idaho (9000 birds), but makes no estimate of how many pileated woodpeckers might be impacted by the project proposal. Again this could be easily estimated based on the average home range size of this species which has been listed at approximately 1,200 acres (Mellen et al. 1992).	06/65	Not all of the woodpeckers may be “paired.” The family unit is what determines the ‘home range’ size, not the individual.
Wildlife/Public Involvement	Solicit and disclose comments from the Idaho Department of Fish and Game regarding the impact of the Project on wildlife habitat;	03/04	Comments on the DEIS that were submitted by IDFG for the DEIS and during scoping are included in the project file. See response to 17/03.
Wildlife/Snags	Disclose the snag densities in the Project area, and the method used to determine those densities;	03/08	Walk through surveys found variable densities.About 22% of the analysis area where clearcuts occurred had low snag densities. In units with low snag densities green recruitment trees will be retained for snag replacements.DEIS 2-7, 2-8.
Wildlife/Snags	Please demonstrate that this project will leave enough snags to follow the Forest Plan requirements and the requirements of sensitive old growth species such as flammulated owls, fisher and goshawks. Loggers are required to follow OSHA safety standards. Will these standards require snags to be cut down? After snags are cut down for safety for OSHA requirements will there still be enough snags left for old growth sensitive species?	03/121	Present Guidelines for snags recommend a greater quantity of snags left than the Forest Plan. If snag densities are not able to be met, then green recruitment or dying trees will be left on site as snag recruitment trees. See DEIS 2-7, 2-8.
Wildlife/Snags	Snag densities recommended by experts to support cavity-nesting birds range from 2.1 to 11 snags per acre of greater than 9” dbh. Please note that the fact that more recent science has called into question the lower snag densities cited in the earlier research, and the more recent science implies that about 4 snags per acre may be the minimum required to insure viability.	03/122	This project is using target stands for the forest, which recommends 4 or more snags per acre (average). See DEIS 2-7, 2-8. Additional snags will be available within PACFISH buffers which will retain all live trees and snags.

Wildlife/Snags	After snags are cut down for safety for OSHA requirements will there still be enough snags left for old growth sensitive species?	03/155	No harvest would occur in old growth or within PACFISH buffers. Any unit not meeting snag densities would leave green trees for snag recruitment.
Wildlife/Song Birds	Much of the Clear Creek Roadless area slated for fire treatment is currently prime bird habitat. While a few species of concern are identified in the plan, the area is teeming with bird species, most of which nest in the proposed burning areas. As an avid birder I use the roadless area frequently to observe birds (a partial list is included). Burning out the underbrush will destroy much of this habitat.	11/02	Burns will happen over time, allowing animals in that area a chance to disperse to other favorable habitats. Fire can also stimulate vigor in shrubs and provide habitat for many bird species.
Wildlife/Vegetation	The wildlife habitat and the vegetation sections seem to be inconsistent. Some of the numbers in the chart on page 3-84 don't match the descriptions of vegetation. For example, the VRU tables suggest more acreage of stands of trees 21 inches and greater than is habitat for pileated woodpeckers or goshawks, which are old growth indicator species or for the two bat species, who use these older trees. This problem exists for other species.	28/26	See response to comment 6/35.
Wildlife/Viability	The FS should firmly establish that the species that exist, or historically are believed to have been present in the analysis area are still part of viable populations. Since Forest Plan monitoring efforts have failed in this regard, it must be a priority for project analyses. Identification of viable populations is something that must be done at a specific geographic scale. The analysis must cover a large enough area to include a cumulative effects analysis area that would include truly viable populations. Analysis must identify viable populations of MIS, TES, at-risk, focal, and demand species of which the individuals in the analysis area are members in order to sustain viable populations.	03/123	Historic district records and other wildlife databases are searched for species presence in the project area. See response to comments 6/36 and 03/119 regarding viability.
Wildlife/Western Toad	Your evaluation of suitable habitat in upland areas appears to grossly underestimate suitable western toad habitat in the analysis area. It is hard to believe there are only 510 acres in the entire project area.	06/56	See DEIS: 3-84 for Analysis methodology & habitat criteria in table 3-28.
Wildlife/Whitebark Pine	The agencies do not have in place any forest plan biological assessment, biological opinion, incidental take statement, and management direction amendment for whitebark pine…. The agencies do not have in place any recovery plan and regional management direction amendment for whitebark pine.	03/98	There is no whitebark pine in the project area.
Wildlife/Whitebark Pine	The agencies must conduct esa consultation for the whitebark pine. Whitebark pine is present throughout the analysis area for the project.	03/99	See response to 03/98 and 3/101.
Wildlife/Whitebark Pine	Whitebark pine seedlings, saplings and mature trees, present in subalpine forests proposed for burning, would experience mortality from project activity. Whitebark pine is fire intolerant (thin bark).	03/100	See response to 03/98 and 3/101.

	Fire favors whitebark pine regeneration (through canopy opening and reducing competing vegetation) only in the presence of adequate seed source and dispersal mechanisms (Clarks Nutcracker or humans planting whitebark pine seedlings).		
Wildlife/Wolf	I don't understand why you don't deal with elk security in any of the proposed alternatives since you are not meeting security objectives on any of the alternatives in the Clear Creek 3 Elk Analysis Area.	06/55	We have no Forest Plan standards for elk security. The roads in Clear Creek 3 EAA are mainline roads which we are not proposing to close to access. This is the smallest EAA in the project area and there is adequate security in the remainder of the drainage (DEIS, Table 3-32).
Wildlife/Wolverine	the Forest Service has chosen to omit wolverine from analyses in the DEIS (p. 3-86). It is important that the Project be evaluated with respect to potential impacts to wolverine to ensure that actions do not contribute to the decline of this iconic species.	21/13	See response to 06/41.
Wildlilfe	Please provide us with the full BA for the bull trout, wolverines, pine martins, northern goshawks, whitebark pine, grizzly bears and lynx.	03/72	See response to comment 03/66 and 03/170. Pine martens and goshawks are analyzed with biological evaluations not biological assessments on the Forest.
Wildlilfe/Lynx	The DEIS fails to provide adequate maps of LAUs and habitat components along with areas of human activity as the LCAS requires, making it impossible for the public and decision maker to understand the impacts of motorized travel, as well as to understand impacts on habitat and connectivity of habitat. The BA lacks a genuine analysis of the full range of cumulative impacts of other activities. The EA and BA also fail to disclose the cumulative effects of livestock grazing on the grazing allotments in the project area.	03/174	The BA has not yet been written, therefore we assume this comment is not related to the Clear Creek project as the comment refers to and EA. Clear Creek is an EIS. The Aquatics and Watershed sections have been updated with grazing information in the cumulative effects section.
Wildllife/Cumulative Effects	The FS must disclose its transparent, well thought-out long-term strategy for old-growth associated wildlife species viability in a properly-defined cumulative effects analysis area.	03/113	Wildlife species are analyzed individually. Those associated with old growth are analyzed on project effects to their habitat. See response to comments 03/22, 06/36 and 03/119 regarding viability.
References	There is a standard literary standard to inform the public that documents have been peer reviewed. Government documents have peer-review requirements issues by the White House Office of Management and Budget (OMB). The link to these requirements is: http://en.wikipedia.org/wiki/U.S._Government_peer_review_policies This member of the public has checked the documents cited in the References section and more than a few do not meet these requirements.	10/06	The commenter cites Wikipedia, which is itself not subject to any sort of formal scientific scrutiny. Wikipedia is "… written collaboratively by largely anonymous Internet volunteers who write without pay. Anyone with Internet access can write and make changes to Wikipedia articles, except in limited cases where editing is restricted to prevent disruption or vandalism. Users can contribute anonymously, under a pseudonym, or, if they choose to, with their real identity." (http://en.wikipedia.org/wiki/Wikipedia:About) Scientific information that was the foundation for development of this project is presented in the Clear Creek pre-NEPA assessment, which is available in the project file and on the project webpage (http://www.fs.fed.us/nepa/nepa_project_exp.php?project=38021

			). It was used to develop the purpose and need for action (FEIS, Chapter 1). Scientific concepts related to vegetation and fuels treatments were incorporated in the project design and are cited in literature throughout the FEIS The resource analyses in the FEIS establish the scientific basis for methodology and conclusions. Science presented during scoping and previous opportunities to comment were considered. The science presented during this comment period was also considered and addressed throughout the response to comments. The analysis and decision considered the best available science, and opposing science is discussed in the response to comments.
Purpose and Need	Numerous United States laws tell USFS line-officers that they must not propose a project anywhere for any reason that will harm the environment for the short or long-term as this one will do. Providing materials for local wood products industries is an outcome … not a reason for logging!	10/07	The purpose and need for action was developed based on the results of the interdisciplinary pre-NEPA assessment that was done for the project area. Project development and analysis were guided by the goals, objectives, standards, guidelines, and management area direction within the Nez Perce Forest Plan. This Project would help move the Forest toward desired conditions as described in the Forest Plan and other relevant planning direction.
Soils	The Regional soils quality standards are less restrictive and allow more detrimental soil disturbance than the soil standard in the forest plan. The Regional soils standard allows activities to occur that are likely to cause soil compaction, displacement, rutting, severe burning, surface erosion, and mass wasting regardless of the existing soil damage. Tell the public the truth! Tell the public why you believe it's in their best interest to allowmore soil damage to increase the acres logged.	10/08	See the response to 02/05.
Roads	If the Responsible Official really wants to eliminate the sediment originating from temporary roads he will obliterate all temporary roads after use and say this will be done in the final EIS.	10/09	This commented was submitted for the DEIS, which clearly states that all temporary roads would be decommissioned after use (DEIS pgs. 1-7, 1-12, 1-13, 2-6, 2-7, 2-12, 3-12, 3-39, 3-41, 3-42, 3-46, 3-98, 3-99). This language regarding temporary road decommissioning has been retained in the FEIS.
Roads	Supervisor Brazell, please include a map with the final EIS showing the location of each existing of the 8.7 miles of existing templates that will be reconstructed and the date the template was constructed. Also, tell the public that the existing templates are left over from so-called "temporary" road. Last, explain to the public that roads that are gated or otherwise made impassible are still roads and are not temporary.	10/10	Maps showing the proposed locations for temporary road construction for all alternatives were provided in the DEIS, and have been provided in the FEIS as well. All temporary roads would be decommissioned after use. Please see the response to 10/09.
Documentation	This member of the public does not understand why the predicted resource damage resulting from this timber sale is consciously minimized, lessened and played-down in Chapter 3 using the words: "short-term," "temporary," and "minor," repeatedly without explanation. **All** (emphasis added) IDT members should feel	10/11	The DEIS includes a definition of "Temporary Roads" in the glossary. FEIS has been updated to include definitions for the terms "short-term" and "minor" to address this concern.

	ashamed!!!!!!!!!!! After you read the examples below go back to paragraph 3 near the beginning of these comments.		
Documentation	This member of the public does not understand why the predicted resource damage resulting from this timber sale is consciously minimized, lessened and played-down in Chapter 3 using the words: “short-term,” “temporary,” and “minor,” repeatedly without explanation. **All** (emphasis added) IDT members should feel ashamed!!!!!!!!!!! After you read the examples below go back to paragraph 3 near the beginning of these comments.	10/12	The FEIS has been updated to address this concern.
Documentation	If the Responsible Official chooses to use the terms short-term,” “temporary,” minor,” “negligible” and/or “unmeasureable” anywhere in Chapter 3 of the final EIS there must scientific data, empirical evidence and/or references to monitoring reports that support the claim. Unsubstantiated statements written by unknown authors whose employment depends on selling timber sales would be ruled inadmissible by any judge in a court of law.	10/13	Please see the response to 10/12.
Cumulative Effects	Chapter 3 of this DEIS indicates there will be multiple short-term, temporary, and minor damage inflicted on many natural resources in and near the sale area. Congress required a cumulative effects analysis to describe the total damage caused resulting from repeated minor damage.	10/14	Cumulative effects analyses for all resources were provided in the DEIS, and have been included in the FEIS as well.
Cumulative Effects	Please insert a complete cumulative effects analysis in Chapter 3 of the final EIS. When doing so, remember: 1) Most resources in the forest are connected and synergistic. An effect on one resource will likely affect other resources. 2) If there have been other projects or natural disturbance events in the resource’s area of influence (usually the watershed) that have affected the resource, it should be defined and included in the cumulative effects analysis 3) The duration of an effect is not an indicator of the magnitude of the effect. 4) Describe all reasonable foreseeable future actions that might affect the resources.	10/15	Please see the response to 10/14.
Fire	The public living in the WUI wants to know why you place merchantable tree removal actions described in the Purpose & Need more important than human lives. Much of your P&N describes what a private industrial tree farm manager would strive to do on the land under his/her control. Why does mimicking private industrial tree farm transcend the importance of reducing the risk of homes burning	10/16	The comment is unclear. The potential effects of prescribed fire are described in the FEIS.
Documentation/Referenc e	Please comply with 40 C.F.R. § 1502.9(a) by responding to each	10/17	The Forest Service has reviewed the literature citations and has

	opposing view in **Attachments #3 and #11.**		provided a response in tables below.
Fire	Dr. Cohen states "Research results indicate that the home and its immediate surroundings within 100-200 feet (30-60 meters) principally determines the home ignition potential during severe wildland-urban fires." Why are you spending tax dollars on this fuels timber sale rather than helping the public?	10/18	Dr. Cohen's research does not apply to the Clear Creek project because the project purpose does not include fuels reduction to reduce risk of fire damage to homes located within the wildland urban interface. The purpose of this project is to manage vegetation and fuel accumulations at the landscape level. It does not include fuels reduction to reduce the risk of fire damage to homes in the wildland urban interface (EIS, Purpose and Need, Chapter 1). Also see the literature review in the table below, regarding Dr. Cohen's research.
Fire	Dr. Cohen states "Extensive wildland vegetation management does not effectively change home ignitability." How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/19	See the response to 10/18.
Fire	Dr. Cohen states "The wildland fuel characteristics beyond the home site have little if any significance to WUI home fire losses." How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/20	See the response to 10/18.
Fire	Dr. Cohen states "Vegetation management beyond the structure's immediate vicinity has little effect on structure ignitions." How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/21	See the response to 10/18.
Fire	Dr. Cohen states "Past reports and recommendations as well as experimental research and modeling suggest that W-UI fire-loss mitigation should concentrate on the residence and its immediate surroundings. How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/22	See the response to 10/18.
Fire	Dr. Cohen states "wildland fuel reduction does not necessarily mitigate the W-UI fire loss problem." How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/23	See the response to 10/18.
Fire	Dr. Cohen states "Effective landscape fuel reduction does not necessarily prevent W-UI home fire destruction." How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/24	See the response to 10/18.

Fire	Dr. Cohen states “wildland fuel reduction that is effective for reducing the wildland fire intensity might be insufficient for reducing the destruction of highly ignitable homes.” How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/25	See the response to 10/18.
Fire	Dr. Cohen states “Vegetation management to prevent ignitions from radiation does not require extensive vegetation removal hundreds of meters from a structure. Our analysis indicated that 40 meters was sufficient for a 20 meter flame height.” How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/26	See the response to 10/18.
Fire	Dr. Finney, Dr. Cohen, Dr. Franklin and Dr. Agee agree that ”there are a number of misconceptions and misunderstandings about fuel treatments and their use as a panacea for fire hazard reduction across the United States.” How does the Clear Creek timber sale differ such that their conclusion is not true in the timber sale location?	10/27	The purpose and need for action, including the use of prescribed fire to reduce fuel accumulations at the landscape level, is described in the FEIS in Chapter 1. The environmental consequences of proposed prescribed fire activities are discussed in the FEIS in Chapter 3.
Fire	Dr. Cohen states “It is a misconception to think that treating fuels can ‘‘fire-proof’’ important areas.” How does the Clear Creek timber sale differ such that his conclusion is not true in the timber sale location?	10/28	The purpose of prescribed fire activities proposed for the project area is to return the area to natural long-term disturbance patterns, not to “fire-proof” the area. (FEIS, Chapter 1, purpose and need for action).
Fire	Dr. Bessie and Dr. Johnson say “weather (fuel moisture and wind) is far more important than fuels in determining fire behavior; reducing fuels may have a limited impact on fire occurrence.“ How does the Clear Creek timber sale differ such that their conclusion is not true in the timber sale location?	10/29	The cited article suggests that weather is the primary factor affecting wildfire size in subalpine forests near the boreal forest ecotone in Alberta, Canada. The title of the article clearly states that it focuses on subalpine forests. The Clear Creek Integrated Restoration project is located within an entirely different forest type.
Fire	Dr. Cohen states “Treating fuels to reduce fire occurrence, fire size, or amount of burned area is ultimately both futile and counter-productive.” How does the Clear Creek timber sale differ such that his conclusion is not true in this timber sale location?	10/30	See the response to 10/18.
Fire	Dr. Cohen states ““It may not be necessary or effective to treat fuels in adjacent areas in order to suppress fires before they reach homes; rather, it is the treatment of the fuels immediately proximate to the residences.” How does the Clear Creek timber sale differ such that his conclusion is not true in this timber sale location?	10/31	See the response to 10/18.
Fire	Dr. Cohen says “Thinning will often result in increased potential surface fire behavior.” How does the Clear Creek timber sale differ such that his conclusion is not true in this timber sale location?	10/32	Fuel modeling suggests the reduction of surface and ladder fuels along with the separation of tree crowns prescribed in the Clear Creek vegetation treatments will decrease the risk of high severity crown fire (FEIS, Chapter 3 Environmental

			Consequences, Fuels).
Fire	Lertzman et al., 1998; Agee et al. state, "Some viable fuel treatments may actually result in an increased rate of spread under many conditions." How does the Clear Creek timber sale differ such that their conclusion is not true in this timber sale location?	10/33	We disagree with your statement that fuels reduction does not reduce fire intensity. Our disagreement is supported by the analysis in the Fuels section of Chapter 3 of the EIS. When fuels are reduced, fires burn with less intensity and have shorter flame lengths. Consequently, firefighting forces are more likely to be able to control a fire. It logically follows that a less intense fire burning in light fuels will produce fewer firebrands, resulting in a slower rate of spread.
Fire	Dr. Cohen states "Ecosystem restoration treatment and fuel treatment are not synonymous." How does the Clear Creek timber sale differ such that Dr. Cohen's conclusion is not true in this timber sale location?	10/34	The comment is unclear. The DEIS did not assert that fuels treatments and ecosystem restoration treatments are "synonymous." Fuels treatments are not the only vegetation management actions proposed for this project. Other ecosystem restoration treatments include timber harvest, road decommissioning, native grass restoration.
Fire	**Comment:** Dr. Ingalsbee and Dr. Fox say "logging-induced changes in fuel composition, vegetation, and microclimate can result in increased rate of fire spread, higher fireline intensity, and more severe fire effects." What scientific evidence does the Responsible Official have showing this is untrue?	10/35	The cited article is opinion commentary. "Commercial logging" cannot prevent wildfires - the Forest Service has never said it would. To "prevent" wildfires, one would have to stop all human and natural (i.e. lightning) ignition sources. However, vegetation treatments of all kinds are done to modify fire behavior within treated areas. Ample evidence suggests that thinning can be used to modify fire intensity and severity. For example:
Fire	The public detests commercial logging in their national forest land, especially when the reason given for the logging does not help them during a wildfire.	10/36	This is the author's personal opinion. Members of the public who commented on the DEIS support timber harvest proposed for this project. The FEIS effects analysis shows that timber harvest and prescribed burn treatments will effectively modify fire behavior within treated areas. Harvest treatments will ertain the largest, most fire-resistant trees.
Fire	The Clear Creek timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Agee says. Why is his statement that fires are more weather –dependent than fuel-dependent not the case here?	10/37	The above quotation was taken out of context. The author says that this statement identified in the provided quotation should not be generalized to all forest types. Fire behavior is a function of fuel, weather, and topography. The author suggests that weather is likely the most influential factor in fire behavior for subalpine forests and moist coastal forests of Douglas-fir and western hemlock which are historically characterized by a high-severity fire regime. However, the author suggests that for the mixed conifer forests with a variety of dry-site conifers present, such as what is identified for treatment in this project project, fuel is likely the most influential factor in fire behavior.
Fire	The Clear Creek timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Alison says. Why is his statement that fires are driven by climate and weather not the	10/38	Please see the answer to 10/37

	case here?		
Fire	The Clear Creek timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Bessie and Dr. Johnson say. Why are their statements that fires are driven by drought and high winds not the case here?	10/39	The cited article suggests that weather is the primary factor affecting wildfire size in subalpine forests near the boreal forest ecotone in Alberta, Canada. The title of the article clearly states that it focuses on subalpine forests. The vegetation treatments for this project are located within an entirely different forest type. James Agee says that people cite the Bessie and Johnson paper as evidence for what he calls the "weather hypothesis" (all large, severe wildfires are more weather-dependent than fuel-dependent). However, Agee points out that the Bessie and Johnson paper is specific to subalpine forests. He indicates that evidence from studies in other areas suggest that the weather hypothesis should not be generalized to all forest types.
Fire	The Clear Creek timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Kelly says. Why are Dr. Kelly's statements that fires are driven by drought, wind, and low humidity not the case here? Also how will you replicate the fire benefits to the natural resources that exist in your timber sale area if the fires don't occur?	10/40	The cited article is opinion commentary criticizing the then-proposed Beaverhead-Deerlodge Conservation, Restoration and Stewardship Act of 2007. This bill did not pass into law and has no relevance to the Clear Creek Integrated Restoration Project on the Nez Perce-Clearwater National Forest. Forest types where the proposed vegetation treatments would occur are very different than the subalpine forest described in the quotation.
Fire	The Clear Creek timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Partridge says. Why are Dr. Partridge's statements that fires are driven by temperature and moisture not the case here?	10/41	We were not able to locate the document quoted in Mr. Artley's comment letter. Dr. Partridge is not included among the witnesses listed to give testimony for the 6/26/2003 hearing on the Agriculture Nutrition and forestry website (http://www.ag.senate.gov/hearings/review-healthy-forests-restoration-act-hr-1904). Also, the wrong link (http://www.univision.co.za/offer-day-oA2A392Cr1N3B2x_2F2du3g3-music.shtml) was provided in Mr. Artley's comment letter.
Fire	Actions similar to the Clear Creek timber sale are precisely what USFS Chief Dombeck says should not occur because the cost is high and it does not reduce the fire damage risk for people living in the WUI.	10/42	The Forest Service disagrees with the commenter's opinion. The economics section of the FEIS displays costs associated with the proposed actions. The Fire section of the FEIS displays environmental consequences, including benefits, associated with the proposed actions.
Fire	In the response to comments in the final NEPA document please tell the public why Dr. Schoennagel, Dr. Veblen and Dr. Rommie are wrong when they all agree that "once fuels reached critical moisture levels later in the season, the spatial pattern of the large, severe stand replacing fires was controlled by weather (wind direction and velocity), not by fuels or stand age."	10/43	The cited article is a case study of large wildfires in the Rocky Mountains to assess the potential effectiveness of fuel reduction treatments across a range of major forest types. The authors discuss the differences between high, mixed, and low severity fire regimes and the different forest types characteristic of each one. They conclude that fire regimes, climate, fuel type and abundance, and stand structure vary significantly across the Rocky Mountain region and thus suggest that a "one-size-fits-all" approach to reducing wildfire hazards in the Rocky Mountain region is unlikely to be effective. Within mixed severity fire

			regimes, the authors conclude, "fuel reduction treatments (mechanical thinning and prescribed burning) may effectively reduce fire severity under moderate weather conditions, but these treatments may not effectively mitigate fire behavior under extreme weather conditions." The fuel modeling conducted for this project suggests that treatments will be effective at modifying fire behavior to reduce the potential for high severity crown fire within treated areas under normal summer conditions.
Fire	Dr. Schoennagel is a research scientist in CU-Boulder's geography department. Her research team included Dr. Cara R. Nelson, Dr. David M. Theobaldc, Dr Gunnar C. Carnwathb, and Dr. Teresa B. Chapmana. The Responsible Official should not ignore their conclusion that most fuels reduction timber sales are located far from the WUI where they are much less likely to reduce the risk that homes located in the WUI will burn	10/44	Manipulation of forest structure has been shown numerous times to reduce the severity of wildland fire events (Agee 1996). The Fire and Fuels section of the EIS shows that post-treatment areas would be unlikely to initiate or sustain a crown fire. It is the infrequent dry, hot, and windy conditions (97th percentile) that any fuels treatment is ineffective at reducing fire behavior due to long spotting distances, extremely dry fuel beds, and stands still being able to initiate and sustain crown fires.
Silviculture/Logging	The public expects the men and women who they pay to care for their national forests to understand how national policies created by a timber lobbyist (Mark Rey) appointed by bush to increase the cut from national forests is still driving the agency to do things the public abhors	10/45	This is the commenter's opinion.
Fire	The Clear Creek timber sale directly contradicts the truths stated by a person with a Ph.D. who specializes in fire and protection from fire damage,	10/46	The cited article is opinion commentary written 10 years ago about the implementation of the National Fire Plan, which has little relevance to the this project.
Public Involvement	This timber sale is inconsistent with what the public wants the agency employees administering the national forest to do as documented in the USFS-authored document: Gen. Tech. Rep. RMRS-GTR-95. Explain why you feel that you have been given the authority to violate the public trust	10/47	The cited document reports the results of a public survey that was used to help develop the Forest Service Strategic Plan (2000 Revision). On a scale of 1to 5, with 1 being "not at all important" and 5 being "very important", the survey results indicated "provide natural resources to dependent communities" as 3.60 and "restrict timber harvest and grazing" as 3.99, which are of relatively similar importance. The survey also indicated there is wide support for the strategic goal of promoting ecosystem health and conservation using a collaborative approach to sustain the Nation's forests, grasslands, and watersheds (page 2). This project is consistent with the strategic plan objectives supporting this goal: a) improve and protect watershed conditions; b) provide ecological conditions to sustain viable populations of native and desired nonnative species; c) increase the amount of forests and grasslands restored to or maintained in a healthy condition with reduced risk and damage from fires, insects and diseases, and invasive species.
Public Involvement	There is no "timber famine" as the USFS has been so fond of predicting for many decades. There is no shortage of raw materials for paper and wood products in the United States otherwise the owners of private timberland would not be exporting	10/48	Please see 10/47. Vegetation management activities proposed for this project are consistent with direction in the Nez Perce Forest Plan.

	their lumber. The public doesn't want their public land logged and there is no economic need to log the trees. Therefore Supervisor Brazell you are logging to meet Regional Forester Krueger's volume expectations that were established you P&N lies.		
Noxious Weeds	The chemicals listed above kill aquatic life even if the concentrations of the chemical in water are very low. Fish deaths will occur in the streams in the project area and the herbicide toxicity will extend many miles downstream. Herbicides must never be allowed to contact water … even so-called aquatic-safe herbicides.	10/49	The specific formulation, method of application, location, application rate, and other factors influence the actual potential for exposure and impacts. The 1988 Nez Perce National Forest Noxious Weed Control Program EA discusses these and provides direction to minimize risk from herbicides.
Silviculture/Logging	Supervisor Brazell, I know the game. The line officer receives timber funding for each FY. This is used to pay all your employees who spend all or part of their time planning, preparing, selling and administering timber sales. You know all the $$$ must be spent each FY or your funding will be less next year and you will be reprimanded by your supervisor. Thus, you are forced to sell timber sales whether they are justified or not based on the advice of your timber staff and/or TMA who are paid to "get out the cut." You reject the statements by over 100 independent, unbiased Ph.D. biological scientists who describe the ecosystem damage caused by timber sale activities.	10/50	The FEIS discusses the environmental consequences of timber harvest proposed for this project, in detail, including economics.
Silviculture/Logging	Supervisor Brazell, I have seen it before. When the end of the FY is approaching there is a frantic effort to find a timber sale anywhere, which means creating untrue reasons for the sale after the fact in the Purpose and Need after the merchantable trees have been found.	10/51	Please see 10/50.

Artley Attachment #11: "Any NEPA Document that Analyzes Treatments to Reduce the Risk of Fire Damage to Homes Located in the WUI must Analyze a Dr. Jack Cohen Alternative in Detail."

Letter #/ Comment #	Comment and Response
10/52	**Comment**: ANY NEPA Document that Analyzes Treatments to Reduce the Risk of Fire Damage to Homes Located in the WUI must Analyze a Dr. Jack Cohen Alternative in Detail. **Response**: An alternative that analyzes treatments to reduce the risk of fire damage to WUI homes only through removing fine fuels near the homes (referred to as a "Dr. Jack Cohen Alternative") was not requested or suggested by the public during scoping; the commenter did not put the agency on notice that such an alternative should be considered. A "Cohen" alternative, as described by the commenter, would not achieve the fire/fuel related purpose and need for this project, which is to create a more diverse and resilient forest structure by creating a range of age and size classes, species diversity, and disturbance patterns that more closely emulate the results of natural disturbance. because it would solely focus on treatments within the home ignition zone. Even if that had been suggested during an earlier planning phase (during scoping for alternative development, rather than during the DEIS comment period), the agency is responsible for land management activities on National Forest System lands, not on private property. Specifically, the purpose of the low and mixed severity prescribed burning proposed for this project is to restore natural fire regimes, reduce fuels, improve wildlife habitat, and create mosaic forest conditions.
10/53	**Comment:** Dr. Cohen's Research Findings Represent Best Science and Empirical Evidence Shows his Fire Damage Risk Reduction Methods that remove the Fine Fuels Near the Home are Far Superior to Hazardous Fuel Removal. **Response:** Approximately 94% of the project area lies within the rural Salmon-Clearwater WUI (FEIS, Chapter 3, Environmental Consequences, Fuels). However, the purpose and need for this project does not include an objective to reduce fine fuels near residences. The wildland-urban interface refers to areas where wildland vegetation meets urban developments. These areas encompass not only the interface (areas immediately adjacent to urban development), but also the continuous slopes that lead directly to a risk to urban developments. Prescribed burning would occur in the Clear Creek Roadless Area, not in the vicinity of homes or other buildings. The objective for prescribed burning in the Clear Creek Integrated Restoration project is to restore natural fire regimes, reduce fuels, improve wildlife habitat, and create mosaic forest conditions, This project would meet the Nez Perce National Forest Plan's fire management goal for this area, which is to "protect resource values through cost effective fire and fuels treatment through the utilization of material and using prescribed fire" (FEIS, Chapter 3, Environmental Consequences, Fuels; Nez Perce Forest Plan, 1987b, p. II-2).
10/54	**Comment**: Dr. Cohen's opposing views #1 through #50 relate to the effectiveness of prescribed burning at reducing home ignitability within WUI's. **Response**: Please see the responses to 10/52 and 10/53. Prescribed burning in the Clear Creek Integrated Restoration is intended to restore natural fire regimes, reduce fuels, improve wildlife habitat, and create mosaic forest conditions within the Clear Creek Roadless Area. It is not intended to reduce the ignitability of structures within the WUI.

Artley Attachment #18: "Following Label Directions on "Approved" Herbicides Containers does not Assure Safety."

Letter #/ Comment #	Comment and Response
10/55	**Comment**:: "Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices. Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT).44 Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data."44 IBT was one of the largest laboratories performing tests in support of pesticide registrations.44 About 30 tests on glyphosate and glyphosatecontaining products were performed by IBT, including 11 of the 19 chronic toxicology studies.45 A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination."46 (Emphasis added.) In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results.47 "Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports."48 Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question.49 The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges.50 The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.48 Although the tests of glyphosate identified as fraudulent have been replaced, these practices cast shadows on the entire pesticide registration process." **Response:** The comment is not specific to the Clear Creek Integrated Restoration project. Mr. Artley's comments mix conclusions about "glyphosate" and the formulation "Roundup" as if they were the same thing. It is widely known and reported in independent academic studies that the toxicity of the surfactant in Roundup is much more toxic than the active ingredient glyphosate. The specific formulation, method of application, location, application rate, and other factors influence the actual potential for exposure and impacts. The FEIS provides management direction for projects to minimize risk from herbicides. Roundup is an approved herbicide used according to label directions. Its use is limited to specific target species, applied as spot application. With the exception of isolated individual or small infestations, it is not anticipated that Roundup will be used within the project area. However, if specific target species are located, Roundup may be used according to label instructions. Glyphosate is a non-selective herbicide. It has little soil activity and is not absorbed in the rooting zone. Its non-selectiveness cause this herbicide to kill most plants where applied, including desirable native plants. It is approved for us adjacent to water and can have utility within riparian buffers. Roundup is the commercial name for this herbicide. Use of glyphosate in the project area would be applied as spot application (on the target plant only), and then only on aggressive, prolific species of concern, such as Rush Skeleton Weed. Glyphosate will not be used in broadcast applications, or in any winter range areas. It's use in the project area is not anticipated, but the option of its use is available if a specific target species infestation is found in the project area. Interdisciplinary team members and the Responsible Official have reviewed the attachments to the commenter's letter and have determined the content of the literature cited does not inform the environmental effects analysis or the Responsible Official's decision to select the actions described in the EA. The literature referenced is of a general and generic nature and is not pertinent to the site-specific analysis required of NEPA and NFMA.

10/56	**Comment**: In 2004 the "Counterpart Regulations," strongly supported by industry, were proposed to streamline EPA's pesticide review process at the expense of the most vulnerable life forms in our country, Endangered and Threatened Species aka Listed Species (1,265 species are "Listed"). The critical change these regulations bring about is elimination of the requirement for consultations with wildlife experts at the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) by EPA reviewers evaluating adverse impacts of pesticides on Listed Species and their habitats. RCC opposed the Counterpart Regulations with comments, but, sadly, the Regulations were issued in final form on July 29, 2004, despite our objections. Over 125,000 public comments were received by the Fish and Wildlife Service, and they ran 2 to 1 against the Counterpart Regulations. RCC Insight: Apparently, the public's concerns did not make a difference to the people at FWS and NMFS, or did they? We wonder whether the scientists involved with protecting wildlife at both "Services" would want to be bringing their experience and knowledge to bear on decisions made by EPA with respect to pesticides, if it were up to them. Perhaps they would prefer to be part of the evaluation process and they do not concur with finalizing the Counterpart Regulations. However, the fact is that decision-makers, by finalizing these changes, support an action that will weaken Endangered Species' protection from poisoning and habitat degradation due to pesticides. This latest environmental rollback can mean increasingly hazardous conditions in rivers, lakes and wetlands. A further risk is weakening of the Endangered Species Act itself. (Text of our "Comments" is available through our website -- rachelcarsoncouncil.com) **Response**: The comment is unclear. The comment from Mr. Artley's letter, copied here, was quoted from rachelcarsoncouncil.org, which appears to be an online political forum related to environmental issues. Consultation with the regulatory agencies for the Clear Creek Integrated Restoration project will be completed before the final decision is published, as required by the Endangered Species Act.
10/57	**Comment**: "Used in yards, farms and parks throughout the world, Roundup has long been a top-selling weed killer. But now researchers have found that one of Roundup's inert ingredients can kill human cells, particularly embryonic, placental and umbilical cord cells. Until now, most health studies have focused on the safety of glyphosate, rather than the mixture of ingredients found in Roundup. But in the new study, scientists found that Roundup's inert ingredients amplified the toxic effect on human cells—even at concentrations much more diluted than those used on farms and lawns. One specific inert ingredient, polyethoxylated tallowamine, or POEA, was more deadly to human embryonic, placental and umbilical cord cells than the herbicide itself – a finding the researchers call "astonishing." "The research team suspects that Roundup might cause pregnancy problems by interfering with hormone production, possibly leading to abnormal fetal development, low birth weights or miscarriages. Monsanto, Roundup's manufacturer, contends that the methods used in the study don't reflect realistic conditions and that their product, which has been sold since the 1970s, is safe when used as directed. Hundreds of studies over the past 35 years have addressed the safety of glyphosate. "Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that's out there," said Monsanto spokesman John Combest. "It's used in public parks, it's used to protect schools. There's been a great deal of study on Roundup, and we're very proud of its performance." The EPA considers glyphosate to have low toxicity when used at the recommended doses. "Risk estimates for glyphosate were well below the level of concern," said EPA spokesman Dale Kemery. The EPA classifies glyphosate as a Group E chemical, which means there is strong evidence that it does not cause cancer in humans. **Response**: See the response to 10/55
10/58	**Comment**: "However, the U.S. government regulatory agencies seem to have given Monsanto a long rope. The clout Monsanto enjoys in the U.S. government is by no means incidental. According to the Organic Consumers Association, Clarence Thomas, before being the Supreme Court Judge who put George W. Bush in office (in his first term), was a Monsanto lawyer; Anne Veneman, the U.S. Secretary of Agriculture, was on the board of directors of Monsanto's Calgene Corporation; Donald Rumsfeld, the Secretary of Defence, was on the board of directors of Monsanto's Searle Pharmaceuticals; Secretary of Health Tommy Thompson received $50,000 in donations from Monsanto during his winning campaign for Wisconsin's governorship; and the two Congressmen who received the most donations from Monsanto during the last election were Larry Combest (Chairman of the House Agricultural Committee) and John Ashcroft (the Attorney-General)." **Response**: The comment is unclear, and not specific to the project area.
10/59	**Comment:** "A recent study which shows clear links between exposure to the herbicide glyphosate and non-Hodgkin's lymphoma (NHL), a form of cancer that afflicts the lymphatic system, has caused worldwide concern over the safety of the herbicide on humans. The study was conducted by eminent oncologists Dr Lennart Hardell and Dr Mikael Eriksson of Sweden and published in the journal Cancer by the American Cancer Society on March 15." **Response**: See the response to 10/55.

10/60	**Comment:** To protect our health, the U.S. Environmental Protection Agency (EPA) sets maximum legal residue levels for every pesticide, for dozens of crops. But a new study in the respected journal *Toxicology* has shown that, at low levels that are currently legal on our food, Roundup could cause DNA damage, endocrine disruption and cell death. The study, conducted by French researchers, shows glyphosate-based herbicides are toxic to human reproductive cells. …" **Response**: See the response to 10/55.
10/61	**Comment:** "Glyphosate is of relatively low oral and dermal acute toxicity. It has been placed in Toxicity Category III for these effects (Toxicity Category I indicates the highest degree of acute toxicity, and Category IV the lowest). The acute inhalation toxicity study was waived because glyphosate is nonvolatile and because adequate inhalation studies with end-use products exist showing low toxicity." (Pg. 2) "Glyphosate does not cause mutations." (Pg. 2) "EPA conducted a dietary risk assessment for glyphosate based on a worst-case risk scenario, that is, assuming that 100 percent of all possible commodities/acreage were treated, and assuming that tolerance-level residues remained in/on all treated commodities. The Agency concluded that the chronic dietary risk posed by glyphosate food uses is minimal." (Pg. 3) "Occupational and residential exposure to glyphosate can be expected based on its currently registered uses. However, due to glyphosate's low acute toxicity and the absence of other toxicological concerns (especially carcinogenicity), occupational and residential exposure data are not required for reregistration." (Pg. 3) "Glyphosate is no more than slightly toxic to birds and is practically nontoxic to fish, aquatic invertebrates and honeybees. Due to the presence of a toxic inert ingredient, some glyphosate end-use products must be labeled, 'Toxic to fish,' if they may be applied directly to aquatic environments. Product labeling does not preclude off-target movement of glyphosate by drift. EPA therefore is requiring three additional terrestrial plant studies to assess potential risks to nontarget plants. EPA does not expect that most endangered terrestrial or aquatic organisms will be affected by the registered uses of glyphosate." (Pg. 4) "Based on current data, EPA has determined that the effects of glyphosate on birds, mammals, fish and invertebrates are minimal." (Pg. 5) **"Regulatory Conclusion** The use of currently registered pesticide products containing the isopropylamine and sodium salts of glyphosate in accordance with the labeling specified in this RED will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, all uses of these products are eligible for reregistration." (Pg. 6) **Response:** See the response to 10/55.
10/62	**Comment:** "The findings of Richard et al. (2005) are an important addition to our understanding that the health and environmental effects of formulated pesticide products are not fully reflected in tests conducted on the active ingredient(s) alone. It has been long known that the adjuvants (commonly and misleadingly called "inert" ingredients) may be toxic and may enhance or supplement the toxic effects of the active pesticidal ingredient. In the case of glyphosate-containing products, this phenomenon was well demonstrated in the data submitted to the (EPA) by the registrant (Monsanto), and summarized by the U.S. EPA in the Reregistration Eligibility Document (RED) for glyphosate (U.S. EPA 1993). For example, based on the registrant's own tests of acute toxicity to freshwater fish, the U.S. EPA classified technical grade glyphosate as "slightly toxic" to "practically non-toxic" and formulated products ranged from "moderately toxic" to "practically non-toxic." Tested alone, the surfactant adjuvant (identified as "inert") was "highly toxic" to "slightly toxic." Similar differences were reported in tests of acute toxicity to freshwater invertebrates. Based in part on the data in the glyphosate RED (U.S. EPA 1993), the New York State Attorney General's office successfully pursued an action against Monsanto in 1996 (Attorney General of the State of New York 1996). At that time, Monsanto was making advertising claims about the toxicity of the Roundup products based on data from tests on the active ingredient alone. Such claims are scientifically unfounded and inherently deceptive. The Attorney General's action was facilitated by the availability of at least some limited information about the inert ingredients and their toxicity. That same sort of information enabled Richard et al. (2005) to conduct their study. Unfortunately, that is not always the case, and for many pesticide products, little or no information about the identity of inert ingredients is publicly available. Registrants are generally required to conduct acute toxicity tests on formulated products, but they traditionally conduct chronic toxicity tests on the active ingredient alone. Even when formulated products are tested, the identity of inert ingredients is rarely revealed in the open literature, publicly available regulatory documents, or product labels. Therefore, independent research is stymied, and the public is ill-informed in the marketplace." **Response**: See the response to 10/55.

10/63	**Comment**: FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers' test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide. It seems that however this problem is approached, the EPA needs to take more affirmative action and responsibility. This is not likely to happen, as the EPA's research program increasingly relies on corporate joint venture, according to agency documents obtained by Public Employees for Environmental Responsibility (PEER). Indeed, a study by the Government Accountability Office (the investigative arm of Congress – the same people who first told us of the $640 toilet seats and $1,000 hammers purchased with Department of Defense money), in April 2005, concluded that the EPA lacks safeguards to "evaluate or manage potential conflicts of interest" in corporate research agreements, as they are taking money from corporations that they are supposed to be regulating." **Response**: See the response to 10/58.
10/64	**Comment:** FACT: The primary focus of the Federal Insecticide, Fungicide, and Rodenticide Act, originally enacted in 1947, was to provide federal control of pesticide distribution, sale, and use. The act has been amended many times over the years. One of these amendments permitted manufacturers protection of trade secrets. It is under these provisions that manufacturers circumvent a law that originally intended all information to be known – at least by the EPA. The fact that today, with mass spectrometers, chemistry can determine the makeup of the inert ingredients, leaves only the end consumer in the dark. In 1990 the Office of the Attorney General of New York filed a request that all inert ingredients in pesticides be made public. The request was repeated a number of times through the decade, to no avail. Sixteen years later, in August of 2006, the attorneys general of 14 states have filed a similar petition to the EPA. This time the EPA is obliged to respond within a given time period. **Response:** See the response to 10/58.
10/65	**Comment:** A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world's biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2]." "In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies.' " "O' Neill concluded: 'The EPA when authorising Monsanto's field trials for Roundup-ready sugar beet did not consider the issue of glyphosate. They considered this to be the remit of the Pesticides Control Service of the Department of Agriculture. Thus nobody has included the effects of increasing the use of glyphosate in the risk/benefit analysis carried out. It is yet another example of how regulatory authorities supposedly protecting public health have failed to implement the 'precautionary principle' with respect to GMOs.' **Response**: See the response to 10/55.
10/66	**Comment:** Glyphosate-containing products are acutely toxic to animals, including humans. Symptoms include eye and skin irritation, cardiac depression, gastrointestinal pain, vomiting, and accumulation of excess fluid in the lungs. The surfactant used in a common glyphosate product (Roundup) is more acutely toxic than glyphosate itself; the combination of the two is yet more toxic." "Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices." "Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT).**44** Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data." "**44** "IBT was one of the largest laboratories performing tests in support of pesticide registrations.**44** About 30 tests on glyphosate and glyphosatecontaining products were performed by IBT, including 11 of the 19 chronic toxicology studies.**45** A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination." "**46** (Emphasis added.) "In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results.**47** "Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports."**48** Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question." "**49** "The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges.**50** The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution."**48** **Response:** See the responses to 10/55 (regarding glyphosate) and 10/58 (regarding comment clarity).

10/67	**Comment:** EPA Investigates Monsanto. An internal memorandum by an official of the U.S. Environmental Protection Agency [EPA], has accused EPA of conducting a "fraudulent" criminal investigation of Monsanto, the St. Louis chemical corporation. [1] The 30-page memo, from William Sanjour to his supervisor, David Bussard, dated July 20, 1994, describes a two-year-long criminal investigation of Monsanto by EPA's Office of Criminal Investigation (OCI). The Sanjour memo says EPA opened its investigation on August 20, 1990 and formally closed it on August 7, 1992. "However, the investigation itself and the basis for closing the investigation were fraudulent," the Sanjour memo says. According to the Sanjour memo: • EPA's investigation of Monsanto was precipitated by a memo dated February 23, 1990, from EPA's Dr. Cate Jenkins to Raymond Loehr, head of EPA's Science Advisory Board. • The Jenkins memo said that EPA had set dioxin standards relying on flawed Monsanto-sponsored studies of Monsanto workers exposed to dioxin, studies that had showed no cancer increases among heavily exposed workers. Attached to the Jenkins memo was a portion of a legal brief filed by the plaintiffs as part of a trial known as Kemner v. Monsanto, in which a group of citizens in Sturgeon, Missouri had sued Monsanto for alleged injuries they had suffered during a chemical spill caused by a train derailment in 1979. • The Jenkins memo had not requested a criminal investigation; instead Jenkins had suggested the need for a scientific investigation of Monsanto's dioxin studies. But in August 1990, EPA's Office of Criminal Investigation (OCI) wrote a 7-page memo recommending that a "full field criminal investigation be initiated by OCI." • Plaintiffs in the Kemner suit made the following kinds of allegations (which we quote verbatim from the Sanjour memo): “Monsanto failed to notify and lied to its workers about the presence and danger of dioxin in its chlorophenol plant, so that it would not have to bear the expense of changing its manufacturing process or lose customers;... "Monsanto knowingly dumped 30 to 40 pounds of dioxin a day into the Mississippi River between 1970 and 1977 which could enter the St. Louis food chain; "Monsanto lied to EPA that it had no knowledge that its plant effluent contained dioxin; "Monsanto secretly tested the corpses of people killed by accident in St. Louis for the presence of dioxin and found it in every case;... "Lysol, a product made from Monsanto's Santophen, was contaminated with dioxin with Monsanto's knowledge." [The Sanjour memo says that, at the time of the contamination, "Lysol (was) recommended for cleaning babies' toys and for other cleaning activities involving human contact."] "The manufacturer of Lysol was not told about the dioxin by Monsanto for fear of losing his business; "Other companies using Santophen, who specifically asked about the presence of dioxin, were lied to by Monsanto;... "Shortly after a spill in the Monsanto chlorophenol plant, OSHA measured dioxin on the plant walls. Monsanto conducted its own measurements, which were higher than OSHA's, but they issued a press release to the public and they lied to OSHA and their workers saying they had failed to confirm OSHA's findings; "Exposed Monsanto workers were not told of the presence of dioxin and were not given protective clothing even though the company was aware of the dangers of dioxin; "Even though the Toxic Substances Control Act requires chemical companies to report the presence of hazardous substances in their products to EPA, Monsanto never gave notice and lied to EPA in reports; "At one time Monsanto lied to EPA saying that it could not test its products for dioxin because dioxin was too toxic to handle in its labs." **Response:** See the response to 10/58.
10/68	**Comment:** “A study by French researchers at the University of Caen of glyphosate residue discovered that the inert ingredients in the herbicide (solvents, preservatives, surfactants) increased the toxic effect on human cells. According to the researchers, glyphosate residue can cause birth defects. This clearly confirms that the [inert ingredients] in Roundup formulations are not inert,” wrote the study authors. “Moreover, the proprietary mixtures available on the market could cause cell damage and even death [at the] residual levels” found on Roundup-treated crops.” “Another study by Argentine scientists also found that glyphosate can cause birth defects at doses considerably lower than what is commonly used on crops, in this case, soybeans. The researchers injected amphibian embryo cells with glyphosate diluted to a concentration 1,500 times less than what is used commercially. The embryos grew into tadpoles with obvious birth defects.” “A 2001 study by Swedish oncologists discovered links between non- Hodgkin’s lymphoma and glyphosate. The Swedish researchers found that Swedish people with non-Hodgkin’s lymphoma were 2.3 times more likely to be exposed to glyphosate. Monsanto spokesperson John Combest defended the safety of Roundup. “Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that’s out there. It’s used in public parks, it’s used to protect schools. There’s been a great deal of study on Roundup, and we’re very proud of its performance.” **Response:** See the response to 10/55.

10/69	**Comment:** Over twenty years ago, the dangers of Monsanto's glyphosate as well as its associated GMOs were known scientifically to cause human health difficulties and Swedish researchers years ago in the Journal 'Cancer' noted glyphosate was connected to human cancer. Anyway, many scientists and public health workers researching it were fired. It's a mad empire's rush--the U.S empire and its corporate proxies--to desire (hell, the reality of) to own the world's food and dominate the whole world. It is destroying thousands of years of biodiversity security in the process. And Monsanto's empire of glyphosate is in virtually everything in the USA and worldwide. One foolish company, one corrupt federal government of the USA. Everyone should learn more about Monsanto in the film "The World According to Monsanto." (90 minutes). Monsanto's corporate contract should be revoked for endangering world health and killing off global crop biodiversity of thousands of years of work destroyed in one generation--in the mad rush to dominate the whole world's biodiversity. Monsanto and the USA will go down in history as the organizations that caused most biological devastation and human suffering in human history." **Response:** See the response to 10/58.
10/70	**Comment:** "BUENOS AIRES, Apr 15 , 2009 (IPS) - Glyphosate, the herbicide used on soybeans in Argentina, causes malformations in amphibian embryos, say scientists here who revealed the findings of a study that has not yet been published." "The observed deformations are consistent and systematic," ProfessorAndrés Carrasco, director of the Laboratory of Molecular Embryology at the University of Buenos Aires medical school and lead researcher on the National Council of Scientific and Technical Research (CONICET), told the Inter Press Service news agency IPS. Reduced head size, genetic alterations in the central nervous system, an increase in the death of cells that help form the skull, and deformed cartilage were effects that were repeatedly found in the laboratory experiments, said the biologist. The news was reported Monday by the Argentine newspaper *Página 12*. Monsanto's head of communications in Argentina, Fernanda Pérez Cometto, told IPS that the company has "several studies that show that the herbicide is harmless to humans, animals and the environment." **Response**: See the response to 10/55.
10/71	**Comment:** It's amazing how many organics people still think it's OK to just use a bit of Roundup on those weeds in the bush or the driveway, or …. of course, not on the food, but the bush, that's OK isn't it? Well, no, actually it isn't, and here's why: Roundup and various other formulations of the active ingredient glyphosate, have the potential to cause serious health and environmental effects, and have caused some severe poisoning problems. Thorough PR by the developer of Roundup, Monsanto, has resulted in the widespread belief that glyphosate is 'safe'. Registration processes have generally supported this attitude, and there are no national or international bans. However, independent scientific studies and widespread poisonings in Latin America resulting from aerial application are beginning to reveal the true effects of the world's most widely used herbicide." **Response:** See the response to 10/58.
10/72	**Comment:** Research on genetically modified seeds is still published, of course. But only studies that the seed companies have approved ever see the light of a peer reviewed journal. In a number of cases, experiments that had the implicit go-ahead from the seed company were later blocked from publication because the results were not flattering. "It is important to understand that it is not always simply a matter of blanket denial of all research requests, which is bad enough," wrote Elson J. Shields, an entomologist at Cornell University, in a letter to an official at the Environmental Protection Agency (the body tasked with regulating the environmental consequences of genetically modified crops), "but selective denials and permissions based on industry perceptions of how 'friendly' or 'hostile' a particular scientist may be toward [seed-enhancement] technology." Shields is the spokesperson for a group of 24 corn insect scientists that opposes these practices. Because the scientists rely on the cooperation of the companies for their research - they must, after all, gain access to the seeds for studies – most have chosen to remain anonymous for fear ofreprisals. The group has submitted a statement to the EPA protesting that "as a result of restricted access, no truly independent research can be legally conducted on many critical questions regarding the technology." It would be chilling enough if any other type of company were able to prevent independent researchers from testing its wares and reporting what they find - imagine car companies trying to quash head-to-head model comparisons done by Consumer Reports, for example. But when scientists are prevented from examining the raw ingredients in our nation's food supply or from testing the plant material that covers a large portion of the country's agricultural land, the restrictions on free inquiry become dangerous. **Response:** See the response to 10/58.

10/73	**Comment:** France's highest court has ruled that U.S. agrochemical giant Monsanto had not told the truth about the safety of its best-selling weed-killer, Roundup. The court confirmed an earlier judgment that Monsanto had falsely advertised its herbicide as "biodegradable" and claimed it "left the soil clean." Roundup is the world's best-selling herbicide. French environmental groups had brought the case in 2001 on the basis that glyphosate, Roundup's main ingredient, is classed as "dangerous for the environment" by the European Union. In the latest ruling, France's Supreme Court upheld two earlier convictions against Monsanto by the Lyon criminal court in 2007, and the Lyon court of appeal in 2008, the AFP news agency reports. Monsanto already dominates America's food chain with its genetically modified seeds. Now it has targeted milk production. Just as frightening as the corporation's tactics, including ruthless legal battles against small farmers, is its decades-long history of toxic contamination." **Response:** See the response to 10/58.
10/74	**Comment:** Monsanto created Roundup in the 1970's to kill weeds and has since catapulted this product to be the world's number one selling herbicide. Before the patent on Roundup was set to expire in 2000, Monsanto needed a surefire way to keep the profits of Roundup from bottoming out. Monsanto quickly began purchasing the majority of the world's seed companies while simultaneously creating GMOs that farmers needed to sign contractual agreements to only use Roundup. Subsequently, revenue from Roundup never dropped and in fact topped more than $4 billion in 2008, up 59% from 2007 [2]. GM-soy is estimated to be present in up to 70% of all food products found in US supermarkets, including cereals, breads, soymilk, pasta and most meat (as animals are fed GM-soy feed). Although Monsanto has consistently relied on industry-funded data to declare the safety of GM-soy and glyphosate, objective research published in peer-reviewed journals tells another story. Toxicity of Glyphosate A recently published study by Italian researchers [3] examined the toxicity of four popular glyphosate based herbicide formulations on human placental cells, kidney cells, embryonic cells and neonate umbilical cord cells and surprisingly found total cell death of each of these cells within 24 hours. The researchers reported several mechanisms by which the herbicides caused the cells to die including: cell membrane rupture and damage, mitochondrial damage and cell asphyxia. Following these findings, the researchers tested G, AMPA and POEA by themselves and concluded that, "It is very clear that if G, POEA, or AMPA has a small toxic effect on embryonic cells alone at low levels, the combination of two of them at the same final concentration is significantly deleterious." **Response:** See the response to 10/58.
10/75	**Comment:** "If you're still not convinced that Roundup is a highly toxic and persistent pesticide, read on, while at the same time remembering the other contributions that Monsanto has made to society such as: Saccharin, Astroturf, agent orange, dioxin, sulphuric acid, polychlorinated biphenyls (PCBs), plastics and synthetic fabrics, research on uranium for the Manhattan Project that led to the construction of nuclear bombs, styrene monomer, an endless line of pesticides and herbicides (Roundup), rBGH (recombinant bovine growth hormone that makes cows ill), genetically engineered crops (corn, potatoes, tomatoes, soy beans, cotton), and it's most significant product to date; **Lies, Factual Distortions and Omissions**. Here's one of the distortions that Monsanto had on its website a while back. 'Sustainability - the idea that the resources and people of this world are finite. That for any business decision we make, we must consider the effect it will have on us and our children. That the products we make must not use up all of a natural resource, or even worse, contaminate what is left behind.' **Response:** See the response to 10/58.
10/76	**Comment:** "The U.S. response (to questions about biotech crop safety) has been an extremely patronizing one. They say 'We know best, trust us,'" added Gurian-Sherman, now a senior scientist at the Union of Concerned Scientists, a nonprofit environmental group." "So far, that confidence has been lacking. Courts have cited regulators for failing to do their jobs properly and advisers and auditors have sought sweeping changes." "The developers of these crop technologies, including Monsanto and its chief rival DuPont, tightly curtail independent scientists from conducting their own studies. Because the companies patent their genetic alterations, outsiders are barred from testing the biotech seeds without company approvals." "The agreements disallow any research that is not first approved by the companies. "No truly independent research can be legally conducted on many critical questions regarding the technology," the scientists said in their statement." "Outside researchers have also raised concerns over the years that glyphosate use may be linked to cancer, miscarriages and other health problems in people. **Response:** See the response to 10/55 and 10/58.

10/77	**Comments:** Defining Toxic Asbestos is an extreme example, which I use here and in my book *Pick Your Poison: How Our Mad Dash to Chemical Utopia is Making Lab Rats of Us All* to make a point, but many other "nontoxic" products could be full of toxic chemicals. I'm hoping this essay leaves you with a general distrust of the nontoxic label, both in the past and currently. When you see "nontoxic" on a product, keep the following facts in mind: • "Nontoxic" can still legally mean that there are no immediate, acute hazards as determined by the LD50 and LC50 tests. • "Nontoxic" may mean there are little or no chronic data available on the substance. If the substance is not acutely toxic, and one can't prove it is toxic in the long term, many manufacturers feel that they have the right to call it nontoxic. Even if there are studies showing that the substance is toxic, manufacturers in the United States have traditionally waited for absolute, unequivocal proof, which in most cases is never available because we don't study our chemicals. • An art material is "nontoxic" if a toxicologist paid by the manufacturer decides it is safe. The dramatic failure in this labeling procedure was illustrated with the lead ceramic glazes and asbestos-containing materials such as talc. Asbestos-containing talcs are still found in some art and craft materials today. Some art materials that have never been evaluated by a toxicologist may be labeled "nontoxic" illegally due to weak enforcement of the art materials labeling law. For example, in 1995, a cameraman and a reporter from Channel 9 in New York went with me to a major art materials outlet. That night on the evening news, we showed viewers about a dozen imported products that did not conform to the law, some labeled "nontoxic," which were being sold illegally. This is still true today, and a little research will lead you to many sources of noncompliant "nontoxic" products. • Labeling of ordinary consumer products is pretty much up to the manufacturer and its paid advisers. Because there is no enforcement mechanism in the regulations for the chronic hazard labeling of ordinary consumer products, there is not much incentive to provide warnings. • There is no regulatory requirement to warn consumers about damage to most of the body's organs, such as the lungs, the liver, and the kidneys. Only four types of chronic hazards are covered by the Federal Hazardous Substances Act regulations. These are cancer, and developmental, reproductive, and neurological damage." **Response:** See the response to 10/58.
10/78	**Comment:** Opposing View #24: Roundup is amongst the top most reported pesticides causing poisoning incidents (mainly skin irritation) in several countries. It also causes a range of acute symptoms including, recurrent eczema, respiratory problems, elevated blood pressure, allergic reactions…. (table) **Response:** See the response to 10/58.
10/79	**Comment:** "FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers' test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide." **Response:** See the response to 10/58.
10/80	**Comment:** The extraordinary influence of the biotechnology industry has made U.S. regulation of GM crops largely a rubber-stamp process designed to increase public confidence in, rather than ensure the safety of, genetically modified foods. Weaknesses shared by all three agencies include uncritical reliance on the data and conclusions of the financially interested GM crop developer in regulatory decisionmaking; dogmatic adherence to politically-motivated doctrines such as "substantial equivalence" designed to ease companies' regulatory path to approval; and blindness to the substantial economic harm suffered by U.S. farmers thanks to governmental and industry negligence. As continuing contamination episodes provoke more scientifically-oriented regulators in Europe and Japan to reject shipments of U.S. foodstuffs with untested GM content, one can only hope that the often severe economic fallout for U.S. farmers (if nothing else) will convince U.S. regulators to leave politics behind, and finally adopt a more objective, stringent, and science-based regulatory system." **Response:** See the response to 10/58.

10/81	**Comment:** GAO's review found that EPA and FTC make limited use of their authority over unacceptable safety advertising c aims. GAO found the same situation nearly 4 years program for regulating such claims. Neither EPA nor FTC is taking formal enforcement action against safety claims by manufacturers and distributors. Since 1986 EPA has taken only one formal enforcement action involving a lawn care pesticide safety claim made by a manufacturer, while FTC has taken no enforcement action in this area. EPA officials told GAO that safety advertising claims are still a low enforcement priority because of limited resources and because other violations such as pesticide misuse continue to be its primary concern. Fm believes EPA is better able to handle pesticide safety claims because of its technical expertise and legislative authority. FTC has not acted against claims by professional pesticide applicators, over which EPA has no authority, because it believes EPA has been successfully handling applicator claims informally through its regional offices. Although EPA and Fm officials have discussed GAO's 1986 recommendation, no formal arrangement has been made to ensure that questionable applicator claims would be given appropriate attention. The lawn care pesticides industry is making claims that its products are safe or nontoxic. GAO's review found nine instances of safety claims, such as "completely safe for humans," made by manufacturers, distributors, and professional applicators. EPA, using its standards for pesticide labels, considers that these claims, when made by manufacturers and distributors, are false and misleading. Such claims are prohibited by because they differ substantially from claims allowed to be made as part of the approved registration. GAO believes that without an effective federal enforcement program, the lawn care pesticides industry will continue to make such claims that could, among other things, persuade consumers to purchase a service they otherwise might not use or discourage the use of reasonable precautions to minimize exposure, such avoiding recently treated areas. **Response**: See the response to 10/58.
10/82	**Comment:** "2,4-D has been evaluated by the European Union and included on its list of approved herbicides, stating inter alia that "the review [of 2,4-D] has established that the residues arising from the proposed uses, consequent on application consistent with good plant protection practice, have no harmful effects on human or animal health."[30] Concern over 2,4-D is such that it is currently not approved for use on lawns and gardens in Sweden,[31] Denmark, Norway, Kuwait and the Canadian provinces of Québec [32] and Ontario.[33] 2,4-D use is severely restricted in the country of Belize. In 2005, the United States Environmental Protection Agency approved the continued use of 2,4-D.[34] In Canada, the Pest Management Regulatory Agency (PMRA) has placed a condition of registration on 2,4-D such that the 2,4-D registrant(s) must provide the PMRA with a required developmental neurotoxicity study by September 20, 2009.[35] According to the PMRA, the due date of the study has since been extended to early 2010." **Response:** See the response to 10/58.
10/83	**Comment:** According to the lawsuit, Parker became the subject of hostile treatment by his supervisors after complaining about what he called a "systemic problem" when it came to proper pesticide use across several forests in New Mexico and Arizona **Response:** See the response to 10/58.
10/84	**Comment:** According to a recent investigative report, a company known for conducting scientific research for the pesticide industry has, in an attempt to refute research linking pesticides to Parkinson's disease, paid a U.S. government agency, the National Institute for Occupational Safety and Health (NIOSH), to prove that certain pesticides are safe. According to the report, the company, Exponent Inc., is a member of CropLife America, a trade group that represents pesticide manufacturers, and also has worked regularly for Syngenta, which makes paraquat, one of the chemicals it is looking prove as safe. Specifically, the company is looking to refute the research which shows that even small amounts of agricultural chemicals, maneb and paraquat, when combined, can raise the risk of Parkinson's disease. According to the report, managing scientist of Exponent, Laura McIntosh, PhD, said in an interview that the company donated the money and sought participation at NIOSH to enhance the credibility of its study of maneb and paraquat; they wanted to make their research "bulletproof." **Response:** See the response to 10/58.
10/85	**Comment:** "It's been the official mantra of pesticide companies for decades: "*The dose makes the poison*." While it makes intuitive sense — you'd think that themore of a chemical you're exposed to, the sicker you'll get — the science has, in fact, been saying otherwise for years. A team of 12 scientists recently released a report calling on EPA to completely revamp the way they evaluate chemicals, to better reflect this now fully understood reality: *Tiny* amounts of certain chemicals can have devastating effects on human health. It's all about the hormones. Our systems are largely regulated by these powerful chemical messengers, and the intricate process of fetal development is all but completely orchestrated by them. The bad news is, some synthetic chemicals look a lot like our natural hormones to the "hormone receptor" trigger cells that turn many functions on and off in our bodies. Particularly for the developing systems of infants and children, it's often the timing — not the dose — that matters most **Response:** See the response to 10./58.

Artley Attachment #1: Respected Scientists Reveal the Certainty that Natural Resources in the Forest are Harmed (and some destroyed) by Timber Harvest Activities

Letter #/ Comment #	Comment and Response
10/86 **(View 1)**	**Comment**:: The following document contains pertinent color pictures showing logging damage, thus the article text is not shown here. Please use the link below to access the article. (http://faculty.ksu.edu.sa/a/Documents/Habitat%20Fragmentation%20Effects%20and%20Implication.pdf) **Response**: The comment is unclear, and not specific to this project. Effects of the proposed activities on connectivity are discussed in the FEIS. Treatments would improve the connectivity of large tree size class stands with a greater diversity of early-seral conifers.
10/87 **(View 2)**	**Comment**: Timber harvest operations have been shown to have many effects on adjacent watercourses and on the aquatic ecosystems they support. This may occur from introductions or loss of woody debris, loss of riparian vegetation, accelerated stream bank and bed erosion, the alteration of natural channel form and process, and the reduction of stream habitat diversity. However, the existing literature indicates one of the most insidious effects of logging is the elevation of sediment loads and increased sedimentation within the drainage basin. Sediment generation from various forestry practices has been studied extensively in the past. Forestry practices which generate suspended sediments include all operations that disturb soil surfaces such as site preparations, clear-cutting, log skidding, yarding, slash burns, heavy equipment operation and road construction and maintenance." **Response**: This comment is presented as a "literature review," that "examined the effects of increased sediment load and sedimentation on aquatic ecosystems emphasizing forestry operations that generate elevated sediment loads." This paper is a conference proceeding, not a peer reviewed scientific publication. The author's credentials are not provided. Water quality and the effects of timber harvest and roads on sedimentation were analyzed and the discussion is included in the Watershed Section of the FEIS. Furthermore, this comment provides a discussion under the heading "Mitigation Measures," that describes how "the delivery of sediments to streams resulting from disturbances can be largely circumvented by proper design and planning." The action alternatives include water quality specific mitigation measures described in Chapters 2 and 3.of the FEIS.

10/88 **(View 3)**	**Comment:** Timber harvest will remove dead and dying material from the site and inhibit the recruitment of downed woody material as time progresses. Timber harvest and associated reduced structural complexity and reduced age and size class diversity are all known to reduce population abundance and diversity of ants and a number of birds. For instance, ants are documented to require downed woody material in a variety of sizes and in all stages of decomposition (*Torgersen and Bull*, 1995). This is an attribute that is negatively correlated with harvest of the dead and dying trees and positively correlated with natural succession, especially after disturbance. Ants and birds are known to predate on insect species which cause mortality to trees, serving as a potentially important population control in the case of epidemics or before they occur (*Campbell, Torgersen and Srivastava*, 1983). Structural and functional characteristics associated with unlogged forests are also important for canopy arthropods, which play an important role in regulating pest outbreaks (*Schowalter*, 1989). Structural complexity, functional diversity, diversity of ecological process and diversity of structure in roadless areas are all expected to be less susceptible to the outbreak of pests and regulate insect activity in surrounding homogenized forests (*Schowalter and Means*, 1989; *Franklin, Perry, Schowalter, Harmon, McKee and Spies*, 1989). A large body of scientific evidence also indicates that increased edge effect and increased sunlight into stands, resulting from reduced canopy cover associated with timber harvest, can directly promote the population abundance, productivity and persistence of insects which cause mortality to trees… **Response:** Post-treatment snag numbers would meet Forest Plan desired conditions in activity areas. Coarse woody debris would meet desired conditions. Design Criteria described in Chapter 2of the FEIS would ensure that large diameter trees are retained where feasible. The desired condition within the project area is to develop vegetative conditions where insects and disease would operate at endemic levels in order to recruit and maintain snags and coarse woody debris over time. The goal is not to eradicate disturbance processes or insects and disease since these contribute to development of snags and coarse woody debris. In addition treatments would be designed to develop openings that produce understory vegetation that provides forage for insects, which in turn provide forage for species like flammulated owl.
10/89 **(View 4)**	**Comment:** The biggest ecological con job in years is being waged by the U.S. Republican party and their timber industry cronies. They are blaming the recent Western wildfires on environmentalists, and assuring the public that commercial logging will reduce the risk of catastrophic wildfires." **Response:** There is no indication in this article if Dr. Barry has conducted any independent research on the topics he covers in this paper, nor does he cite any specific scientific literature. Instead, in this article Dr. Barry refers to the following: "*It is well known scientifically that "commercial logging actually increases fire severity by removing large, fire- resistant trees and leaving behind very small trees and flammable "slash debris"--branches, twigs and needles from felled trees. The removal of mature trees also decreases the forest canopy, creating hotter, drier conditions on the ground. The additional sun exposure encourages the growth of flammable brush and weeds. Reduction of flammable underbrush can reduce fire severity, and environmental groups have encouraged such projects. However, the Bush administration has grossly misused the funds that Congress appropriated for brush reduction near homes. In Sierra Nevada national forests last year, more than 90% of these funds were instead earmarked for preparation of large timber sales focused on the removal of mature and old-growth trees miles from the nearest town.*" The action alternatives include design features that retain all large and legacy trees, which are generally the most fire resistant trees in the project area. The Fuels section of the FEIS discusses the effects of proposed treatments on wildfire crowning index. The project is proposed for a watershed that has been identified as a high priority for restoration in part to reduce the risk of uncharacteristic (stand-replacing wildfire) in nonlethal and mixed1 fire regimes.

10/90 **(View 5)**	**Comment:** According to a 1998 poll by a firm that has worked for several Republican House members and two presidents, 69 percent of Americans oppose commercial logging on federally owned land. The Forests Service's own poll showed that 59 percent of Americans who expressed an opinion oppose timber sales and other commodity production in national forests." "Many Americans are surprised to learn that logging is even allowed on public lands. Alas, it has been since the Organic Act of 1897 first authorized logging in America's new forest reserves. That legislation called for watershed protection and a steady supply of timber - what the Forest Service calls 'multiple use.' " "But the agency has been unable to balance those goals. More often than not, the integrity of the forest ecosystem has been sacrificed to maximize timber and other commodities. And at taxpayer expense, notes Bernie Zaleha, chair of the End Commercial Logging on Federal Lands (ECL) campaign. The Forest Service lost $2 billion on its logging program from 1992 to 1997, according to the General Accounting Office. It spends more on building roads and preparing sales than it gets back in timber receipts. **Response:** This is an opinion paper that does not specifically cite supporting scientific literature. As discussed in Chapter 1 of the FEIS,, the purpose of this project is to manage forest vegetation to restore natural disturbance patterns; improve long-term resistance and resilience at the landscape level; reduce fuels; improve watershed conditions; increase elk forage; improve early seral wildlife habitat; and maintain habitat structure, function, and diversity. Timber outputs from the proposed action would be used to offset treatment costs, support the economic structure of local communities, and provide for regional and national needs. Forest Plan direction and all federal and State laws and regulations pertaining to the management of vegetative resources on the Nez Perce National Forest would be applied to the project, including the National Forest Management Act of 1976. In addition, diagnosis, prescription development, and forest health analysis are guided by Forest Service regulations and policy (FSH 1909.60 and 2409.17; FSM 1920, 2020, 2470, 2471, and 2472); and the Region 1 Integrated Restoration and Protection Strategy (FEIS, Vegetation, Regulatory Framework).
10/91 **(View 6)**	**Comment**: Federal auditors have found that the Forest Service frequently fails to assess, prevent or correct environmental damage from logging on the national forests. After inspecting 12 timber projects in the field from 1995 to 1998, the Agriculture Department's inspector general found that all were deficient and that 'immediate corrective action is needed.' A new report on the audits found that the environmental studies required before logging was approved were poorly done, the rules to protect streams and wildlife habitat from undue damage during logging were not followed, and the steps planned to repair some of the harm after logging were not carried out. The inspector general, Roger C. Viadero, reported on Jan. 15 to Mike Dombeck, chief of the Forest Service, that the review had found "numerous serious deficiencies." Agency officials generally agreed with the report's conclusions and recommendations. **Response**: This is a news story about audits conducted on projects implemented between 1995 and 1998 as noted in second paragraph. Most of the issues described were implementation related. The article stated prior Forest Service Chief Dombeck directed review teams to inspect implementation in all regions of the Forest Service to make sure projects were complying with NEPA documents and regulation. As was done on all National Forests, these procedures were put in place on the Nez Perce National Forest in the late 1990's. Issues were also discussed on the planning side and include: • Poorly done NEPA • No surveys for ESA species • Decisions not based on sound science. As to NEPA, the FEIS: has been prepared under the National Environmental Policy Act [(NEPA); 42 U.S.C. 4321 *et seq*., 40 CFR 1500-1508] and the *Nez Perce National Forest Land and Resource Management Plan* (Forest Plan. The Responsible Official's determination that best available science was used to inform the decision to be made and why, will be clearly disclosed in the Record of Decision for this project.
10/92 **(View 7)**	**Comment:** The timber harvest shouldn't be dominant. It should be on an equal plane with recreation concerns, with wildlife concerns, hunting, fishing, protecting our cultural heritage. That's what the American public is asking us to do. **Response:** The statement was a portion of one made by Mike Dombeck in his capacity as chief of the Forest Service, during a discussion of the impacts of a proposed moratorium on road-building within Inventoried Roadless Areas, on the logging industry in Idaho. The statement in its entirety was: "*The timber harvest shouldn't be dominant. It should be on an equal plane with recreation concerns, with wildlife concerns, hunting, fishing, protecting our cultural heritage. And if we work within that philosophical framework of working within the limits of the land, everybody benefits. And that's what the American public is asking us to do. The reason that we've been involved in some of the level of controversy that we have is because that shift is occurring and change is occurring. And change is always difficult to deal with.*" This project does not propose road-building in inventoried roadless areas

10/93 **(View 8)**	**Comment:** "I recently read a letter from a line officer who chided local managers for being behind schedule relative to meeting the region's 'timber targets.' My expectation is that line officers will demand similar accountability for meeting watershed restoration, fish and wildlife habitat, riparian, recreation, cultural resource, and wildernessmanagement goals." "We need to do a better job talking about, and managing for, the values that are so important to so many people. Values such as wilderness and roadless areas, clean water, protection of rare species, old growth forests, naturalness -- these are the reasons most Americans cherish their public lands." "Fifty years ago, Aldo Leopold wrote his seminal work, *A Sand County Almanac*. In it, Leopold spoke of his personal land ethic and the need for land managers to extend their own ecological conscience to resource decisions. The Forest Service natural resource agenda is an expression of our agency's land ethic. If we are to redeem our role as conservation leaders, it is not enough to be loyal to the Forest Service organization. First and foremost, we must be loyal to our land ethic. In fifty years, we will not be remembered for the resources we developed; we will be thanked for those we maintained and restored for future generations." **Response:** Extract of letter from Mike Dombeck, Forest Service Chief on the 100th anniversary of Gifford Pinchot's first day as a Forest Service employee. As discussed in Chapter 1 of the FEIS, the purpose and need for this project is restoration. As discussed in Chapter 1 of the FEIS,, the purpose of this project is to manage forest vegetation to restore natural disturbance patterns; improve long-term resistance and resilience at the landscape level; reduce fuels; improve watershed conditions; increase elk forage; improve early seral wildlife habitat; and maintain habitat structure, function, and diversity. Timber outputs from the proposed action would be used to offset treatment costs, support the economic structure of local communities, and provide for regional and national needs. Forest Plan direction and all federal and State laws and regulations pertaining to the management of vegetative resources on the Nez Perce National Forest would be applied to the project, including the National Forest Management Act of 1976. In addition, diagnosis, prescription development, and forest health analysis are guided by Forest Service regulations and policy (FSH 1909.60 and 2409.17; FSM 1920, 2020, 2470, 2471, and 2472); and the Region 1 Integrated Restoration and Protection Strategy (FEIS, Vegetation, Regulatory Framework).
10/94 **(View 9)**	**Comment:** For much of the past century the Forest Service, entrusted as the institutional steward of our National Forests, focused its management on an industrial-scale logging program. The result of the massive logging and road construction program was to damage watersheds, destroy wildlife habitat and imperil plant and animal species." "The continued logging of our National Forests also wastes American tax dollars and diminishes the possibilities of future economic benefits. The Forest Service lost $2 billion dollars on the commercial logging program between 1992-1997. Annually, timber produces roughly $4 billion while recreation, fish and wildlife, clean water, and unroaded areas provide a combined total of $224 billion to the American economy. Forests purify our drinking water - 60 million Americans get their drinking water from National Forests. When the dramatic values of ecological goods and services are taken into account, it is clear that protecting National Forests creates more economic benefits than continued logging." **Response:** Letter released by the Sierra Club, National Forest Protection Alliance and others, to President Bush urging him to end commercial logging on America's national forests and invest in scientifically-supported forest restoration projects. See 10/93.
10/95 **(View 10)**	**Comment:** The Bush administration has announced plans to greatly increase logging on federal lands in order to reduce the risk of wildfires. The Forest Service is using the fear of wildfires to allow logging companies to remove medium-and large-diameter trees that they can sell, rather than just the small trees and brush that can make fires more severe. There is little evidence to show that such logging will prevent catastrophic fires; on the contrary, logging roads and industrial logging cause wildfires. Bush is a well known supporter of the timber industry and has accepted huge sums of money from wealthy timber company leaders. He is promoting misinformation about forest fires in order to benefit timber industry campaign contributors." **Response:** Several editorials and news stories about the Healthy Forest Initiative consolidated by Forest.org into a single document. The FEIS discusses past wildfires that have occurred in the project area and the effects of proposed treatments on wildfire crowning index.

10/96 **(View 11)**	**Comment**: The proposition that forest values are protected with more, rather than less logging, and that forest reserves are not only unnecessary, but undesirable, has great appeal to many with a vested interest in maximizing timber harvest. These ideas are particularly attractive to institutions and individuals whose incomes depend upon a forest land base. (page 2)" "On the other hand, approaches that involve reserving of a portion of the land base, or harvest practices that leave commercially valuable trees uncut to achieve ecological goals, are often considered much less desirable as they reduce traditional sources of timber income. (page 2)" **Response**: Cited material is from the introduction of the document. The paper is a science panel critique of what was described as their attempt to "address the validity of the concepts and assumptions supporting forest policies and plans that call for active management of essentially the entire forest estate, and which specifically reject the consideration of biological reserves and nontraditional harvest techniques, such as structural retention." "Silviculture can, and in some cases has been adapted to more closely approximate natural disturbances, grow trees to longer rotations, and with the hope of providing habitat for at least some species requiring complexly structured forests. These silvicultural approaches hold substantial promise as techniques that provide for higher levels of native forest diversity following timber harvest, both initially and over the long term." The FEIS discusses fire regimes and different conditions that would develop from management versus no treatment and the variety of habitats that would develop.
10/97 **(View 12)**	**Comment:** Consequently**,** we specifically criticize the "simplified structure-based management" approaches derived from simple structural models and traditional silvicultural systems such as clearcutting. In our view, the assumptions underpinning simplified structure-based management (SSBM) are not supported by the published scientific literature on structural development of natural forests, disturbance ecology, landscape ecology and conservation biology, or by the relationships between ecosystem structures and processes. In this report, we review scientific findings associated with each of these areas with particular attention to the over-simplified structural models associated with SSBM and the importance and viability of forest reserves to achieve various ecological goals. (page 2) "We do not believe, however, that scientific literature or forestry experience supports the notions that intensively managed forests can duplicate the role of natural forests, or that sufficient knowledge and ability exist to create even an approximation of a natural old-growth forest stand." (page 3) **Response:** View #12 is from the paper discussed above under 10/96; see the response to 10/96. Included in the paper is the following: "There is no agreement, however, on how best to incorporate the retention of large and old trees into policy and regulation. Proposed approaches have included diameter limits (cut no tree larger than "x"), age limits (cut no tree older than "x"), and leaving the top "x" percentile of the largest trees in the stand. One complication is that the definition of a large and old tree varies because of differences in species and site productivity. Hence, large-tree retention guidelines need to accommodate site-to-site variability. The FEIS provides appropriate site-based guidelines. Another complication is that removing large trees is sometimes necessary to achieve overall fuel treatment goals. Relatively large trees of shade-tolerant species such as grand fir have developed on many productive mixed-conifer sites since fire suppression programs were instituted a century ago. These trees often provide fuel ladders, as well as increasing overall stand canopy densities. Both conditions greatly increase the potential for stand replacement fires. Restoring characteristic fuel loadings and wildfire behavior, to say nothing of prescribed burning programs, often requires removal of some of these larger but relatively young trees.
10/98 **(View 13)**	**Comment:** But the majority of the protesters were angry about Bush's plans to implement rules that would thin our national forests to reduce fire risk. Cascadia Forest Alliance volunteer Carrie Taylor said Bush's plan to log mature and old forests "will only increase fire risks while providing taxpayer subsidized logs to the timber industry." "According to the Cascadia Forest Alliance, under the Bush proposal, 'environmental laws and citizen involvement will be undermined or suspended so that federal land management agencies can increase logging and roadbuilding on public lands, one of the timber industry's highest priorities. **Response:** Comment is about the Healthy Forest Initiative. Refer to responses to 10/86 (View 1), 10/88 (View 3), 10/89 (View 4), 10/94 (View 8), and 10/96 (View 11).

10/99 **(View 14)**	**Comment:** Most of the trees that need to be removed to reduce accumulated fuels are small in diameter and have little or no commercial value." "Mechanically removing fuels (through commercial timber harvesting and other means) can also have adverse effects on wildlife habitat and water quality in many areas. Officials told GAO that, because of these effects, a large-scale expansion of commercial timber harvesting alone for removing materials would not be feasible. However, because the Forest Service relies on the timber program for funding many of its activities, including reducing fuels, it has often used this program to address the wildfire problem. The difficulty with such an approach, however, is that the lands with commercially valuable timber are often not those with the greatest wildfire hazards." **Response:** This comment is in response to a GAO report to the Subcommittee on Forests and Forest Health, Committee on Resources, House of Representatives which directed the federal agencies to develop a cohesive strategy for addressing the risk of large wildfires. The extracted portion was from the section titled "A Cohesive strategy is needed for addressing numerous barriers to effective action." The FEIS discusses the effects of proposed treatments on wildfire crowning index. The project is proposed for a watershed that has been identified as a high priority for restoration, in part to reduce the risk of uncharacteristic wildfires.
10/100 **(View 15)**	**Comment:** The recent concern over the poor health of western pine ecosystems has been attributed at least partly to inappropriate silvicultural practices, both before and since the national forests were established. (4) Because of the timber industry's needs, logging in mixed conifer stands has emphasized cutting the large pines and leaving the true firs and Douglas-fir to dominate the remaining stands. (5) However, true firs and Douglas-fir are more susceptible to the damage (including insect and disease attacks as well as direct damage) that has occurred during the decade-long drought in the interior West, and thus may contribute to the risk of catastrophic wildfires. Salvage sales are one tool that can be used to improve forest health, (6) but critics object to granting the agency the discretion to use timber sales to correct problems partially created by past timber sales." "A more general concern in some quarters is over Forest Service "bias" toward timber outputs, at the expense of ecosystem conditions and other resource values. While timber harvests are important, other important values are not measured, and managers are not rewarded for achieving these other values. (7) Some have attributed this "bias" to inappropriateincentives, particularly related to the agency's numerous trust funds and special accounts. (8) The Forest Service has several trust funds and special accounts that are either funded by timber revenues or provide funds for timber management (or both). (9)" "One trust fund often cited by critics is the Knutson-Vandenberg (K-V) Fund. This account receives an unlimited portion of timber sale receipts, to be used for reforestation, timber stand improvements, and other resource mitigation and enhancement activities in timber sale areas. Forest Service managers can, therefore, fund their programs from timber sales; in the words of one critic, wildlife managers have an incentive to support timber sales that damage wildlife habitat, because they can use the revenues to mitigate that damage and to keep themselves and their staffs employed. (10)" **Response:** Refer to responses to 10/86 (View 1), 10/88 (View 3), 10/89 (View 4), 10/93 (View 8), and 10/96 (View 11). As to KV funds, FSH 2409.19(01) states: "The Knutson-Vandenberg Act (K-V) of June 9, 1930 (16 U.S.C. 576-576b; 46 Stat. 527), as amended by the National Forest Management Act of October 22, 1976 (16 U.S.C. 1600 et seq.) (FSM 1011), is the authority for requiring purchasers of National Forest timber to make deposits to finance Sale Area Improvement (SAI) activities needed to protect and improve the future productivity of the renewable resources of forest lands on timber sale areas. Activities include SAI operations, maintenance and construction, reforestation, timber stand improvement, range, wildlife and fish habitat, soil and watershed, and recreation. Public Law 109-54 of August 2, 2005, further amended the K-V Act to allow the collection and use of K-V funds for watershed restoration, wildlife habitat improvement, control of insects, disease, and noxious weeds, community protection activities, and the maintenance of forest roads within the Forest Service region in which the timber sale occurred: Provided that such activities may be performed through the use of contracts, forest product sales, and cooperative agreements." As to the articles conclusion that "wildlife managers have an incentive to support timber sales that damage wildlife habitat, because they can use the revenues to mitigate that damage and to keep themselves and their staff employed" is the opinion of the articles author, not the Agency. As identified in response #1, #3 #4, #8 and #11, this is a restoration project. Any KV funds generated are a result of vegetation management activities designed, in part, to restore habitat, not damage it.

10/101 **(View 16)**	**Comment:** "In April 1999, the General Accounting Office issued a report that raised serious questions about the use of timber sales as a tool of fire management. It noted that "most of the trees that need to be removed to reduce accumulated fuels are small in diameter" -- the very trees that have 'little or no commercial value.' " "As it offers timber for sale to loggers, the Forest Service tends to 'focus on areas with high-value commercial timber rather than on areas with high fire hazards,' the report said. Its sales include 'more large, commercially valuable trees' than are necessary to reduce the so-called accumulated fuels (in other words, the trees that are most likely to burn in a forest fire)." "The truth is that timber sales are causing catastrophic wildfires on national forests, not alleviating them. The Sierra Nevada Ecosystem Project Report, issued in 1996 by the federal government, found that 'timber harvest, through its effects on forest structure, local microclimate and fuel accumulation, has increased fire severity more than any other recent human activity.' The reason goes back to the same conflict that the G.A.O. found: loggers want the big trees, not the little ones that act as fuel in forest fires." "After a 'thinning' timber sale, a forest has far fewer of the large trees, which are naturally fire-resistant because of their thick bark; indeed, many of these trees are centuries old and have already survived many fires. Without them, there is less shade. The forest is drier and hotter, making the remaining, smaller trees more susceptible to burning. After logging, forests also have accumulations of flammable debris known as "slash piles" -- unsalable branches and limbs left by logging crews." **Response:** The action alternatives include design features (FEIS Chapter 2) that retain "legacy trees" (large diameter trees that survived the last stand replacing event). This design measure would allow hazardous fuels reduction while maximizing the retention of large trees, as appropriate for the habitat type. The FEIS discusses the effects of proposed treatments on wildfire crowning index.
10/102 **(View 17)**	**Comment:** The Forest Service keeps the vast majority of timber sale revenues, which gives it a perverse incentive to do more cutting. It has developed a huge bureaucracy around the selling of timber from national forest land. **Response:** The paper includes two science documents about the effects of salvage harvesting following wildfire, particularly stand-replacing wildfire. This project does not propose salvage harvesting.
10/103 **(View 18)**	**Comment:** "Recent editorials by timber industry spokespersons are a wildly misleading attempt to promote increased logging of western U.S. forests under the guise of reducing wildland fires … **Response:** Guest commentary that cites several peer-reviewed science documents about climate change and fire regimes. The FEIS (Vegetation and Fuels, Environmental Consequences) discusses climate change and the relationship to vegetative conditions within the project area and the effects of the proposed activities on wildfire crowning index.
10/104 **(View 19)**	**Comment:** Logging reduces the organic parent material (duff and woody residues) available for soil-formation processes." **Response:** The quote originates from the introduction of the cited document which states "Increased tree utilization potentially reduces the organic parent materials (litter and woody residues) available for soil-formation processes." The FEIS discusses the potential effects of timber harvest and prescribed fire on disturbance of surface soils and effective ground cover.
10/105 **(View 20)**	**Comment:** For too long, we foresters took the public for granted, assuming unwavering support for those who grow the nation's wood fiber. Few noticed when the public's mood changed, and those who did were often ridiculed by disbelieving colleagues. Now we come to a day of reckoning: the public believes forests are too important to be entrusted to foresters. To restore lost confidence, foresters must first come out of hiding. We have a lot of explaining to do because, where forests are concerned, the public will no longer support what it cannot see and understand. Regaining the public's trust will take time. We must be prepared to answer hard questions about what we are doing and how our actions are impacting the environment. We must also help the public think through its forest management options. When we lay out these options, we must speak of much more than trees. Only then will our critics know we love forests as much as they do." **Response:** As disclosed in the FEIS in Chapter 1, Public Involvement, a concerted effort has been made to involve other federal and state agencies, local county representatives, tribal governments, conservation communities and individuals throughout the environmental analysis process. Several issues and concerns were identified and addressed through alternative development, full effects disclosure,,and incorporation of additional design features. These efforts will continue through until the decision is issued and during implementation for those who want to monitor the project's success in achieving desired outcomes.

10/106 **(View 21)**	**Comment:** Congress finds the following: Commercial logging has many indirect costs which are very significant, but not easily measured, such as flooding damage and relief of flooding damage through Federal funds, damage to the salmon fishing industry; and harm to the recreation and tourism industries." **Response:** These Findings are cited in the development of legislation titled: "National Forest Protection and Restoration Act of 2001," which was referred back to the committee and did not pass. No literature is specifically cited. Environmental effects of the proposed project can be found in the FEIS, Chapter 3, Environmental Consequences.
10/107 **(View 22)**	**Comment:** Human tampering with nature has not been without costs. Human manipulation of existing ecosystems has also sometimes had unfortunate consequences. **Response:** Entire quote from which the first sentence was extracted: "Human tampering with nature has not been without costs. Baskin examines some of those incurred by the accidental or even deliberate introduction of alien species into ecosystems ill-equipped to function with them." Second sentence is a preface about other examples of changes that have occurred from human uses. The first example is about clearcuts in the Pacific Northwest and the second are crops/forest plantations that have contributed to human pollen allergies. None of the extracted sections apply to any activities associated with the project.
10/108 **(View 23)**	**Comment:** In general, rate of spread and flame length were positively correlated with the proportion of area logged (hereafter, area logged) for the sample watersheds. Correlation coefficients of area logged with rate of spread were > 0.57 for five of the six river basins (table 5). Rate of spread for the Pend Oreille and Wenatchee River basins was strongly associated (r-0.89) with area logged. Correlation of area logged with flame length were > 0.42 for four of six river basins (table 5). The Deschutes and Methow River basins showed the strongest relations. All harvest techniques were associated with increasing rate of spread and flame length, but strength of the associations differed greatly among river basins and harvesting methods." (pg.9) "As a by-product of clearcutting, thinning, and other tree-removal activities, activity fuels create both short- and long-term fire hazards to ecosystems. The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree. Even though these hazards diminish, their influence on fire behavior can linger for up to 30 years in the dry forest ecosystems of eastern Washington and Oregon. **Response:** Fuels effects are disclosed in the FEIS, Environmental Consequences, Fuels section.
10/109 **(View 24)**	**Comment:** The Quincy Library Group's (QLG's) fuelbreak strategy represents a giant step backwards from the progressive development of rational fire policies established by the 1995 Federal Wildland Fire Management Policy and Program Review." "The fact that the QLG admits that its Plan is inconsistent with these new policies (indeed, is almost gleefully defiant of them) says a lot about the credibility of the QLG's self-purported fire management expertise." "In spite of (or more likely because of) the intensive 'fuels reduction' activities associated with commercial logging, the Fountain Fire was truly catastrophic in its effects." "Even 'kinder, gentler' commercial logging still inflicts environmental impacts such as eroded topsoil, degraded water quality, destroyed wildlife habitat, and extirpated species that are every bit as much symptoms of forest health problems as large-scale, severe wildfires." "And after spending millions of dollars creating the SNEP Report, it seems wise to use its information, not ignore it or opportunistically select out statements clearly worded as assumptions, values, or goals which run contrary to factual research findings. The QLG Plan has much more to do with timber extraction than with genuine fire protection, and in that respect, it constitutes more of a forest health threat than a real solution." "The QLG Bill resembles similar 'panic legislation' that was passed during the early 1970s in which, following some large-scale wildfires in California, Congress allowed the Forest Service to access emergency firefighting funds to conduct 'presuppression' timber sales. Many fuelbreaks were cut in the Sierras during this period, and while costs rapidly rose into tens of millions of dollars, most of these fuelbreaks failed to perform adequately during wildfire suppression incidents. Congress quickly had to take away this funding source from the Forest Service. What has become of these old fuelbreaks? Almost without exception, the agency failed to monitor or maintain them, and in a modern-day version of 'cut and run' logging, many of these old fuelbreaks have converted to chaparral brush and 'dog-hair' thickets … a much more flammable vegetation type than the original forest cover. The QLG Bill appears to be 'deja vu' without evidence of Congress or the QLG being aware of this history of previous fuelbreak programs." **Response:** This project does not propose fuel-breaks, which were the focus of this paper.

10/110 **(View 25)**	**Comment:** The notion that commercial logging can prevent wildfires has its believers and loud proponents, but this belief does not match up with the scientific evidence or history of federal management practices. In fact, it is widely recognized that past commercial logging, road-building, livestock grazing and aggressive firefighting are the sources for "forest health" problems such as increased insect infestations, disease outbreaks, and severe wildfires." "How can the sources of these problems also be their solution? This internal contradiction needs more than propaganda to be resolved. It is time for the timber industry and their supporters to heed the facts, not fantasies, and develop forest management policies based on science, not politics. **Response:** The FEIS discusses past timber harvest, reforestation, road building, fire suppression, and livestock grazing that have occurred in the project area in Chapter 3, Environmental Consequences, in the cumulative effects discussion for each resource.
10/111 **(View 26)**	**Comment:** Since the 'New Perspectives' program of the early 1990s, the agency has tried to dodge public opposition to commercial logging by using various euphemisms, such as this gem from the Siskiyou National Forest: Clearcuts are called 'minimum green tree retention units.' Accordingly, Forest Service managers have believed that if they simply refer to logging as 'thinning,' or add the phrases 'fuels reduction' or 'forest restoration' to the title of their timber sale plans, then the public will accept these projects at face value, and business-as-usual commercial logging can proceed. In the face of multiple scandals and widespread public skepticism of the Forest Service's credibility, it seems that only Congress is buying the agency's labeling scheme. **Response:** The FEIS fully discloses the silvicultural prescriptions in detail that are proposed under the action alternatives.
10/112 **(View 27)**	**Comment:** Thus, the use of commercial logging for fire hazard reduction poses yet another paradox: Logging removes the trees that normally survive fires, leaves behind the trees that are most often killed by fire, increases flammable fuel loads, and worsens fire weather conditions. **Response:** The action alternatives include design features (FEIS Chapters 2 and 3) that retain legacy trees.
10/113 **(View 28)**	**Comment:** "In the face of growing public scrutiny and criticism of the agency's logging policies and practices, the Forest Service and their enablers in Congress have learned to mask timber sales as so-called 'fuels reduction' and 'forest restoration' projects. Yet, the net effect of these logging projects is to actually increase fire risks and fuel hazards." "Decades of encouraging private logging companies to take the biggest, oldest, most fire-resistant trees from public lands, while leaving behind a volatile fuel load of small trees, brush, weeds, stumps and slash has vastly increased the flammability of forestlands." "In addition to post-fire salvage logging, the Forest Service and timber industry advocates in Congress have been pushing pre-fire timber sales, often falsely billed as hazardous fuels reduction or 'thinning' projects, to lower the risk or hazard of future wildfires. In too many cases, these socalled thinning projects are logging thick-diameter fire-resistant overstory trees instead of or in addition to cutting thin-sized fire-susceptible understory trees. The resulting logging slash and the increased solar and wind exposure can paradoxically increase the fuel hazards and fire risks." **Response:** The action alternatives include design features (FEIS Chapters 2 and 3) that retain legacy trees. Fuels effects are disclosed in the FEIS, Chapter 3, Fuels Environmental Consequences.
10/114 **(View 29)**	**Comment:** More than any other recent human activity, the legacy of commercial timber extraction has made public forests more flammable and less resilient to fire. Firstly, clearcut and high-grade logging have historically taken the largest, most fire-resilient, most commercially-valuable trees, and left behind dead needles and limbs (logging debris called "slash"), along with smaller trees and brush that are less commercially valuable but more flammable than mature and old growth trees. The net effect is to increase the amount of available hazardous fuel." "Secondly, the removal of large overstory trees also changes the microclimate of logged sites, making them hotter, drier, and windier, which increases the intensity and rate of spread of wildfires. Third, the creation of densely-stocked even-aged plantations of young conifers made sites even more flammable since this produced a solid mass of highly combustible conifer needles within easy reach of surface flames. These changes in the fuel load, fuel profile, and microclimate make logged sites more prone to high-intensity and high-severity wildfires." **Response:** The action alternatives include design features (FEIS Chapters 2 and 3) that retain legacy trees. Fuels effects are disclosed in the FEIS, Chapter 3, Fuels Environmental Consequences. Proposed vegetation treatments are designed to increase stand heterogeneity and reduce the risk of loss to wildfire

10/115 **(View 30)**	**Comment:** Linear developments may result in habitat avoidance for grizzly bears. Logging-truck traffic in the Kimsquit Valley in British Columbia resulted in a 78% reduction in use of the "Zone of Hauling Activity" by radio collared bears compared to non-hauling periods (16). For 14 hours/day, 3%-23% of each bear's home range was unavailable to them because of disturbance." "The impacts of land-use activities on wolverines are *likely* similar to those on grizzly bears. Wolverines seem to have been most affected by activities that fragment and supplant habitat, such as human settlement, extensive logging, oil and gas development, mining, recreational developments, and the accompanying access. Wolverine populations that are now at the edge of extirpation have been relegated to the last available habitat that has not been developed, extensively modified, or accessed by humans. **Response:** Grizzly bears are not found on the Nez Perce National Forest and wolverine are not found in the project area (refer to the FEIS, Chapter 3, Wildlife).
10/116 **(View 31)**	**Comment:** "History, not science, refutes the claim that logging helps to prevent forest fires. The forests of the West are far more vulnerable to fire due to a century of industrial logging and fire suppression. Logging has removed most of the older, fire-resistant trees from the forests. Fire suppression has encouraged many smaller and more flammable trees, brush and dense plantations to fill the holes. Logging has set the forests of the West up to burn big and hot. More logging will not fix this. **Response:** The action alternatives include design features (FEIS Chapters 2 and 3) that retain legacy trees. Fuels effects are disclosed in the FEIS, Chapter 3, Fuels Environmental Consequences. Proposed vegetation treatments are designed to increase stand heterogeneity and reduce the risk of loss to wildfire.
10/117 **(View 32)**	**Comment:** Fear of wildfire is heavily used to sell these forest "restoration" schemes. Logging has not been proven, in practice, to reduce fire frequency or intensity. Historically, the largest, most destructive blazes, like the Tillamook conflagration, were caused from logging or fueled by slash. Unlogged forests, cool and shaded, are typically more fire resistant than cut over, dried-up stands choked with slash and weeds. Large-scale logging (by any name) has devalued our forests, degraded our waters, damaged soils, and endangered a wide variety of plants and animals. How will the current round of politically and environmentally propelled 'restorative' logging proposals differ, in practice, from past logging regimes? **Response:** The action alternatives include design features (FEIS Chapters 2 and 3) that retain legacy trees. Fuels effects are disclosed in the FEIS, Chapter 3, Fuels Environmental Consequences. Proposed vegetation treatments are designed to increase stand heterogeneity and reduce the risk of loss to wildfire.
10/118 **(View 33)**	**Comment:** Timber harvesting operations affect hydrologic processes by reducing canopy interception and evapotranspiration. Many studies have documented changes in soil properties following tractor yarding (Stone, 1977; Cafferata, l983), and lowground-pressure skidding (Sidle and Drlica, 1981). More recently, researchers have evaluated cable yarding (Miller and Sirois, 1986; Purser and Cundy, 1992). In general, these studies report decreased hydraulic conductivity and increased bulk density in forest soils after harvest. **Response:** The comment originates from the introduction of the cited document which contains no other references to changes in bulk density/soil compaction. The focus of paper is on slope stability associated with changes in soil moisture or subsurface flow that may occur from use of heavy equipment during logging operations or other disturbance. The FEIS discusses effects of the different activities (timber harvest and roads) on soil disturbance. (FEIS, Environmental Consequences, Soils).
10/119 **(View 34)**	**Comment:** Among these four species of amphibians, the spotted salamander is most likely to be affected adversely by the logging as this species of salamander relies on dense forests with full canopies (Harding, 1997)." "Looking at the study on a larger scale, the potential for changes caused by logging is great. Absence of trees could influence water temperature by altering available sunlight, conductivity by changing the amount of organic matter that collects in the vernal ponds, or pH if the logging process deposits foreign residues to the area. Also heavy equipment used to harvest the timber has the potential to alter the terrain." "Modifications to the landscape could change how water flows and collects at the surface and change the size, shape, and location of the vernal ponds. Loss or alteration to small temporary water sources less than four hectares can be extremely detrimental to amphibians water (Semlitsch, 2000). Without vernal ponds amphibians would have difficulty inhabiting forested areas because they rely on the ponds as breeding grounds. If logging disturbs the ponds, amphibian populations could diminish in the areas that surround these vernal pools. **Response:** The spotted salamander is an eastern species that ranges from Ontario, Canada, south to Texas and extends to the eastern coast (NatureServe 2012), and as a result, would not be impacted by proposed activities. The effects analysis for this project addresses potential impacts to amphibian species. See the FEIS, Environmental Consequences, Wildlife

10/120 **(View 35)**	**Comment:** The Congressional Research Service (CRS) recently addressed the effect of logging on wildfires in an August 2000 report and found that the current wave of forest fires is not related to a decline in timber harvest on Federal lands. From a quantitative perspective, the CRS study indicates a very weak relationship between acres logged and the extent and severity of forest fires. To the contrary, in the most recent period (1980 through 1999) the data indicate that fewer acres burned in areas where logging activity was limited." "Qualitative analysis by CRS supports the same conclusion. The CRS stated: "[T]imber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these fine fuels on the forest floor increases the rate of spread of wildfires." Similarly, the National Research Council found that logging and clearcutting can cause rapid regeneration of shrubs and trees that can create highly flammable fuel conditions within a few years of cutting." **Response:** See the response to 10/108. Note that the first extract appears contradictory to the scientific findings cited in 10/108 (View # 23) which found a more conclusive relationship between wildfire and areas previously harvested.
10/121 **(View 36)**	**Comment:** "I will turn first to forest thinning aimed at reducing fire risks. There is surprisingly little scientific information about how thinning actually affects overall fire risk in national forests." "How can it be that thinning could increase fire risks? First, thinning lets in sunlight and wind, both of which dry out the forest interior and increase flammability. Second, the most flammable material - brush, limbs, twigs, needles, and saplings - is difficult to remove and often left behind. Third, opening up forests promotes brushy, flammable undergrowth. Fourth, logging equipment compacts soil so that water runs off instead of filtering in to keep soils moist and trees healthy. Fifth, thinning introduces diseases and pests, wounds the trees left behind, and generally disrupts natural processes, including some that regulate forest health, all the more so if road construction is involved. **Response:** The Fuels section of the FEIS discusses the effects of proposed treatments on wildfire crowning index. The Vegetation section of the FEIS discusses the effects of the alternatives on insects that occur in the area, and the development of snags and coarse woody debris, both of which are important ecological components. The Soils and Watershed sections of the FEIS also disclose the potential effects of the alternative timber harvest methods and logging equipment scenarios on soils.
10/122 **(View 37)**	**Comment:** Those who would argue that this form of logging has any positive effects on an ecosystem are clearly misinformed. This type of logging has side effects related to wildfires, first and foremost being that the lumber companies aren't interested in hauling out all the smaller trees, branches, leaves, pine needles, sawdust, and other debris generated by cutting all these trees. All this debris is left on site, quickly dries out, and is far more flammable sitting dead on the ground than it was living in the trees. Smaller, non-commercially viable trees are left behind (dead) as well - creating even more highly flammable fuel on the ground. **Response:** The FEIS fully discloses the silvicultural prescriptions that are proposed under the action alternatives and their intended outcomes.
10/123 **(View 38**	**Comment:** We concluded that commercial timber sales do not meet the criteria for forest restoration. **Response:** This statement is in context to the use of National Fire Plan Rehabilitation and Restoration Funds. The report questioned whether in Region 1 NFP Rehabilitation and Restoration Program funds were appropriately used to prepare and administer projects involving commercial timber sales. They concluded only that "commercial timber sales do not meet the criteria for forest restoration" as defined by the National Fire Plan selection criteria for specific projects in question on the Bitterroot National Forest. This report did not make a general conclusion about commercial timber harvest and restoration. Chapter 1 of the FEIS discusses the purpose and need for this project and the importance of using vegetation management to meet restoration objectives in the project area.

10/124 **(View 39)**	**Comment:** In hopes of ending conflicts over "multiple use," an independent scientific committee has proposed that "ecological sustainability" should become the principal goal in managing the U.S. national forests and grasslands, which since 1960 have been under a congressional mandate to serve industry, recreation, and conservation all at once." **Response:** Also from view #39: *"First, the committee suggests, the Forest Service should assess the "ecological integrity" of a planning area, looking at broad factors such as the proportion of old-growth forests, stream flows, wildfire frequency, and the amount and distribution of large dead trees. Because these factors vary over time, the committee argues that the benchmark for assessing integrity must be their "historic range of variability," with that range, in effect, being the conditions before European settlement. The more current conditions fall outside the historic range, the report argues, the lower the ecological integrity; the lower the ecological integrity, the greater the risk to ecological sustainability. Armed with this information, the Forest Service would then create plans to safeguard ecological integrity; economic and social activity could take place within this constraint. Second, the Forest Service should identify a set of "focal species": native species whose abundance and wellbeing would be indicators of the functioning of the larger ecological system. Forest planners would then seek "to provide ecological conditions needed to protect and, as necessary, restore the viability of focal species." Although "protect" and "restore" are strong standards, they would be a departure from current regulation, which requires the agency to "insure" the viability of all native populations."* The FEIS describes how the project would implement the concepts described in view #39 which are embodied in the 1987 Forest Plan.
10/125 **(View 40)**	**Comment:** Logging removes a mass that harbor a myriad of organisms, from bacteria and actinomycetes to higher fungi. The smaller organisms, not visible to the unaided eye, are still important components of the system." **Response:** The 1987 Nez Perce Forest Plan includes desired conditions for snags and coarse woody debris for many of the reasons cited in view # 40. The FEIS includes design features for the retention and development of snags and coarse woody debris and discusses the effects of the alternatives on snags and coarse woody debris.
10/126 **(View 41)**	**Comment:** "Logging removes mature and maturing trees which conserve essential elements, whereas the area containing new very young planted trees following logging are susceptible to erosion and essential element loss." (pg.5) "Logging removes tree parts that would have created and maintained diversity in forest communities." (pg. 44) **Response:** Though this paper discusses forest ecosystems in the Pacific Northwest, the concepts apply to central Idaho. The FEIS includes design features that retain all large ponderosa pine and all legacy trees, which are the most mature trees in the stands. Unable to find the second quote on page 44 of view # 41 therefore it is not clear what "tree parts" refers to. However, the FEIS includes design features for the retention and development of snags and coarse woody debris and discusses the effects of the alternatives on snags and coarse woody debris to help create stand diversity.
10/127 **(View 42)**	**Comment:** In addition to the direct effects of habitat loss and fragmentation, logging typically reduces ecosystem health by: a) damaging aquatic habitats through siltation, reduction in stream complexity and increased water temperatures." **Response:** Water quality and the effects of timber harvest and roads on sedimentation and temperature were analyzed and the discussion is included in the Watershed and Soils sections of the FEIS. The effects of sedimentation on channel pattern and morphology including bank stability and channel width were analyzed. Change in drainage network, change in peak/base flows, and disturbance regime (including slope stability) due to roads has been analyzed in the FEIS.
10/128 **(View 43)**	**Comment:** Logging practices can indirectly result in changes in the biological components of a stream, and can have direct and indirect on the physical environment in streams. The primary environmental changes of concern are the effects of siltation, logging debris, gravel scouring, destruction of developing embryos and alevins, blockage of streamflow, decrease in surface and intragravel dissolved oxygen, increase in maximum and diel water temperatures, changes in pool/riffle ratios and cover, redistribution of fishes, reduction in fish numbers, and reduction in total biomass. **Response:** Water quality and the effects of timber harvest and roads on sedimentation and stream temperature were analyzed and the discussion is included in the Watershed Section of the FEIS. The effects of sedimentation on channel pattern and morphology including bank stability and channel width were analyzed and the discussion is included in the Fisheries section of the FEIS. Change in drainage network, change in peak/base flows, and disturbance regime (including slope stability) due to roads has also been analyzed in the FEIS. Aquatic habitat conditions, including pool frequency and quality, the occurrence of large pools, and the occurrence of large woody debris has been analyzed and the discussion can be found in the Fisheries section of the FESI.

10/129 **(View 44)**	**Comment:** "Biodiversity in managed ecosystems is poor. Less biodiverse communities and ecosystems are more susceptible to adverse weather (such as drought) and exotic invaders, and have greatly reduced rates of biomass production and nutrient cycling." "All of these studies show that ecosystem functioning is decreased as the number of species in a community decreases. Declines in functioning can be particularly acute when the number of species is low, such as in most managed ecosystems including croplands or timber plantations." "Recent evidence demonstrates that both the magnitude and stability of ecosystem functioning are likely to be significantly altered by declines in local diversity, especially when diversity reaches the low levels typical of managed ecosystems. **Response:** The purpose and need of the project is to increase landscape biodiversity by restoring seral species, and increasing the heterogeneity and long-term biodiversity of existing plantations.
10/130 **(View 45)**	**Comment:** As a result of the Forest Service's well-documented mismanagement over many years of the timber sale program, taxpayers also have been stuck with the tab for hundreds of millions of dollars worth of subsidies to a profitable timber industry." **Response:** This is an opinion article. The economics section of the FEIS, provides a summary of how dollars allocated to this project have been, or are planned to be, spent.
10/131 **(View 46)**	**Comment:** Agroforestry does reduce biodiversity. In forests used for logging, whole-landscape management is crucial. Here, emphasis is placed on areas of intensive use interspersed with areas for conservation and catchment purposes. Management strategies for sustainable forestry are being developed, but there is a need for further interaction among foresters, ecologists, community representatives, social scientists, and economists." **Response:** The FEIS describes how areas proposed for treatment and those not proposed for treatment would contribute to landscape diversity. However, the contrast will not be as dramatic as that described in view # 46. Chapter 2 of the FEIS describes design features that help contribute to the conservation of various elements (e.g. snags and coarse woody debris) and portions of the landscape (e.g. riparian conservation areas) all of which are similar to the strategies described in paper.
10/132 **(View 47)**	**Comment:** The U.S. Forest Service has been sitting on a public opinion survey it commissioned, not knowing what to do with the results. The problem is that most people surveyed want more wilderness and less logging on the Green Mountain National Forest (GMNF), while the federal agency seems to want to build more roads and cut more trees." "The survey conducted by Dr. Robert Manning of the School of Natural Resources at the University of Vermont, polled 1,500 Vermont households in the spring of 1995. A survey with similar results was completed last fall for the White Mountain National Forest in New Hampshire. 'It is clear that New England residents value the national forest for many reasons, but nonmaterial values, such as aesthetics and ecological protection, are more important than material values, such as economic development,' said Dr. Manning." "The responses to several survey questions indicate a strong public desire for more areas of wild, untouched nature on the GMNF and less roadbuilding and logging. Very few people supported clearcutting and other types of industrial logging, especially if natural beauty or wildlife habitat were harmed. For example: • 82 percent wanted to ban clearcutting, • 82 percent said logging should not hurt scenic beauty, • 80 percent of the respondents wanted to protect remaining undisturbed forest; and • 72 percent urged prohibition of logging if bear or other wildlife habitat would be harmed." Only 36 percent felt that management of the GMNF should emphasize timber and lumber products; and only 15 percent felt that jobs are more important than protection of endangered species." "'The results of this survey and a similar one on the White Mountain National Forest in Vermont should serve as loud wake-up calls to the U.S. Forest Service,' said Northup. 'Forest Service officials have two choices: either begin a major overhaul of the agency's management programs or ignore the wishes of the people they are supposed to serve'." **Response:** View # 47 is specific to comments made about management strategies on the Green Mountain National Forest and is not specifically relevant to the Clear Creek Integrated Restoration project on the Nez Perce-Clearwater National Forest.
10/133 **(View 48)**	**Comment:** “Still, forestry experts warned in the 2000 plan that logging should be used carefully and rarely; in fact, the original draft states plainly that the "removal of large merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk." “Now, critics charge that the Bush administration is ignoring that warning. Neil Lawrence, a policy analyst with the Natural Resource Defense Council, claims that Washington has taken a far more aggressive approach to incorporating commercial logging in its wildfire prevention plans. As a result, Lawrence and other critics say, the National Fire Plan is becoming a feeding ground for logging companies. Moreover, critics claim the administration's strategy, far from protecting the lives and homes of those most at risk, could actually increase the likelihood of wildfires.” **Response:** The comments are in reference to the National Fire Plan. Effects of proposed treatments on wildfire crowning index for this project are discussed in the FEIS in the Fuels section.

10/134 **(View 49)**	**Comment:** "In response to catastrophic wildfires, wide-reaching forest management policies have been enacted in recent years, most notably the Healthy Forests Restoration Act of 2003. A key premise underlying these policies is that fire suppression has resulted in denser forests than were present historically in some western forest types. Therefore, although reducing the threat of wildfire is the primary goal, forest managers commonly view fuel treatments as a means to restore historic forest structure in those forest types that are outside of their historic range of variation. This study evaluates where both wildfire mitigation and restoration of historic forest structure are potentially needed in the ponderosa pine–dominated montane forest zone of Boulder County, Colorado. Two spatial models were overlain: a model of potential fireline intensity and a model of historic fire frequency. The overlay was then aggregated by land management classes. Contrary to current assumptions, results of this study indicate that both wildfire mitigation and restoration of historic forest structure are needed in only a small part of the study area, primarily at low elevations. Furthermore, little of this land is located on Forest Service land where most of the current thinning projects are taking place. We question the validity of thinning as a means both to reduce the threat of wildfire and to restore historic forest structure in the absence of site-specific data collection on past and present landscape conditions." **Response:** View # 49 also includes the following: "*Fire mitigation and restoration models derived from other ponderosa pine ecosystems (e.g., Covington and Moore 1994; Kaufmann et al. 2001; Kaufmann et al. 2003) should not be extrapolated to the p in lieu of conducting intensive, site specific data collection in the potential management area. Analogously, the specific results reported here should not be uncritically applied to other areas of ponderosa pine ecosystems. Rather, the approach and methodology of the current study can inform management discussion and guide data collection procedures in other ecosystems.*" "*In places where restoration of historic forest structure is the primary goal and the historic fire regime included high-severity fires, forest managers must actively communicate the political, financial, and managerial difficulties of maintaining forests within a potentially hazardous state.*" The paper discusses the historical role of fire in the ponderosa pine ecosystems of the Colorado front. They describe the fire regime as "mixed" which includes stand-replacing fire. They conclude that not all ponderosa pine forests should be returned to a "nonlethal" state if the goal is to create historical conditions. This therefore was the basis for the conclusion in paragraph 2. The project area is dominated by grand-fir and cedar habitat types, not ponderosa pine.
10/135 **(View 50)**	**Comment:** Private lands are more suitable for timber production. National Forest land is on average of lower productivity and on steeper, higher elevation terrain than are private forestlands." **Response:** The project area is on lands determined to be suitable for timber production as defined by the 1987 Nez Perce Forest Plan.
10/136 **(View 52)**	**Comment:** "Less than 5% of America's original forests remain, and these forests are found primarily on federal lands. Logging in the last core areas of biodiversity is destroying the remaining intact forest ecosystems in the United States. At the current rate of logging, these forests and their priceless biological assets will be destroyed within a few decades. We urge Congress to pass the Act to Save America's Forests. It is the first nationwide legislation that would halt and reverse deforestation on all our federal lands. By implementing protective measures based on principles of conservation biology, the bill provides a scientifically sound legislative solution for halting the rapid decline of our nation's forest ecosystems. The Act to Save America's Forests will: • Make the preservation and restoration of native biodiversity the central mission of Federal forest management agencies. • Ban extractive logging in core areas of biodiversity and the last remnant original forest ecosystems: roadless areas, ancient forests and special areas of outstanding biological value. • Protect sensitive riparian areas and watershed values by banning extractive logging in streamside buffer zones. • End clearcutting and other even age logging practices on federal land. • Establish a panel of scientists to provide guidance to federal forest management. We believe it is our professional responsibility to ask Congress to align Federal forest management with modern scientific understandings of forest ecosystems. Passage of the Act to Save America's Forests will give our nation's precious forest ecosystems the best chance or survival and recovery into the 21st century and beyond." **Response:** The science findings resulting from the Interior Columbia Basin Ecosystem Management Project (ICBEMP), such as the one partially quoted by the commenter, were integral in informing the IDT's pre-NEPA watershed assessment of the project area. The Clear Creek Integrated Restoration project implements the strategies outlined in the Nez Perce National Forest Plan.

10/137 **(View 53)**	**Comment:** "The Act to Save America's Forests is based on the principles of conservation biology. It would make the protection native biodiversity the primary goal of federal forest management agencies. The bill would protect over 20 million acres of core forest areas throughout the nation, including ancient forests, roadless areas, key watershed, and other special areas. It is a comprehensive, sustainable, and ecologically-sound plan for protecting and restoring the entire federal forest system. If the current pace of logging planned by the Forest Service continues, nearly all of America's ancient and roadless wild forests will soon be lost forever. According to a recent report by the World Resources Institute, only one percent of the original forest cover remains in large blocks within the lower 48 states. The Act to Save America's Forests incorporates the solution recommended by the report, namely to protect core forest areas from any logging and to allow sustainable forest practices around these protected forests. Endorsed by over 600 leading scientists, this bill may be the last hope for America's forests." **Response:** The project is in an area that has been managed in the past. See the FEIS, Environmental Consequences, Cumulative Effects for all resources. The project includes design features for conservation of riparian areas and increases landscape diversity.
10/138 **(View 54)**	**Comment:** It is well established that logging and roadbuilding often increase both fuel loading and fire risk. For example, the Sierra Nevada Ecosystem Project (SNEP) Science Team (1996) concluded that "timber harvest.… has increased fire severity more than any other recent human activity" in the Sierra Nevada. Timber harvest may increase fire hazard by drying of microclimate associated with canopy opening and with roads, by increases in fuel loading by generation of activity fuels, by increases in ignition sources associated with machinery and roads, by changes in species composition due to opening of stands, by the spread of highly flammable non native weeds, insects and disease, and by decreases in forest health associated with damage to soil and residual trees (DellaSala and Frost, 2001; Graham et al., 2001; Weatherspoon et al., 1992; SNEP Science Team, 1996). Indeed a recent literature review reported that some studies have found a positive correlation between the occurrence of past logging and present fire hazard in some forest types in the Interior Columbia Basin (DellaSala and Frost, 2001)." **Response:** See the response to 10/137.
10/139 **(View 55)**	**Comment:** "I will discuss my views on how activities related to timber harvest adversely affect coastal salmonids in California by destroying, altering, or otherwise disturbing the freshwater habitats upon which these fish depend during crucial phases of their life cycle. I base these opinions on my research and observations in the field, as well as my review of and familiarity with the scientific literature and publications of government agencies, commissions, and scientific review panels. Below I discuss in some detail the life history and habitat needs of coho salmon to illustrate how timber harvest and related roads affect this threatened species. Although Chinook salmon and steelhead trout have similar life histories and habitat needs, and also are negatively affected by timber harvest, I will use coho salmon in my discussion." "Loss or degradation of stream habitat has been and remains the single most significant cause of the decline of anadromous salmonids in general in the Pacific Northwest. In my experience the most pervasive and severe impacts to coastal watersheds in California inhabited by coho salmon result from logging and associated activities. These activities cause significant alteration and degradation to coho salmon habitat by 1) increasing sediment input to salmon bearing streams and their tributaries: 2) by decreasing input of LWD into waterways; 3) by altering streamflow regimes, increase ing the likelihood of scouring flows and flooding; and 4) by increasing water temperatures. These pervasive changes due to timber harvest decrease the complexity and suitability of coho salmon habitat, including adversely affecting insects and other organisms that provide food for fish. **Response:** The views presented in this article are specific to coastal salmonids in California. Water quality and the effects of timber harvest and roads on sedimentation, stream temperature, channel patterns and morphology, including bank stability and channel width, changes in peak/base flows, and aquatic habitat conditions such as pool frequency and quality, and the occurrence of large woody debris were analyzed and the discussion is included in the Watershed and Fisheries Sections of the FEIS.
10/140 **(View 56)**	**Comment:** People moving to the region may do so for reasons related to the social environment and the physical landscape but not care about specific Federal land management practices. We found this not to be true, since 92 percent were concerned with how Federal lands were managed. The most frequent preferences for managing Federal lands were water/watershed and ecosystem protection (table 3). Timber harvesting was cited by 16 percent, grazing and ranching by 6 percent, and mineral exploration/mining by less than 1 percent. Overall, protective strategies made up 76 percent of the preferred management strategies and commodity-based strategies 23 percent. This same trend is evident for the second and third most stated preferences. These findings also contradict the longstanding view of the Federal lands as a public warehouse of commodities to be harvested and jobs to be filled. For newcomers in the rural West, the value of these public lands is related to protecting and preserving them." **Response:** Rationale for Forest Plan decisions concerning strategies and how they address comments can be found in the Record of Decision.for the 1987 Nez Perce Forest Plan EIS.

10/141 **(View 57)**	**Comment:** "Once clear-cutting has occurred, regulation and human silvicultural practices become responsible for the revegetation that follows. The creation of new forest succession patterns are the result of human control over the growing environment. Rather than proceeding at a natural pace, humans attempt to speed up the forest succession process to quickly return to a situation where harvesting is again possible. Reforestation of the disturbed area after clear-cutting also emphasizes maintaining control over the distribution and quality of forest species. Simplification is a state that results from the forest being harvested before it reaches maturity. Logging simplifies forest ecosystems (Dudley et al 1995) by narrowing the age range of the stand and suppressing diversification through repeated harvesting, burning to remove slash, and replanting with hybrid seedlings. Simplification affects the health and productivity of the forest because simplified forests lack the variety found in older stands, including species diversity, vertical structure, and microhabitat. From an ecological standpoint, a simplified forest of a particular age has less overall bio-mass per acre than a natural forest of the same age, but a simplified forest produces a higher volume of merchantable timber. **Response:** The paper examines the effects of clearcutting on forest ecosystems. The variable retention silvicultural prescriptions that are proposed for this project would emulate natural disturbance patterns.
10/142 **(View 58)**	**Comment:** Within this volatile atmosphere the Bush Administration presented a new proposal for fire prevention called the "Healthy Forest Initiative." The plan received wide coverage in the national media in August and September 2002 and continues to be at the center of an attempt to significantly shift public land management in the United States. At the core of the plan is an effort to create private sector incentives to promote logging/thinning projects in the national forests." **Response:** The paper presents a viewpoint to the need to develop the Healthy Forest Initiative policy and not to specific actions proposed to be taken in the Clear Creek Integrated Restoration Project. The Economics Section of the FEIS provides a summary of how dollars allocated to this project have been, or are planned to be, spent.
10/143 **(View 59)**	**Comment:** Logging on the National Forests provides less than 5% of the nation's timber supply, but costs the taxpayers more than 1 billion dollars in subsidies every year. Nor is logging a good job provider compared to recreation, which by Forest Service estimates provides over 30 times the economic benefits of logging. These forests are the last remnants of the virgin forests that covered the country, and now have far more value as forest ecosystems, watershed/water supply protection, and recreational assets than for logging. In fact, the justification for the Weeks Act in 1911 which established national forests in the east, was watershed protection. (A major barrier to the Forest Service changing its ways is that these increased recreational economic benefits flow into the local economy, not to the Forest Service itself, whereas extractive uses of the national forests contribute directly to Forest Service budgets.) "Our nation is engaged in a great debate over the real purpose of our national forests, with the weight of public opinion swinging more and more strongly toward preservation. Certainly this nation should not be subsidizing logging when it is clear that we understand so little about the functioning of these enormously complex and ancient forest ecosystems that provide millions of people with clean air and water, as well as homes for a myriad of plants and wildlife that can live nowhere else. **Response:** The project is not "virgin forest" since the majority of the area has been previously managed. The Economics section of the provides a summary of how dollars allocated to this project have been, or are planned to be, spent.
10/144 **(View 60)**	**Comment:** Timber harvesting in British Columbia influences (a) forest hydrology; (b) fluvial geomorphology; (c) terrain stability; and (d) integrated watershed behavior. Impacts on forest hydrology are well understood and include increased average runoff, total water yield, increased storm runoff and advances in timing of floods. Stream channels and valley floors are impacted differently by fine sediment, coarse sediment and large woody debris transport. Terrain stability is influenced through gully and mass movement processes that are accelerated by timber harvesting. Impacts on integrated watershed behavior are assessed through disturbed sediment budgets and lake sediments. **Response:** It appears the focus of the referenced paper is a perspective on implications of British Columbia's current policy for sustainable land management. It is widely recognized that forest management activities can influence hydrologic processes and functions that can affect terrain stability and watershed response. The FEIS discusses the potential effects of timber harvest on Watershed and Soils resources.
10/145 **(View 61)**	**Comment:** "In sum, 100 years of fire suppression and logging have created conditions that threaten central Oregon's natural resources and communities." "Thus it is inexplicable that the solution proposed by President Bush and some members of Congress emphasizes fire suppression and commercial logging, the very practices that created today's crisis. The federal government continues to attempt to suppress over 99% of all wildland fires. The Forest Service continues to measure its success not in terms of ecosystems restored, but in fires put out. The President's Healthy Forest Initiative, as embodied in H.R. 1904, promotes commercial logging at the expense of citizen participation and oversight of the forests we own." **Response:** The paper presents a viewpoint to the need to develop the Healthy Forest Initiative.

10/146 **(View 62)**	**Comment:** "Fire, just like insects and disease, are a natural and beneficial part of forest ecosystems and watersheds. Without these natural processes the forest ecosystems quickly degrade. Excessive logging removes and reduces cooling shade adding to the hotter, drier forests along with logging debris creating a more flammable forest. Current "forest management" practices, road building and development cause forest fires to rage for hundreds of miles. The Sierra Nevada Ecosystem Project said in a report to the U.S. Congress that timber harvests have increased fire severity more than any other recent human activity. Logging, especially clear cutting, can change the fire climate so that fires start more easily, spread faster, further, and burn hotter causing much more devastation than a fire ignited and burned under natural conditions. If we stop the logging and stop building fire prone developments, we minimize the loss of lives and property suffered by people in fires. As long as the people of America let politicians, timber executives, and the Forest Service get away with it - it will not stop. Those corporations that profit will continue to lie, cheat and steal to continue to make more money from our losses. Just like big tobacco." **Response:** The paper presents a viewpoint to the need to develop the Healthy Forest Initiative. See the responses to 10/133, 10/134, 10/140, 10/144, and 10/145.
10/147 **(View 63)**	**Comment:** The agency's commercial timber program can contribute to the risk and severity of wildfire in the National Forests, yet Congress devotes nearly one-third of the Forest Service's entire budget to this wasteful program." (pg. 1) "Do not utilize the commercial timber program to reduce the risk of fire. Commercial incentives undercut forest health objectives and can actually increase the risk of fire." (pg. 9) "Commercial logging, especially of larger, fire-resistant trees, in the National Forests is one of several factors contributing to the risk and severity of wildfire." (pg. 19) "Commercial logging and logging roads open the forest canopy, which can have two effects. First, it allows direct sunlight to reach the forest floor, leading to increased evaporation and drier forests.**5** As a consequence, ground fuels (grass, leaves, needles, twigs, etc.) dry out more quickly and become susceptible to fire. Second, an open canopy allows more sunlight to reach the understory trees, increasing their growth.**6** This can lead to weaker, more densely-packed forests." (pgs. 19-20) "Congress and the Forest Service continue to rely on the commercial logging program to do something it will never accomplish – reduce fire risk. The commercial logging program is designed to provide trees to private timber companies, not to reduce the risk of fire." (pg. 20) **Response:** The action alternatives include design features (FEIS Chapter 2) that retain legacy trees. The Fuels section discusses the effects of proposed treatments on wildfire crowning index. The action alternatives include commercial thinning that would increase the growth rates of medium tree size class stands by reducing the density of smaller trees.
10/148 **(View 64)**	**Comment:** "Indiscriminate logging is not a viable solution to reducing wildfire risk. Logging can actually increase fire danger by leaving flammable debris on the forest floor. Loss of tree canopy lets the sun in, encouraging the growth of brush, increases wind speed and air temperature, and decreases the humidity in the forest, making fire conditions even worse." **Response:** View # 64 also states: "*Forest managers and scientists agree that the most hazardous fuels in the forest are dry grass, pine needles, tree limbs and brush, and eliminating them should be the first priority. The focus of a good fuels management plan must be on reducing those fuels that ignite and spread wildfire, while keeping the large, older trees that are resistant to fire. Those big trees provide shade, keep the forest floor moist and the wind speed down. Because fire behavior is contingent upon local conditions, a "one-size-fits-all" prescription is not the answer.*
10/149 **(View 65)**	**Comment:** Timber harvest, through its effects on forest structure, local microclimate, and fuels accumulation, has increased fire severity more than any other recent human activity."(pg.62) **Response:** The report focused on findings in the Sierra Nevada ecosystems. However, many of the conclusions and goals apply to central Idaho and the project. The committee of scientists that prepared view # 65 recommend: *"Substantially reduce the potential for large high-severity wildfires in the Sierra Nevada in both wildlands and the wildland-urban intermix." "Restore historic ecosystem functions of frequent low- and moderate-severity fire."* Both of these goals are similar to the goals of the Clear Creek Integrated Restoration project.
10/150 **(View 67)**	**Comment:** The development of sound forestmanagement policies requires that consideration be given to the economic benefits associated with competing uses of forest resources. The benefits that may be provided under different management regimes include both use values (such as those provided by timber harvesting and recreation) and passive-use (or nonuse) values, including existence value, option value and quasi-option value. Many of these benefits are not revealed in market transactions, and thus cannot be inferred from conventional data on prices and costs. **Response:** The Nez Perce National Forest Plan, which the Clear Creek Integrated Restoration project implements, was developed within the framework of the very laws referenced by the commenter.

10/151 **(View 68)**	**Comment:** Unfortunately, there are number of massive logging proposals, disguised as hazardous fuels treatments, that have put environmentalists at odds with the Forest Service. Nearly all of these proposals focus primarily on the removal of mature and old-growth trees. These proposals continue even with overwhelming evidence that commercial logging is more of a problem than a solution. There's simply a cognitive disconnect between the Forest Service's scientists and its timber sale planners, whose budgets are dependent upon selling valuable mature trees. Ironically, this very type of logging, experts inform us, is likely to increase, not decrease, the frequency and severity of wildland fires. In the Forest Service's own National Fire Plan, agency scientists warned against the use of commercial logging to address fire management. The report found that 'the removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk.' " **Response:** View #68 states: "*Most experts now agree, for example, that in some areas excessively high levels of undergrowth can cause unnaturally severe fires, and that reducing these hazardous fuels is warranted.*" The action alternatives include design features that retain legacy trees, which are generally the most fire resistant trees in the project area.
10/152 **(View 69)**	**Comment:** Another surprising finding is that mechanical fuels treatment, commonly known as logging and thinning, typically has little effect on the spread of wildfires. In fact, in some cases, it can increase wildfires' spread and severity by increasing the fine fuels on the ground (slash) and by opening the forest to greater wind and solar penetration, drying fuels faster than in unlogged forests." **Response:** The Fuels section of the FEIS discusses the effects of proposed treatments on wildfire crowning index and the effects related to the activity fuels that will be produced.
10/153 **(View 70)**	**Comment:** "Logging equipment compacts soils. Logging removes biomass critical to future soil productivity of the forest. Logging disturbs sensitive wildlife. Logging typically requires roads water quality and aquatic organism habitat. Logging roads and skid trails are also a major vector for the spread of weeds. Logging disrupts nutrient cycling and flows. Logging can alter species composition and age structure (i.e. loss of old growth). Logging can alter fire regimes. Logging can change water cycling and water balance in a drainage. The litany of negative impacts is much longer, but suffice it to say that anyone who suggests that logging is a benefit or benign is not doing a full accounting of costs." Those who suggest that logging "benefits" the forest ecosystem are using very narrow definitions of "benefit." Much as some might claim that smoking helps people to lose weight and is a "benefit" of smoking." **Response:** This is an opinion paper that does not cite scientific literature to support the specific opposition points. The FEIS discusses potential impacts of the alternative timber harvest and road activities on: soils, wildlife, water quality, fisheries, noxious weeds, species composition and age class, and fire regimes.
10/154 **(View 71)**	**Comment:** After logging, peak pipeflow was about 3.7 times greater than before logging." "The use of heavy logging equipment was expected to compact the soil, reduce infiltration rates, and increase surface runoff. In addition, heavy equipment might collapse some of the subsurface pipes, increasing local pore water pressure and the chance of landslides (Sidle, 1986)." **Response:** The quoted increased peak pipeflow, as stated in the cited paper, occurred after clearcut logging. Harvest methods proposed for this project would include variable retention of existing trees. "The use of heavy equipment…" represents a statement in the article that resulted in the use of an alternative cable yarding system to avoid an unintended influence on the study results. The potential impacts of the timber harvest alternatives on soil compaction are discussed in the FEIS.
10/155 **(View 72)**	**Comment:** As conservation-minded scientists with many years of experience in biological sciences and ecology, we are writing to bring your attention to the need to protect our National Forests. Logging our National Forests has not only degraded increasingly rare and valuable habitat, but also numerous other services such as recreation and clean water." "Unfortunately, the past emphasis of management has been on logging and the original vision for our National Forests has failed to be fully realized. During the past several decades, our National Forests have suffered from intense commercial logging. Today almost all of our old growth forests are gone and the timber industry has turned our National Forests into a patchwork of clearcuts, logging roads, and devastated habitat." "It is now widely recognized that commercial logging has damaged ecosystem health, clean water, and recreational opportunities-- values that are highly appreciated by the American public. The continued logging of our National Forests also wastes American tax dollars and diminishes the possibilities of future economic benefits. The Forest Service and independent economists have estimated that timber accounts for only 2.7 percent of the total values of goods and services derived from the National Forests, while recreation and fish and wildlife produce 84.6 percent." **Response:** Opinion article. Refer to responses to 10/86, 10/88, 10/89, 10/93, 10/96, 10/133, 10/134, 10/140, and 10/143.

10/156 **(View 73)**	**Comment:** Recently, so called "salvage" logging has increased on national forests in response to a timber industry invented "forest health crisis" which points the finger at normal forest processes of fire, fungi, bacteria, insects and other diseases. In fact the crisis in the national forests is habitat destruction caused by too much clearcutting. My long-term studies of forest diseases in Idaho show the loss by disease and insect activity in all age classes of forests to be less than or slightly more than 1 percent per year over the past thirty-eight years. These findings are consistent with Forest Service national level data. Forests are structured systems of many life forms interacting in intricate ways and disturbances are essential to their functioning. It's not fire disease fungi bacteria and insects that are threatening the well being of forests. Disease, fire, windthrow, and other disturbances are a natural part of the forest ecosystem and assist in dynamic processes such as succession that are essential to long term ecosystem maintenance. The real threat facing forests are excessive logging, clearcutting and roadbuilding that homogenize and destroy soil, watersheds and biodiversity of native forests." **Response:** The project proposed variable retention harvest. The FEIS discusses the role of proposed treated areas and the intermix with areas not proposed for treatment in developing landscape diversity. Water quality and the effects of timber harvest and roads on fisheries habitat, watershed resources, and soils were analyzed and the discussion is included in the Watershed, Fisheries, and Soils sections of the FEIS. The FEIS also discloses the effects of the project on the transportation system.
10/157 **(View 74)**	**Comment:** In our overview of the impacts of forest management activities on soil erosion and productivity, we show that erosion alone is seldom the cause of greatly reduced site productivity. However, erosion, in combination with other site factors, works to degrade productivity on the scale of decades and centuries. Extreme disturbances, such as wildfire or tractor logging, cause the loss of nutrients, mycorrhizae, and organic matter. These combined losses reduce long-term site productivity and may lead to sustained periods of extended erosion that could exacerbate degradation. Managers should be concerned with harvesting impacts, site preparation disturbances, amount of tree that is removed, and the accumulation of fuel from fire suppression. On erosion-sensitive sites, we need to carefully evaluate such management factors." **Response:** The FEIS discloses the potential short and long term direct, indirect, and cumulative effects of the alternative forest management activities on soil quality.

Artley Attachment #3: Harvesting Trees to Reduce Fuels is not only Ineffective at Reducing the Risk of Fire Damage to Human Structures but Harms the Forest Ecosystem

Letter #/ Comment #	Comment and Response
10/158 **(View 1)**	**Comment**:: large, severe wildfires are more weather-dependent than fuel-dependent. **Response**: See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/159 **(View 2)**	**Comment**: The biggest ecological con job in years is being waged by the U.S. Republican party and their timber industry cronies. They are blaming the recent Western wildfires on environmentalists, and assuring the public that commercial logging will reduce the risk of catastrophic wildfires." **Response**: The comment is not related to this project.
10/160 **(View 3)**	**Comment**: "One reason that fuels reduction treatments should be limited is that they may not address the important effects of climate and weather on fire behavior. Some studies suggest that it is drought and warmer temperatures—not fuels accumulations—that are the major explanatory factors for large fires (O'Toole 2002-2003, Pierce et al. 2004). It is an unrealistic goal to return all forests to historical states, in light of the fact that agencies have no control over drought or temperature." (pgs. 15 – 16) **Response**: See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.

10/161 **(View 4)**	**Comment:** Fire intensity was correlated to annual area burned; large area burned years had higher fire intensity predictions than smaller area burned years. The reason for this difference was attributed directly to the weather variable frequency distribution, which was shifted towards more extreme values in years in which large areas burned. During extreme weather conditions, the relative importance of fuels diminishes since all stands achieve the threshold required to permit crown fire development. This is important since most of the area burned in subalpine forests has historically occurred during very extreme weather (i.e., drought coupled to high winds). The fire behavior relationships predicted in the models support the concept that forest fire behavior is determined primarily by weather variation among years rather than fuel variation associated with stand age. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/162 **(View 5)**	**Comment:** "Climatic conditions drive all big fires— not fuels. All substantial fires occur only if there is extended drought, low humidity, high temperatures and, most importantly, high winds. When conditions are "ripe" for a large blaze, fires will burn through all kinds of fuel loads. For this reason, most fires go out without burning more than a few acres; approximately 1 percent of all fires are responsible for about 95 percent to 99 percent of the acreage burned." "Under severe conditions, fires burn through all kinds of fuel loads including thinned/logged forests. Contrary to what the U.S. Forest Service has stated about the Ojo Peak Fire, local witnesses have said the fire blew right through the hotter, drier thinned forests where the cooling effect of forest canopy had been removed." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/163 **(View 6)**	**Comment:** The Forest Service is using the fear of wildfires to allow logging companies to remove medium-and large diameter trees that they can sell, rather than just the small trees and brush that can make fires more severe. There is little evidence to show that such logging will prevent catastrophic fires; on the contrary, logging roads and industrial logging cause wildfires. Bush is a well known supporter of the timber industry and has accepted huge sums of money from wealthy timber company leaders. He is promoting misinformation about forest fires in order to benefit timber industry campaign contributors." **Response:** See the response to 10/89, 10/95, and 10/109.
10/164 **(View 7)**	**Comment:** As someone with first-hand experience in fire hazard reduction and first-hand knowledge of the forest management field, as well as someone with lifelong roots in the Durango community, I am abhorred by the destruction, nearly amounting to clear cutting, that is taking place around our community under the guise of "fire hazard reduction." **Response:** The comment is not related to this project.
10/165 **(View 8)**	**Comment:** First, most large fires are climatic/weather driven events, not fuels driven. Extended drought, high winds, high temperatures and low humidity enable fires to burn through all fuel loadings. Many of the large Western fires in recent years were in forests that had been previously logged and/or thinned, with little apparent effect on fire spread or severity. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/166 **(View 9)**	**Comment:** most large fires are climatic/weather driven events, not fuels driven. Extended drought, high winds, high temperatures and low humidity enable fires to burn through all fuel loadings. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/167 **(View 10)**	**Comment:** "The primary driver of fire is not beetle kill. It's climate," said Barry Noon, a wildlife ecology professor at Colorado State University and an author of the report. "It's drought and temperature." "The report was authored by Noon; Clark University professor Dominik Kulakowski ; Scott Black, executive director of the Xerces Center for Invertebrate Conservation and Dominick DellaSala, president and chief scientist for the National Center for Conservation Science and Policy **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.

10/168 **(View 11)**	**Comment:** Extensive areas of dead trees have understandably led to widespread concern about the increased risk for forest fires," said Dominik Kulakowski, one of the report's authors and a professor of geography and biology at Clark University in Worcester, Mass. "This is a logical concern, but the best available science indicates that the occurrence of large fires in lodgepole pine and spruce-fir forests is mainly influenced by climatic conditions, particularly drought." **Response:** The comment is not related to this project. Stands in the project area are dominated by Douglas-fir and grand fir.
10/169 **(View 12)**	**Comment:** Reducing burnable biomass, however, does not eliminate wildfires, because fuel reduction does not directly alter the dryness of the biomass or the probability of an ignition. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/170 **(View 13)**	**Comment:** Most of the trees that need to be removed to reduce accumulated fuels are small in diameter and have little or no commercial value." "Mechanically removing fuels (through commercial timber harvesting and other means) can also have adverse effects on wildlife habitat and water quality in many areas. Officials told GAO that, because of these effects, a large-scale expansion of commercial timber harvesting alone for removing materials would not be feasible. However, because the Forest Service relies on the timber program for funding many of its activities, including reducing fuels, it has often used this program to address the wildfire problem. The difficulty with such an approach, however, is that the lands with commercially valuable timber are often not those with the greatest wildfire hazards. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/171 **(View 14)**	**Comment:** "In April 1999, the General Accounting Office issued a report that raised serious questions about the use of timber sales as a tool of fire management. It noted that "most of the trees that need to be removed to reduce accumulated fuels are small in diameter" -- the very trees that have 'little or no commercial value.' ""As it offers timber for sale to loggers, the Forest Service tends to 'focus on areas with high-value commercial timber rather than on areas with high fire hazards,' the report said. Its sales include 'more large, commercially valuable trees' than are necessary to reduce the so-called accumulated fuels (in other words, the trees that are most likely to burn in a forest fire)." "The truth is that timber sales are causing catastrophic wildfires on national forests, not alleviating them. The Sierra Nevada Ecosystem Project Report, issued in 1996 by the federal government, found that 'timber harvest, through its effects on forest structure, local microclimate and fuel accumulation, has increased fire severity more than any other recent human activity.' The reason goes back to the same conflict that the G.A.O. found: loggers want the big trees, not the little ones that act as fuel in forest fires." "After a 'thinning' timber sale, a forest has far fewer of the large trees, which are naturally fire-resistant because of their thick bark; indeed, many of these trees are centuries old and have already survived many fires. Without them, there is less shade. The forest is drier and hotter, making the remaining, smaller trees more susceptible to burning. After logging, forests also have accumulations of flammable debris known as "slash piles" -- unsalable branches and limbs left by logging crews." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/172 **(View 15)**	**Comment:** "Emerging science demonstrates that the real culprit for creating more wildfires — including southern California's blazes — is not "fuels" but climate and weather. Climate change simply means we must learn to live with more wildfires. Humankind can be pretty smart (we made it to the Moon), but we can also be pretty stupid (we're destroying the lungs of the planet for profit). One thing, however, is certain: Mother Nature knows best. So let's be responsible and stop logging the publicly owned forests, let them recover and let God and nature back in." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.

10/173 **(View 16)**	**Comment:** "In general, rate of spread and flame length were positively correlated with the proportion of area logged (hereafter, area logged) for the sample watersheds. Correlation coefficients of area logged with rate of spread were > 0.57 for five of the six river basins (table 5). Rate of spread for the Pend Oreille and Wenatchee River basins was strongly associated (r-0.89) with area logged. Correlation of area logged with flame length were > 0.42 for four of six river basins (table 5). The Deschutes and Methow River basins showed the strongest relations. All harvest techniques were associated with increasing rate of spread and flame length, but strength of the associations differed greatly among river basins and harvesting methods." (pg.9) "As a by-product of clearcutting, thinning, and other tree-removal activities, activity fuels create both short- and long-term fire hazards to ecosystems. The potential rate of spread and intensity of fires associated with recently cut logging residues is high, especially the first year or two as the material decays. High fire-behavior hazards associated with the residues can extend, however, for many years depending on the tree. Even though these hazards diminish, their influence on fire behavior can linger for up to 30 years in the dry forest ecosystems of eastern Washington and Oregon." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/174 **(View 17)**	**Comment:** The notion that commercial logging can prevent wildfires has its believers and loud proponents, but this belief does not match up with the scientific evidence or history of federal management practices. In fact, it is widely recognized that past commercial logging, road-building, livestock grazing and aggressive firefighting are the sources for "forest health" problems such as increased insect infestations, disease outbreaks, and severe wildfires." "How can the sources of these problems also be their solution? This internal contradiction needs more than propaganda to be resolved. It is time for the timber industry and their supporters to heed the facts, not fantasies, and develop forest management policies based on science, not politics. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/175 **(View 18)**	**Comment:** Problems exist with overgeneralizing the effects of fire exclusion, and misapplying data derived from short-interval forest ecosystems (e.g. ponderosa pine stands) to longinterval forest ecosystems that have not missed their fire cycles yet and are still within their historic range of variability for stand-replacing fire events (e.g. high elevation lodgepole pine or fir stands)." **Response:** The comment is not related to this project. Stands in the project area are dominated by Douglas-fir and grand fir.
10/176 **(View 19)**	**Comment:** Congress should prohibit the use of commercial timber sales and stewardship contracts for hazardous fuels reduction projects. Commercial logging removes the most ecologically valuable, most fire-resistant trees, while leaving behind highly flammable small trees, brush, and logging debris. The use of "goods for services" stewardship contracts also encourages logging larger, more fire-resistant trees in order to make such projects attractive to timber purchasers. The results of such logging are to increase fire risks and fuel hazards, not to reduce them. The financial incentives for abusive logging under the guise of "thinning" must be eliminated." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/177 **(View 20)**	**Comment:** Thus, the use of commercial logging for fire hazard reduction poses yet another paradox: Logging removes the trees that normally survive fires, leaves behind the trees that are most often killed by fire, increases flammable fuel loads, and worsens fire weather conditions." (pg. 5) **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/178 **(View 21)**	**Comment:** "In the face of growing public scrutiny and criticism of the agency's logging policies and practices, the Forest Service and their enablers in Congress have learned to mask timber sales as so-called 'fuels reduction' and 'forest restoration' projects. Yet, the net effect of these logging projects is to actually increase fire risks and fuel hazards." "Decades of encouraging private logging companies to take the biggest, oldest, most fire-resistant trees from public lands, while leaving behind a volatile fuel load of small trees, brush, weeds, stumps and slash has vastly increased the flammability of forestlands." "In addition to post-fire salvage logging, the Forest Service and timber industry advocates in Congress have been pushing pre-fire timber sales, often falsely billed as hazardous fuels reduction or 'thinning' projects, to lower the risk or hazard of future wildfires. In too many cases, these socalled thinning projects are logging thick-diameter fire-resistant overstory trees instead of or in addition to cutting thin-sized fire-susceptible understory trees. The resulting logging slash and the increased solar and wind exposure can paradoxically increase the fuel hazards and fire risks." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.

10/179 **(View 22)**	**Comment:** More than any other recent human activity, the legacy of commercial timber extraction has made public forests more flammable and less resilient to fire. Firstly, clearcut and highgrade logging have historically taken the largest, most fire-resilient, most commercially-valuable trees, and left behind dead needles and limbs (logging debris called "slash"), along with smaller trees and brush that are less commercially valuable but more flammable than mature and oldgrowth trees. The net effect is to increase the amount of available hazardous fuel." "Secondly, the removal of large overstory trees also changes the microclimate of logged sites, making them hotter, drier, and windier, which increases the intensity and rate of spread of wildfires. Third, the creation of densely-stocked even-aged plantations of young conifers made sites even more flammable since this produced a solid mass of highly combustible conifer needles within easy reach of surface flames. These changes in the fuel load, fuel profile, and microclimate make logged sites more prone to high-intensity and high-severity wildfires." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/180 **(View 23)**	**Comment:** For example, use of taxpayer dollars and resources on deficit timber sales that remove fire-resilient old- growth trees and leave behind untreated logging slash, violate federal environmental laws in planning or implementation, or are deceptively labeled as "fuels reduction" or "forest restoration" projects when they actually increase fuel hazards or degrade ecological integrity, is an *ethical* as well as an ecological issue. These kind of anti-ecological, unethical forest management projects also adversely affect firefighter and community safety by diverting limited federal dollars away from genuine hazardous fuels reduction activities, and by degrading ecological conditions in ways that increase wildfire rate of spread, intensity, or severity." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109. Activities proposed for this project are consistent with management direction in the 1987 Nez Perce Forest Plan. Members of the public had the opportunity to express their views regarding personal ethics during the development of the Nez Perce Forest Plan EIS.
10/181 **(View 24)**	**Comment:** History, not science, refutes the claim that logging helps to prevent forest fires. The forests of the West are far more vulnerable to fire due to a century of industrial logging and fire suppression. Logging has removed most of the older, fire-resistant trees from the forests. Fire suppression has encouraged many smaller and more flammable trees, brush and dense plantations to fill the holes. Logging has set the forests of the West up to burn big and hot.. More logging will not fix this **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/182 **(View 25)**	**Comment:** "Fear of wildfire is heavily used to sell these forest "restoration" schemes. Logging has not been proven, in practice, to reduce fire frequency or intensity. Historically, the largest, most destructive blazes, like the Tillamook conflagration, were caused from logging or fueled by slash. Unlogged forests, cool and shaded, are typically more fire resistant than cut over, dried-up stands choked with slash and weeds. Large-scale logging (by any name) has devalued our forests, degraded our waters, damaged soils, and endangered a wide variety of plants and animals. How will the current round of politically and environmentally propelled 'restorative' logging proposals differ, in practice, from past logging regimes? **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/183 **(View 26)**	**Comment:** There is a gathering body of evidence that large wildfires are not determined by "unnatural" fuel loading. Lodgepole pine, subalpine fir, and aspen depend on infrequent, standreplacing, high intensity fires. Most of the B-D NF is well within the natural range of variability. In fact, dense forest stands may not be caused by fire exclusion, but by a series of consecutive wet years that boosted seedling survival and expanded the local range. Drought, wind, and low humidity, not fuels loads, drive large wildifires. Weather and climatic conditions are also the driving force behind expanding insect populations." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43. The comment is not related to this project. Stands in the project area are dominated by Douglas-fir and grand fir.

10/184 **(View 27)**	**Comment:** The Congressional Research Service (CRS) recently addressed the effect of logging on wildfires in an August 2000 report and found that the current wave of forest fires is not related to a decline in timber harvest on Federal lands. From a quantitative perspective, the CRS study indicates a very weak relationship between acres logged and the extent and severity of forest fires. To the contrary, in the most recent period (1980 through 1999) the data indicate that fewer acres burned in areas where logging activity was limited." "Qualitative analysis by CRS supports the same conclusion. The CRS stated: "[T]imber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these fine fuels on the forest floor increases the rate of spread of wildfires." Similarly, the National Research Council found that logging and clearcutting can cause rapid regeneration of shrubs and trees that can create highly flammable fuel conditions within a few years of cutting. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/185 **(View 28)**	**Comment:** I will turn first to forest thinning aimed at reducing fire risks. There is surprisingly little scientific information about how thinning actually affects overall fire risk in national forests." "How can it be that thinning could increase fire risks? First, thinning lets in sunlight and wind, both of which dry out the forest interior and increase flammability. Second, the most flammable material - brush, limbs, twigs, needles, and saplings - is difficult to remove and often left behind. Third, opening up forests promotes brushy, flammable undergrowth. Fourth, logging equipment compacts soil so that water runs off instead of filtering in to keep soils moist and trees healthy. Fifth, thinning introduces diseases and pests, wounds the trees left behind, and generally disrupts natural processes, including some that regulate forest health, all the more so if road construction is involved. **Response:** We believe that thinning will make the forest more resilient from attacks by insects and from wildfires. Removal of dead and dying trees is expected to help maintain less dead and down fuel on the landscape reducing fire severity and fire hazard in treated areas. There is a discussion of the potential benefit from fuel treatments in the FEIS, Chapter 3, Fuels. "In some western dry forests, particularly those affected by 20th-century fire exclusion, thinning and surface fuel treatment (including prescribed burning) can reduce fire severity and fire hazard, although maintenance treatments may be required every 20 to 40 years. Strategic placement of treatments can greatly increase the effective area treated.
10/186 **(View 29)**	**Comment:** Those who would argue that this form of logging has any positive effects on an ecosystem are clearly misinformed. This type of logging has side effects related to wildfires, first and foremost being that the lumber companies aren't interested in hauling out all the smaller trees, branches, leaves, pine needles, sawdust, and other debris generated by cutting all these trees. All this debris is left on site, quickly dries out, and is far more flammable sitting dead on the ground than it was living in the trees. Smaller, non-commercially viable trees are left behind (dead) as well - creating even more highly flammable fuel on the ground. **Response;** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/187 **(View 30)**	**Comment:** "Almost seven times more forested federal land burned during the 1987-2003 period than during the prior 17 years. In addition, large fires occurred about four times more often during the latter period." "The increases in fire extent and frequency are strongly linked to higher March-through-August temperatures and are most pronounced for midelevation forests in the northern Rocky Mountains. The new finding points to climate change, not fire suppression policies and forest fuel accumulation, as the primary driver of recent increases in large forest fires." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.

10/188 **(View 31)**	**Comment:** We inferred climate drivers of 20th-century years with regionally synchronous forest fires in the U.S. northern Rockies. We derived annual fire extent from an existing fire atlas that includes 5038 fire polygons recorded from 12070086 ha, or 71% of the forested land in Idaho and Montana west of the Continental Divide. The 11 regional-fire years, those exceeding the 90th percentile in annual fire extent from 1900 to 2003 (>102314 ha or ~1% of the fire atlas recording area), were concentrated early and late in the century (six from 1900 to 1934 and five from 1988 to 2003). During both periods, regional-fire years were ones when warm springs were followed by warm, dry summers and also when the Pacific Decadal Oscillation (PDO) was positive. Spring snowpack was likely reduced during warm springs and when PDO was positive, resulting in longer fire seasons. Regional-fire years did not vary with El Nino- Southern Oscillation (ENSO) or with climate in antecedent years. The long mid-20th century period lacking regional-fire years (1935-1987) had generally cool springs, generally negative PDO, and a lack of extremely dry summers; also, this was a period of active fire suppression. The climate drivers of regionally synchronous fire that we inferred are congruent with those of previous centuries in this region, suggesting a strong influence of spring and summer climate on fire activity throughout the 20th century despite major land-use change and fire suppression efforts. The relatively cool, moist climate during the mid-century gap in regional-fire years likely contributed to the success of fire suppression during that period. In every regional-fire year, fires burned across a range of vegetation types. Given our results and the projections for warmer springs and continued warm, dry summers, forests of the U.S. northern Rockies are likely to experience synchronous, large fires in the future." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/189 **(View 32)**	**Comment:** Still, forestry experts warned in the 2000 plan that logging should be used carefully and rarely; in fact, the original draft states plainly that the "removal of large merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk." "Now, critics charge that the Bush administration is ignoring that warning. Neil Lawrence, a policy analyst with the Natural Resource Defense Council, claims that Washington has taken a far more aggressive approach to incorporating commercial logging in its wildfire prevention plans. As a result, Lawrence and other critics say, the National Fire Plan is becoming a feeding ground for logging companies. Moreover, critics claim the administration's strategy, far from protecting the lives and homes of those most at risk, could actually increase the likelihood of wildfires." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.
10/190 **(View 33)**	**Comment:** "Fuel reduction treatments should be forgone if forest ecosystems are to provide maximal amelioration of atmospheric carbon dioxide over the next 100 years,' the study authors wrote in their conclusion. 'If fuel reduction treatments are effective in reducing fire severities in the western hemlock, Douglas-fir forests of the west Cascades and the western hemlock, Sitka spruce forests of the Coast Range, it will come at the cost of long-term carbon storage, even if harvested materials are used as biofuels.' **Response:** The comment is not related to this project. Stands in the project area are dominated by Douglas-fir and grand fir. See the responses to 03/33 and 3/140.
10/191 **(View 34)**	**Comment:** While top officials blame recent fires on fuels, all the on-the-ground reports I've read focus on the weather." **Response:** The comment is not related to this project. See the responses to 03/33 and 3/140.
10/192 **(View 35)**	**Comment:** This paper will show that built-up fuels are *not* the main reason, or even a major reason, for recent severe fires or high fire suppression costs. The weather is the prime reason for widespread fires this year as well as in 2000, 1999, and other recent years. But the major reason for increased costs is institutional: The federal land agencies, and especially the Forest Service, have a blank check to put out fires and thus have no reason to control their costs. If fuels are not the problem, then it isn't necessary to spend $400 million a year treating them." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/193 **(View 36)**	**Comment:** Post-fire reports on individual fires make little or no mention of excess fuels. Instead, fire scientists agree that drought is the cause of the severe fires in recent years. This year's Rodeo- Chedisky Fire, the largest fire in Arizona history, was on heavily managed and thinned federal lands, not an untouched wilderness brimming with excess fuels. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.

10/194 **(View 37)**	**Comment:** The current focus on 'fuels' is, in itself, misguided because almost anything in a forest will burn, given the right conditions. Any fire specialist will tell you that the principal factors affecting fire are temperature and moisture, not fuels. No legislation will prevent or even reduce fires in the vast areas of the national forests and to pretend so is fraudulent. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/195 **(View 38)**	**Comment:** "A number of studies have shown that for some ecosystems, the major factor determining fire intensity and size is weather and not the amount of fuel (Baker 1989, Flannigan and Harrington 1988, Haines and Sando 1969, Rothermel 1995). For example, Bessie and Johnson (1995) found that fire spread and intensity were strongly related to weather conditions and only weakly related to fuel loads in the southern Canadian Rockies. Similarly, many hundreds of the thousands of acres of forests that were intensely burned in the 1994 Tyee Fire on the Wenatchee National Forest had very low fuel loads. The Forest Service and Fish and Wildlife Service concluded that weather patterns and terrain -- not fuels -- were the major reasons why this large fire burned the way it did (U.S. Forest Service 1995, U.S. Fish & Wildlife Service 1994). Such case studies provide little evidence that salvage logging of dead and dying trees will significantly reduce wildfires." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43.
10/196 **(View 39)**	**Comment:** "H.R 1904 does not include any specific measures to protect homes or communities. It is also inconsistent with the Western Governors' Association 10-Year Comprehensive Strategy, which does not call for any changes in existing laws. The only proven method to protect homes and communities is to reduce flammable materials in the immediate vicinity of structures, yet the definitions in H.R. 1904 would not require any activities to be near homes. Instead, the bill seeks to further subsidize the timber industry and eliminate obstacles to logging large, fire-resistant trees miles away from the nearest home. The country's top forest scientists, including the Forest Service's own scientists, have found that this kind of logging can actually increase fire risk and make fires larger and more intense." **Response:** The comment is not related to this project.
10/197 **(View 40)**	**Comment:** We question the validity of thinning as a means both to reduce the threat of wildfire and to restore historic forest structure in the absence of site-specific data collection on past and present landscape conditions. **Response:** See the response to 10/185.
10/198 **(View 41)**	**Comment:** While most of us have suffered with the unavoidable fire-related anxieties, we have also been impressed by the hard work and heroism of both neighbors and anonymous firefighters. But others have tried to profit from the fires and the primordial fears they evoke. The forest products industry has been in the lead in this exploitation of other people's hardtimes. The forest products industry wants access as cheaply as it can get it to as much wood fiber as possible. It once had privileged access to forested public lands. As the frontier economy has faded and government giveaways have fallen out of political favor, the forest products industry's privileged grip on public resources has begun to slip. The current forest fires offer them an opportunity to try to regain some of their lost clout. The fires, timber industry spokespersons claim, are the result of restrictions on commercial logging on public lands. If all of these lands had been logged, they assert, the fires would not be burning. It is the federal government and the environmentalists they are in cahoots with who have caused the fires that now threaten us. As one timber industry advocate baldly said, "I never saw a clearcut burn." Nothing could be further from the truth. Of course clearcuts burn. When long, hot summers dry out the grasses, brush, and logging wastes, they can flare explosively. When they grow thick with closely packed young trees, they present exactly the fire danger we are wrestling with now. The logging roads provide human access that is the source of the vast majority of forest fires. If roading and logging eliminated the threat of wildfire, most of the fires that threaten us now would not be burning. Look at where these fires are: They are largely burning on the forest-urban interface in areas adjacent to intense human activity. In Western Montana, for instance, the fires are in are burning in the forests adjacent to some of the rapidly growing residential areas in the nation, the Bitterroot, Helena, and Clark Fork Valleys. These are not roadless areas that have never been logged. Quite the contrary, they are areas that were roaded and logged in the past. Those roads often have then provided access for the human activity that now dominates these areas, including the home building, residential settlement of the last two decades, and recreational activity. The trees now burning are usually second growth that followed past logging." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109.

10/199 **(View 42)**	**Comment:** "It is well established that logging and roadbuilding often increase both fuel loading and fire risk. For example, the Sierra Nevada Ecosystem Project (SNEP) Science Team (1996) concluded that "timber harvest…. has increased fire severity more than any other recent human activity" in the Sierra Nevada. Timber harvest may increase fire hazard by drying of microclimate associated with canopy opening and with roads, by increases in fuel loading by generation of activity fuels, by increases in ignition sources associated with machinery and roads, by changes in species composition due to opening of stands, by the spread of highly flammable non native weeds, insects and disease, and by decreases in forest health associated with damage to soil and residual trees (DellaSala and Frost, 2001; Graham et al., 2001; Weatherspoon et al., 1992; SNEP Science Team, 1996). Indeed a recent literature review reported that some studies have found a positive correlation between the occurrence of past logging and present fire hazard in some forest types in the Interior Columbia Basin (DellaSala and Frost, 2001)." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109
10/200 **(View 43)**	**Comment:** No evidence suggests that spruce–fir or lodgepole pine forests have experienced substantial shifts in stand structure over recent decades as a result of fire suppression. Overall, variation in climate rather than in fuels appears to exert the largest influence on the size, timing, and severity of fires in subalpine forests (Romme and Despain 1989, Bessie and Johnson 1995, Nash and Johnson 1996, Rollins et al. 2002). We conclude that large, infrequent standreplacing fires are "business as usual" in this forest type, not an artifact of fire suppression." (Pg. 666) "Variation in daily area burned was highly correlated with the moisture content of 100-hour (2.5- to 7.6- cm diameter) and 1000-hour dead fuels (Turner et al. 1994). Once fuels reached critical moisture levels later in the season, the spatial pattern of the large, severe standreplacing fires was controlled by weather (wind direction and velocity), not by fuels, stand age, or firefighting activities (Minshall et al. 1989,Wakimoto 1989, Turner et al. 1994)." (Pg. 666) **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43
10/201 **(View 44)**	**Comment:** Fire, just like insects and disease, are a natural and beneficial part of forest ecosystems and watersheds. Without these natural processes the forest ecosystems quickly degrade. Excessive logging removes and reduces cooling shade adding to the hotter, drier forests along with logging debris creating a more flammable forest. Current "forest management" practices, road building and development cause forest fires to rage for hundreds of miles." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109
10/202 **(View 45)**	**Comment:** Commercial logging and logging roads open the forest canopy, which can have two effects. First, it allows direct sunlight to reach the forest floor, leading to increased evaporation and drier forests.**5** As a consequence, ground fuels (grass, leaves, needles, twigs, etc.) dry out more quickly and become susceptible to fire. Second, an open canopy allows more sunlight to reach the understory trees, increasing their growth.**6** This can lead to weaker, more densely packed forests." (pgs. 19-20) "Congress and the Forest Service continue to rely on the commercial logging program to do something it will never accomplish – reduce fire risk. The commercial logging program is designed to provide trees to private timber companies, not to reduce the risk of fire." (pg. 20) **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109
10/203 **(View 46)**	**Comment:** "Indiscriminate logging is not a viable solution to reducing wildfire risk. Logging can actually increase fire danger by leaving flammable debris on the forest floor. Loss of tree canopy lets the sun in, encouraging the growth of brush, increases wind speed and air temperature, and decreases the humidity in the forest, making fire conditions even worse. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109
10/204 **(View 47)**	**Comment:** Timber harvest, through its effects on forest structure, local microclimate, and fuels accumulation, has increased fire severity more than any other recent human activity."(pg.62) **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109

10/205 **(View 48)**	**Comment:** Why is the natural fire regime in most Rocky Mountain ponderosa pine–Douglas fir forests variable in severity? Extended droughts and high winds can lead to exceptional fire spread across a broad spectrum of fuel loads and forest structures. For example, almost 25,000 ha of ponderosa pine– Douglas fir forest burned on a single day (9 June 2002), driven by strong winds (Finney et al., 2003). Yet, brief episodes when the winds declined and fuel moisture rose, led to low-severity fire in the same landscape (Finney et al., 2003), suggesting that extreme weather, not fuels, was the chief cause of high-severity fire under those conditions. Even during summer, ponderosa pine–Douglas fir landscapes in the Rocky Mountains are subject to rapid increases in wind speed and changes in direction from jet streams or cold fronts (Baker, 2003)." (pg. 5) **Response:** The comment is not related to this project. Stands in the project area are dominated by Douglas-fir and grand fir. See the responses to 03/33 and 3/140.
10/206 **(View 49)**	**Comment:** "Ironically, this very type of logging, experts inform us, is likely to increase, not decrease, the frequency and severity of wildland fires. In the Forest Service's own National Fire Plan, agency scientists warned against the use of commercial logging to address fire management. The report found that 'the removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109
10/207 **(View 50)**	**Comment:** The federal assistance could include funding to help state and local governments mitigate the beetle infestations, the presence of which increases the risk of forest wildfires that endanger surrounding communities and infrastructure, said supporters of the bill." "Kulakowski, a former research scientist at the University of Colorado at Boulder and current professor at Clark University in Massachusetts, discounted this notion during his testimony. He said climate, not insects, plays the most important role in forest fires, as wildfires are more likely to occur during droughts. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43
10/208 **(View 51)**	**Comment:** New research published this week in the journal *Science* says that global warming may be causing more intense wildfires in the western United States. The researchers found that increases in large wildfire activity in the western United States over the past 25 years is 'strongly associated with increased spring and summer temperatures and an earlier spring snowmelt.' **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43
10/209 **(View 52)**	**Comment:** "Indeed, climatic conditions drive all big fires — not fuels. All substantial fires occur only if there is extended drought, low humidity, high temperatures and, most importantly, high winds. Wind, in particular, is critical. Wind increases fire spread exponentially. When conditions are "ripe" for a large blaze, fires will burn through all kinds of fuel loads. By contrast if the forest is wet like Oregon's coastal forests, you can have all the fuel in the world, and it won't burn. For this reason, most fires go out without burning more than a few acres. By contrast, when you have drought, low humidity, high temperatures and wind, a few blazes will grow into huge fires. For this reason, approximately 1 percent of all fires are responsible for about 95 to 99 percent of the acreage burned." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43
10/210 **(View 53)**	**Comment:** Another surprising finding is that mechanical fuels treatment, commonly known as logging and thinning, typically has little effect on the spread of wildfires. In fact, in some cases, it can increase wildfires' spread and severity by increasing the fine fuels on the ground (slash) and by opening the forest to greater wind and solar penetration, drying fuels faster than in unlogged forests. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109

10/211 **(View 54)**	**Comment:** For example, the Forest Service justifies the Elliston Face timber sale on the basis of reducing what they call "hazardous" fuels (which as an ecologist I call woody biomass). To quote the FS, "This project would reduce wildland fire risk and help protect lives, communities, and ecosystems from the potential consequences of a high intensity wildland fire within treatment areas." " "The Forest Service makes these assertions even though the statement is full of falsehoods, misleading and/or unproven assumptions." "even the Forest Service's own analysis concludes that logging of the Elliston Face will have some adverse impacts on soils, watersheds, wildlife, scenery and recreation. So we need to ask whether the potential effects of a fire that may not occur for a century or more is worth the negative impacts created by the logging process now?" "The Forest Service's own analysis has six indicator species— including pileated woodpecker, hairy woodpecker, martin, northern goshawk. These species depend on dead snags and down wood that pine beetles and wildfire create. But the FS treats beetles and wildfire as unwelcome events." "the FS exploits the fears of misinformed citizens. One can only conclude the agency is still the handmaiden to the timber industry rather than a public servant working on behalf of all citizens of the country." **Response:** The comment is not related to this project
10/212 **(View 55)**	**Comment:** Ultimately, fuels do not control fires. If the climate/weather isn't conducive for fire spread, it doesn't much matter how much dead wood you have piled up, you won't get a large fire. As an extreme example, think of all the dead wood lying around on the ground in old-growth West Coast rainforests — tons of fuel, but few fires — because it's too wet to burn. Large blazes are driven by a combination of extreme drought, low humidity, high temperatures and, most importantly, wind. These conditions do not occur in the same place at the same time very frequently — which is why there are often decades to centuries between major blazes and most fires go out without burning more than a few acres." **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, and 10/43
10/213 **(View 56)**	**Comment:** The following opposing view is so compelling, accurate and detailed it is shown in its entirety below. … [Why the National Fire Plan is a Trojan Horse for Logging: Burning Questions]… opinion article by George Wuerthner, Ph.D., CounterPunch, June 12-14 2009. **Response:** See the responses to 06/20, 03/111, 10/37, 10/39, 10/43, 10/89, 10/95, and 10/109

Artley Attachment #4: Roads Damage the Proper Ecological Functioning of the Natural Resources in a Forest

Letter #/ Comment #	Comment and Response
10/215 **(View 1)**	**Comment:** Fragmentation has been considered as one of the most major factors that lead to the decline of many wildlife species (Brittingham and Temple 1983, Yahner 1988, Winslow et al. 2000) because fragmentation tends to decrease population productivity (Robinson et al. 1995). Therefore, Meffe states that "fragmentation has become a major subject of research and debate in conservation biology" (Meffe et al. 1997, p. 272). Forest fragmentation usually occurs when large and continuous forests are divided into smaller patches as a result of road establishment, clearing for agriculture, and human development (Robinson et al. 1995, Meffe et al. 1997)." (Pg. 1) "Generally, habitat fragmentation is an ecological process in which a large patch of habitat is divided into smaller patches of habitats. Usually, this process is caused by human activities (roads, agriculture, and logging). It also reduces the value of the landscape as habitat for many species (plants and animals). Fragmentation alters natural habitat in many ways, including reduction of patches' sizes, increment of distances between similar patches, and increment of edges and predation (Brittingham and Temple 1983, Robinson et al. 1995)." (Pp. 2 and 3) **Response:** The FEIS discussed the potential road-associated effects on wildlilfe habitat that could from snag/woody debris reductions, large live tree reductions, and noxious weeds. Moderate or high road densities can result in an elevated risk for snag/CWD removal which can reduce nesting and forage opportunities along road corridors for many species in which snags or coarse woody debris are special habitat features. . The action alternatives would reduce road densities through road decommissioning that is common to all action alternatives. Design features described in Chapter 2 of the FEIS would minimize negative impacts due to noxious weeds. The analysis in the FEIs addressed habitat fragmentation that could occur as a result of vegetation modification, such as changes in patch size and home range configuration.
10/216 **(View 2)**	**Comment:** Debris slides over a 20-year period were inventoried on 137,500 acres of forested land in the Klamath Mountains of southwest Oregon. Frequency during the study period was about one slide every 4.3 years on each 1,000 acres-an erosion rate of about 1/2 yd3 per acre per year. Erosion rates on roads and landings were 100 times those on undisturbed areas, while erosion on harvested areas was seven times that of undisturbed areas. Three-quarters of the slides were found on slopes steeper than 70 percent and half were on the lower third of slopes." "Soil erosion rates due to debris slides were many times higher on forests with roads, landings, and logging activity than on undisturbed forests." **Response:** The comment is not related to this project. The findings for this viewpoint were developed from analysis of aerial photographs taken between 1956 and 1976. The study area was the coastal mountains of southwest Oregon, with annual precipitation ranging up to 150 inches. The concluding sentence from the referenced abstract states… "results serve as a guide to appraising slide risk associated with planned timber harvests or road construction on forested slopes." The FEIS includes discussion on the current science and guidance applied to the analysis of management activities that may influence slope stability. It discloses the potential direct, indirect, and cumulative effects of the timber harvest and road activities being considered under the different alternatives on slope stability.

10/217 **(View 3)**	**Comment:** 'Roads may have unavoidable effects on streams, no matter how well they are located, designed or maintained. The sediment contribution to streams from roads is often much greater than that from all other land management activities combined, including log skidding and yarding.' *(Gibbons and Salo 1973)*. Research by *Megahan and Kidd* in 1972 found that roads built in areas with highly erosive soils can contribute up to 220 times as much sediment to streams as intact forests." **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed Section of the FEIS.
10/218 **(View 4)**	**Comment:** Plot-level studies have demonstrated the ability of forest roads to intercept and route both subsurface and surface overland flow more efficiently to the stream network. Significant amount of subsurface throughflow can be intercepted by the road, as a function of the road cut depth and the current saturation deficit, and then redirected, concentrating the flow in particular areas below the road. Road drainage concentration increases the effective length of the channel network and strongly influences the distribution of erosional processes. The concept of wetness index has been used in the study as a surrogate for subsurface throughflow, and the effect of forest roads on subsurface throghflow rerouting has been assessed by evaluating the changes in terms of draining upslope areas. A threshold model for shallow slope instability has been used to analyse erosional impacts of drainage modifications. In the model, the occurrence of shallow landsliding is evaluated in terms of drainage areas, ground slope and soil properties (i.e., hydraulic conductivity, bulk density, and friction angle). The model has been used to generate hypotheses about the broader geomorphic effect of roads. Modelling results have been compared with available field data collected in north-eastern Italy." **Response:** Change in drainage network, change in peak/base flows, and disturbance regime (including the potential for landslide occurrence) due to roads has been analyzed and the discussion is included in the Watershed section of the FEIS.
10/219 **(View 5)**	**Comment:** A large scale land use experiment has taken place over the last 40 years in the mountainous areas of the northwestern U.S. through timber harvesting. This land use change effects the hydrology of an area through two mechanisms: • Clear-cut logging which causes changes in the dynamics of Rain-On- Snow (ROS) events due to changes in the accumulation and ablation of snow caused by vegetation effects on snow interception and melt; and • Construction and maintenance of forest roads which channel intercepted subsurface flow and infiltration excess runoff to the stream network more quickly. **Response:** The logging proposed under all action alternatives would be variable retention harvest, commercial thinning, and precommercial thinning, not clearcut. Potential changes in drainage network, change in peak/base flows, and disturbance regime (including the potential for landslide occurrence) due to roads have been analyzed in the Watershed portion of the FEIS.
10/220 **(View 6)**	**Comment:** "Many of the conclusions and assumptions contained in the Roads Report are based on analysis of the positive contributions of roads. Negative socio-economic effects of roads have been, in large part, glossed over. The general view expressed in the Roads Report is that overall, roads make a positive socio-economic contribution." The Socio-Economic Effects section has been constructed to overwhelmingly support the contention that the benefits of roads outweigh the costs. In order to arrive at such a conclusion, however, certain important economic costs and concepts have been omitted." "A serious problem with the Roads Report is its lack of discussion concerning the economic costs arising from the negative ecological effects of roads. Despite overwhelming scientific data linking roads and sedimentation (Bennett 1991; Grayson et al. 1993; Lyon 1984; Megahan 1980; McCashion and Rice 1983; Wade 1998; Williams 1998), the socioeconomic costs of mitigating the effects of this sedimentation receive no mention in the Roads Report. Such costs are central to and should be included in any socio-economic assessment of forest roads **Response:** The IDT accessed the risks and problems posed by existing roads within the sub-watershed by resource area including safety, watershed and aquatic, terrestrial wildlife, noxious weeds, financial, roads and inventory roadless area risks

10/221 **(View 7)**	**Comment:** "The present road system constitutes a legacy of current and potential sources of damage to aquatic and riparian habitats, mostly through sedimentation, and to terrestrial habitats through fragmentation and increased access" (Amaranthus et all 1985)." "The failure of the Report to properly address mitigation costs associated with the ecological effects is a serious problem that needs to be addressed in future drafts. Similarly, passive-use values need to be taken seriously and considered throughout the Roads Report. In order to rectify these problems, most of the Socio-Economic Effects subsections will have to be reworked. Failing to do so, the Roads Report will paint an incomplete picture of the costs and benefits associated with the Forest Service's road program." **Response:** The article cited is an opinion paper offering review and comment on "Forest Service Roads: A Synthesis of Scientific Information", 2nd Draft, USDA Forest Service, December 1998. The final document, "Forest Roads: A Synthesis of Scientific Information" (General Technical Report PWN-GTR-509) was published in May of 2001 by the Pacific Northwest Research Station, Portland, Oregon. The quotes displayed by Mr. Artley are taken from the paper written by Daniel Brister, University of Montana, Environmental Studies Program, in December of 1998 to assist the Forest Service in subsequent drafts. The final document was published in May of 2001. The article written by Mr. Brister suggests the Forest Service include, in the final document, an assessment of socio-economic impacts of forest system roads, which includes impacts to aquatic, riparian and wildlife and associated habitats from road management, fragmentation and access. Water quality and the disclosure of effects of roads on sedimentation were analyzed in the Watershed portion of the FEIS.
10/222 **(View 8)**	**Comment:** "Sediment input to freshwater is due to either the slower, large-scale process of soil erosion, or to rapid, localized "mass movements," such as landslides. Forest practices can increase the rate at which both processes occur. Most sediment from forestry arises from landslides from roads and clearcuts on steep slopes, stream bank collapse after riparian harvesting, and soil erosion from logging roads and harvested areas. Roads, particularly those that are active for long periods of time, are likely the largest contributor of forestryinduced sediment (Furniss et al. 1991)." "Sediment can increase even when roads comprise just 3% of a basin (Cederholm et al. 1981)." "More than half the species present in the study area will likely be negatively impacted by sedimentation from logging roads." "In areas made highly turbid (cloudy) from sedimentation, the foraging ability of adults and juveniles may be inhibited through decreased algal production and subsequent declines in insect abundance, or, for visualfeeding taxa dependent on good light, through their inability to find and capture food. Highly silted water may damage gill tissue and cause mortality or physiological stress of adults and juveniles." **Response**: Timber harvest proposed for this project would be variable retention. No commercial harvest would occur within riparian areas. Water quality and the effects of roads on sedimentation are discussed in the Watershed portion of the FEIS.
10/223 **(View 9)**	**Comment:** "The road construction and rightof-way logging were immediately detrimental to most aquatic invertebrates in South Fork Caspar Creek" "Salmonid populations decreased immediately after the road construction." "Sustained logging and associated road construction over a period of many years do not afford either the stream or the 'fish population a chance to recover." **Response:** The effects of sedimentation resulting from road management activities in the Watershed and Fisheries portions of the FEIS.
10/224 **(View 11)**	**Comment:** "Forest roads apparently can serve as a partial filter to the movements of some amphibian species **Response:** The effects analysis for this project addresses potential impacts to amphibian species. See the Wildlife portion of the FEIS.
10/225 **(View 12)**	**Comment:** Roads often cause serious ecological impacts. There are few more irreparable marks we can leave on the land than to build a road." **Response:** The quote, "Roads often cause serious ecological impacts. There are few more irreparable marks we can leave on the land than to build a road." is not an accurate quote from Chief Dombeck's speech. His statement, taken from the source provided is: *"The benefits of forest roads are many. But they also often cause serious ecological impacts. There are few more irreparable marks we can leave on the land than to build a road. "* The effects of proposed maintenance of existing roads, construction and improvements of other roads, and the reasons and benefits of decommissioning roads no longer needed to support management objectives with this area are disclosed in each resource section in the FEIS.

10/226 **(View 13)**	**Comment:** "Few marks on the land are more lasting than roads." "The negative effects on the landscape of constructing new roads, deferring maintenance, and decommissioning old roads are well documented. Unwanted or non-native plant species can be transported on vehicles and clothing by users of roads, ultimately displacing native species. Roads may fragment and degrade habitat for wildlife species and eliminate travel corridors of other species. Poorly designed or maintained roads promote erosion and landslides, degrading riparian and wetland habitat through sedimentation and changes in streamflow and water temperature, with associated reductions in fish habitat and productivity. Also, roads allow people to travel into previously difficult or impossible to access areas, resulting in indirect impacts such as ground and habitat disturbance, increased pressure on wildlife species, increased litter, sanitation needs and vandalism, and increased frequency of human caused fires." **Response:** Excerpt from a March 3, 2002 Federal Register Notice posted by the Forest Service. The Forest Service concluded that it needed to review its forest road system policy, one of four emphasis items in the agency's National Resource Agenda. The Agency proposed to revise 36 CFR Part 212 to shift the emphasis from transportation development to managing environmentally sound access. The statement in its entirety was: "*Few marks on the land are more lasting than roads. Yet, forest roads are essential for forest use and often serve as the backbone of rural transportation networks."* Please refer to the response to Viewpoint #1 for more detail concerning effects to wildlife and wildlife habitat. The FEIS discloses the potential direct, indirect, and cumulative effects of the timber harvest, road activities, sedimentation, water temperature, drainage network, changes in peak/base flows, and sedimentation in the Watershed and Fisheries sections.
10/227 **(View 14)**	**Comment:** Fragmentation caused by roads is of special interest because the effects of roads extend tens to hundreds of yards from the roads themselves, altering habitats and water drainage patterns, disrupting wildlife movement, introducing exotic plant species, and increasing noise levels. The land development that follows roads out into rural areas usually leads to more roads, an expansion process that only ends at natural or legislated barriers." **Response:** This document discusses the effects of roads related to habitat fragmentation across the U.S. It is general in nature. The paper provided neither site-specific nor species-specific information relative to this project nor the management of Nez Perce National Forest management indicator species or designated threatened, endangered or sensitive species. Also see the response to Viewpoint #1 for additional wildlife related information.
10/228 **(View 15)**	**Comment:** A huge road network with vehicles ramifies across the land, representing a surprising frontier of ecology. Species-rich roadsides are conduits for few species. Roadkills are a premier mortality source, yet except for local spots, rates rarely limit population size. Road avoidance, especially due to traffic noise, has a greater ecological impact. The still-more-important barrier effect subdivides populations, with demographic and probably genetic consequences. Road networks crossing landscapes cause local hydrologic and erosion effects, whereas stream networks and distant valleys receive major peak-flow and sediment impacts. Chemical effects mainly occur near roads. Road networks interrupt horizontal ecological flows, alter landscape spatial pattern, and therefore inhibit important interior species. Thus, road density and network structure are informative landscape ecology assays. Australia has huge road-reserve networks of native vegetation, whereas the Dutch have tunnels and overpasses perforating road barriers to enhance ecological flows. Based on road-effect zones, an estimated 15–20% of the United States is ecologically impacted by roads." **Response:** This document discusses road impacts to species at a national and global level, including Britain and Australia. The references this document makes to roadside vegetation and roadkill issues are primarily linked to improved roads with maintained (mowed) margins, ***not*** narrow, native-surfaced forest roads such as those found in the project area. The document also raises the issue of disturbance and avoidance, mainly in the context of high-use, high speed roads, which does not apply to this project. However, wildlife disturbance from roads in general does apply even to small forest roads and to this project, especially in terms of open roads and the potential impacts to elk and wolves. Finally, the document identifies roads as barriers, which can negatively influence species diversity and fragment populations. The Wildlife section of the FEIS discusses potential effects of roads on wildlife habitat.
10/229 **(View 16)**	**Comment:** "Questions to consider: Roads dramatically alter forest ecosystems 1. Does the management prescription account for the ecological effects of the road construction and maintenance activities associated with carrying out such activities? 2. Have alternatives to road building been considered? How does the plan attempt to address the effects of roads?" (page 37) **Response**: A roads assessment for the Clear Creek watershed was completed by the IDT and is available in the project file. All roads in the watershed that may be needed for resource management were considered, and roads that will not be needed for resource management in the foreseeable future were identified as candidates for decommissioning. No permanent road construction is proposed. The FEIS discusses an alternative that was considered by the IDT, but not analyzed in detail, that would not have constructed any temporary roads. Alternative D would construct the minimal amount of temporary road that could be constructed while still meeting the purpose and need for action.

10/230 **(View 17)**	**Comment:** "The authors warned that cutting roads into current roadless areas could bring much more harm to wildlife, soil and fisheries than the beetle-killed trees pose to the forest." **Response:** No timber harvest or road development is proposed within inventoried roadless areas.
10/231 **(View 18)**	**Comment:** Rarely can roads be designed and built that have no negative impacts on streams. Roads modify natural drainage patterns and can increase hillslope erosion and downstream sedimentation. Sediments from road failures at stream crossings are deposited directly into stream habitats and can have both on-site and offsite effects. These include alterations of the channel pattern or morphology, increased bank erosion and changes in channel width, substrate composition, and stability of slopes adjacent to the channels." "All of these changes result in important biological consequences that can affect the entire stream ecosystem. One specific example involves anadromous salmonids, such as salmon and steelhead, that have complex life histories and require suitable stream habitat to support both juvenile and adult life stages." "A healthy fishery requires access to suitable habitat that provides food, shelter, spawning gravel, suitable water quality, and access for upstream and downstream migration. Road-stream crossing failures have direct impacts on all of these components. **Response:** Road decommissioning under each of the proposed action alternatives would reduce the number of road stream crossings within the project boundary. Potential effects on watershed resources are discussed in the Watershed and Fisheries sections of the FEIS.
10/232 **(View 19)**	**Comment:** Barry Noon, a professor of wildlife ecology at Colorado State University, noted that scientific research has consistently shown the adverse effects of roads on hydrologic processes and fish and wildlife populations. " "One of the key things to recognize is the effects of the roads extend far beyond their immediate footprint," Noon said. For example, "in terms of hydrology, the roads are leading to faster runoff of water, often with great increases in sedimentation, particularly following storm events, and roads in watersheds often lead to increases in the intensity of floods." " These changes degrade fish habitat because of the increased sedimentation that leads to decreases in water quality, Noon said. And roads fragment wildlife habitat and create areas that animals avoid, often as result of increased hunting, he said." **Response;** This article discusses a recent report that came out on the mountain pine beetle epidemic in Colorado and how best to manage forests in the context of limited funding and roadless areas designations. Please refer to Response to Viewpoint #1 for how road management alternatives considered in the project area affect wildlife and wildlife habitat. In addition, the Wildlife section of the FEIS addresses disturbance and vulnerability (hunting) for elk and wolf with respect to motorized roads and trails and security habitat. Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed Section of the FEIS.
10/233 **(View 20)**	**Comment:** Roads and skid trails have been identified as a major contributor to increased turbidity of water draining logging areas resulting in increases from 4 to 93 parts per million (Hoover, 1952). Forest roads have been found to have erosion rates from one to three orders of magnitude greater than similar undisturbed areas (Megahan, 1974) and perhaps account for as much as 90 percent of all forest erosion (Megahan, 1972). Forest roads can also cause soil erosion and stream sedimentation, which adversely impact on the nation's water quality (Authur et al., 1998). **Response:** Water quality and the effects of roads and timber harvest on sedimentation Watershed Section of the FEIS.
10/234 **(View 21)**	**Comment:** Roads have well-documented, short- and long-term effects on the environment that have become highly controversial, because of the value society now places on unroaded wildlands and because of wilderness conflicts with resource extraction." "(Road) consequences include adverse effects on hydrology and geomorphic features (such as debris slides and sedimentation), habitat fragmentation, predation, road kill, invasion by exotic species, dispersal of pathogens, degraded water quality and chemical contamination, degraded aquatic habitat, use conflicts, destructive human actions (for example, trash dumping, illegal hunting, fires), lost solitude, depressed local economies, loss of soil productivity, and decline in biodiversity." **Response:** PNW-GTR-509 describes the effects roads have on ecosystems. It is a companion paper to Roads Analysis: Informing Decisions About Managing the National Forest Transportation System (USDA FS 1999). The report details the known issues related to road impacts on physical and biological resources, road impacts at various scales, and the socio-economics of roads. The report then describes the known science surrounding these issues. The focus of the report is to help the reader understand how roads function in the landscape. Specifically, the GTR addresses habitat fragmentation, habitat loss, displacement or avoidance, roadkill, reduction in species diversity, negative edge-effects, fragmentation of interior habitats, vectors for invasive species, poaching, reduced densities of snags and logs, collisions, and movement barriers. The terrestrial portions of this document focus on findings from Wisdom et al., 2000. The potential effects of the road system and vegetation treatments on wildlife are described in the Wildlife portion of the FEIS.

10/235 **(View 22)**	**Comment:** Fires in the roaded areas are more intense, due to drier conditions, wind zones on the foothill/valley interface, high surface-fuel loading, and dense stands." **Response:** The science findings resulting from the Interior Columbia Basin Ecosystem Management Project (ICBEMP), such as the one partially quoted by the commenter, were considered by the IDT during the pre-NEPA watershed assessment for this project.
10/236 **(View 23)**	**Comment:** Many forested landscapes are fragmented by roads, but our understanding of the effects of these roads on the function and diversity of the surrounding forest is in its infancy. I investigated the effect of roads in otherwise continuous forests on the macroinvertebrate fauna of the soil. I took soil samples along transects leading away from the edges of unpaved roads in the Cherokee National Forest in the Southern Appalachian mountains of the United States. Roads significantly depressed both the abundance and the richness of the macroinvertebrate soil fauna. Roads also significantly reduced the depth of the leaf-litter layer. These effects persisted up to 100 m into the forest. Wider roads and roads with more open canopies tended to produce steeper declines in abundance, richness, and leaf-litter depth, but these effects were significant only for canopy cover and litter depth. The macroinvertebrate fauna of the leaf litter plays a pivotal role in the ability of the soil to process energy and nutrients. These macroinvertebrates also provide prey for vertebrate species such as salamanders and groundforaging birds. The effect of roads on the surrounding forest is compounded by the sprawling nature of the road system in this and many other forests. My data suggest that even relatively narrow roads through forests can produce marked edge effects that may have negative consequences for the function and diversity of the forest ecosystem." **Response:** The Soils and Wildlife sections of the FEIS discusses the potential effects of the project on soils and wildlife resources.
10/237 **(View 24)**	**Comment:** Roads remove habitat, alter adjacent areas, and interrupt and redirect ecological flows. They subdivide wildlife populations, foster invasive species spread, change the hydrologic network, and increase human use of adjacent areas. At broad scales, these impacts cumulate and define landscape patterns." **Response:** This reference looks at the dynamics of road networks over time and how they impact landscape patterns. More specifically, the study looked at relationships between road density changes, development, and landscape patterns, focusing on housing development. From a wildlife standpoint, the reference mentions in a broad context roads as sources of habitat fragmentation, spread of invasive species and increased human use or presence. Please refer to Response to Viewpoints #1 and #21 as to more detail concerning effects to wildlife and wildlife habitat. Potential effects on watershed resources due to roads has been analyzed and the discussion is included in the Watershed section of the FEIS.
10/238 **(View 25)**	**Comment:** Last winter was unusually wet in the Pacific Northwest. The result was landslides all over caused by logging roads; five people died, spawning streams were ruined, water supplies were contaminated and the flooding was tremendously aggravated. According to David Bayles, conservation director of the Pacific Rivers Council, aerial surveys documented more than 650 landslides in February in Washington and Oregon alone. The stupidest and most dangerous practice is allowing logging roads on steep slopes — that's really asking for it. You may ask yourself why the taxpayers are expected to pony up to build roads for profitable logging companies. Build roads for the timber companies in order to stimulate the U.S. logging, paper and building industries. There's just one problem. A lot of U.S. logs get shipped overseas, mostly to Japan. We're actually subsidizing Japanese companies while doing terrible damage to our environment and not helping the U.S. job scene much except when it comes to cutting Start with the assumption that the U.S. Forest Service a component of the Department of Agriculture, is simply an auxiliary branch of the timber industry and you'll pretty much have the picture of what's going on. Last winter, the Forest Service refused a bid at a timber auction from an environmentalist who wanted to save, not harvest, a stand of evergreens in the Okanogan National Forest in Washington. Instead, the Forest Service accepted a bid of $15,000 from a logging company that cut 3.5 million board-feet of lumber in that stand. Try to find a price like that at Home Depot." **Response:** The comment is not related to this project. Effects of proposed activities, including road related activities, were addressed in detail in the FEIS.
10/239 **(View 26)**	**Comment:** Although disturbance patches are created by peak flow and debris flow disturbances in mountain landscapes without roads, roads can alter the landscape distributions of the starting and stopping points of debris flows, and they can alter the balance between the intensity of flood peaks and the stream network's resistance to change." **Response:** Change in drainage network, change in peak/base flows, and disturbance regime (including slope stability) due to roads has been analyzed and the discussion is included in the Watershed section of the FEIS.

10/240 **(View 27)**	**Comment:** In the Pacific Northwest, the two main processes that contribute to sediment production are mass failure and surface erosion from forest roads (Fredriksen 1970, Reid and Dunne 1984). In the Clearwater River basin in the State of Washington, as much as 40 percent of the sediment produced in the watershed was attributed to logging roads (Reid 1980). **Response:** The comment is not related to this project. The pre-NEPA watershed assessment in the project file discusses current science and guidance that was considered by the IDT in the development of the purpose and need for this project. Potential effects on water quality and sedimentation were analyzed in the Watershed section of the FEIS.
10/241 **(View 28)**	**Comment:** It is indisputable that roads are one of the greatest threats to the ecological integrity of forested systems and associated river, wetland, lake, and coastal ecosystems. Yet, the USFS has failed to adopt a policy that mandates reversing the worst ecological effects of roads, or that precludes incursion of roads into roadless areas. Despite widespread recognition of these facts, the USFS diverts staff and money to extraordinarily costly salvage logging projects at the expense of reducing the extent of the road network or undertaking needed fine-fuels reductions in unburned forests." **Response:** The comment is not related to this project. No new road construction is proposed. Any new temporary roads that may be constructed would be decommissioned after use. No road construction is proposed within inventoried roadless areas.
10/242 **(View 29)**	**Comment:** Forest fragmentation, as scientists call the intentional felling of woodland, is actually two processes. In populated areas such as the Atlantic seaboard, it means reduction in the size of forest tracts, usually due to suburbanization and development. In less inhabited areas--northern New England, for example—forest fragmentation refers to isolation of one patch of forest from another by logging, or by the building of roads or power lines. **Response:** The comment is not related to this project. Fragmentation is discussed in the Vegetation sectionof the FEIS.
10/243 **(View 30)**	**Comment:** The compaction of forest road soils is known to reduce aeration, porosity, infiltration rates, water movement, and biological activity in soils. Research indicates that soil bulk density, organic matter, moisture, and litter depths are much lower on roads than on nearby forest lands. Macropores, which provide soil drainage and infiltration, have been shown to significantly decrease in size as a result of road construction and use. Reduced infiltration and increased compaction promote soil erosion, especially during the seasonal southwestern monsoon rains (Elseroad 2001)." "Physical disturbances caused by road construction and vehicle use create ideal conditions for colonization by invasive exotic plant species. The use of roads by vehicles, machinery, or humans often aids the spread of exotic plant seeds. Once established, they can have long-term impacts on surrounding ecosystems and can be difficult to remove." "Roads are known to cause habitat fragmentation. Many create ecological 'edges' with different plant species, light levels, and hiding cover, all of which may alter animal survival, reproductive success, and movement patterns. The introduction of exotic plants can disrupt the availability of native vegetation used by wildlife for food and shelter (Trombulak and Frissell 1999)." "Forest roads often develop a water-repellent soil layer caused by lack of vegetative cover and changes in soil composition. This can substantially influence how runoff is processed. Erosion, the formation of water channels beside the road, and increased sediment loads in nearby streams are common results of this process (Baker 2003)." "Because they provide easier access to many forest tracts, forest roads often allow more human-caused fires to be ignited." **Response:** This reference looks at the dynamics of road networks over time and how they impact landscape patterns. More specifically, the study looked at relationships between road density changes, development, and landscape patterns, focusing on housing development. The Wildlife and Soils sections of the FEIS analyzed potential effects of roads.
10/244 **(View 31)**	**Comment:** "Almost everywhere people live and work they build and use unimproved roads, and wherever the roads go, a range of environmental issues follows." "Among the environmental effects of unimproved roads, those on water quality and aquatic ecology are some of the most critical. Increased chronic sedimentation, in particular, can dramatically change the food web in affected streams and lakes." "The nearly impervious nature of road surfaces (or treads) makes them unique within forested environments and causes runoff generation even in mild rainfall events, leading to chronic fine sediment contributions." "If we look at the issue of what we need to learn or the research priorities for forest road hydrology, I would argue that the areas of cutslope hydrology and effectiveness of restoration efforts are perhaps most critical." "At a few sites in the mountains of Idaho and Oregon a substantial portion of the road runoff (80–95%) came from subsurface flow intercepted by the cutslope (Burroughs *et al*., 1972; Megahan, 1972; Wemple, 1998)." **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed section of the FEIS.

10/245 **(View 32)**	**Comment:** "Roads in the watershed contribute to sediment production by concentrating runoff, thereby increasing sediment load to the stream network. Most unimproved (dirt) roads connect either directly or indirectly with streams and, therefore, act as extensions of stream networks by effectively increasing watershed drainage density and subsequently sediment loads to streams. In the South Fork subwatershed of Squaw Creek, road connectivity has resulted in an increase in effective drainage density of approximately 250%. Throughout the Squaw Creek watershed, it is estimated that dirt roads potentially contribute as much as 7,793 metric tons/year to the watershed sediment budget. **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed section of the FEIS.
10/246 **(View 33)**	**Comment:** One of the greatest impacts of roads and (especially motorized) trails is their effect on the hydrology of natural landscapes, including the flow of surface and ground water and nutrients. These hydrologic effects are responsible for changes to geomorphic processes and sediment loads in roaded areas (Luce and Wemple 2001)." (pg. 12) **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed section of the FEIS.
10/247 **(View 34)**	**Comment:** "A study was made on 344 miles of logging roads in northwestern California to assess sources of erosion and the extent to which road-related erosion is avoidable. At most, about 24 percent of the erosion measured on the logging roads could have been prevented by conventional engineering methods. The remaining 76 percent was caused by site conditions and choice of alignment. On 30,300 acres of commercial timberland, an estimated 40 percent of the total erosion associated with management of the area was found to have been derived from the road system." **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Wateshed section of the FEIS.
10/248 **(View 35)**	**Comment:** Research has shown that roads can have adverse impacts on the water quality on the forest landscape (Authur et al. 1998; Binkley and Brown 1993; Megahan et al. 1991). The forest road system has been identified by previous research as the major source of soil erosion on forestlands (Anderson et. al 1976; Patric 1976; Swift 1984; Van Lear et al. 1997). Furthermore, roads are cited as the dominant source of sediment that reaches stream channels (Packer 1967; Trimble and Sartz 1957; Haupt 1959)." **Response:** Water quality and the effects of roads on sedimentation were analyzed and the discussion is included in the Watershed section of the FEIS.
10/249 **(View 36)**	**Comment:** Overall, roads had a greater impact on landscape structure than logging in our study area. Indeed, the 3-fold increase in road density between 1950–1993 accounted for most of the changes in landscape configuration associated with mean patch size, edge density, and core area. **Response:** Refer to response to Viewpoint #29.
10/250 **(View 37)**	**Comment:** Road construction in remote areas appears to be the major long term impact of resource extraction industries and the most significant problem facing grizzly bears in most locations. Open roads are an influence in all 5 ways that people affect bears. Vehicles on roads can harass bears, displace them from quality habitats, and cause reduced bear use of altered habitats, such as cutting units. Bears that are displaced from roads may cause social disruption in areas away from roads. Finally, roads permit access for many people and some of these will shoot bears. **Response:** The comment is not related to this project**.** Grizzly bears are not known to exist in the project area. This project does not propose permanent road construction..
10/251 **(View 38)**	**Comment:** "Erosion from forest roads can be a large source of sediment in watersheds managed for timber production. **Response:** Water quality and the effects of roads on sedimentation were analyzed in the Watershed section of the FEIS.
10/252 **(View 39)**	**Comment:** "Today, addressing the adverse impacts of forest roads is consistently identified as one of the highest watershed restoration priorities in U.S. forests—in many forested watersheds in the western United States there is a greater road density than stream density. It is simply irrational to spend millions of dollars subsidizing further forest road construction when we are simultaneously spending millions of dollars to offset detrimental effects associated with similar actions in the past. **Response:** Refer to response to Viewpoint #28.

10/253 **(View 40)**	**Comment**: "Nothing is worse for sensitive wildlife than a road. Over the last few decades, studies in a variety of terrestrial and aquatic ecosystems have demonstrated that many of the most pervasive threats to biological diversity - habitat destruction and fragmentation, edge effects, exotic species invasions, pollution, and overhunting - are aggravated by roads. Roads have been implicated as mortality sinks for animals ranging from snakes to wolves; as displacement factors affecting animal distribution and movement patterns; as population fragmenting factors; as sources of sediments that clog streams and destroy fisheries; as sources of deleterious edge effects; and as access corridors that encourage development, logging and poaching of rare plants and animals."… **Response**: This reference is an opinion piece that discusses the effects of all roads in general and potential mitigation measures to reduce the effects. Many of the effects discussed in this paper are those associated with paved, well-maintained, high-speed roads. However, it is recognized that lower-standard, unpaved Forest roads can have effects as well. Specifically, the article addresses the following potential road-related impacts: roadkill, road aversion, isolation of populations, barriers, negative edge effects, invasive weeds, loss of forest interior habitats, brown-headed cowbird parasitism, human access, poaching, collisions, snag removal, and increases in fire ignitions. The article states under the *Impacts on Terrestrial Habitat* section that "A narrow logging road with no maintained verge would not be expected to generate substantial edge effects, particularly if surrounded by a tall forest canopy. In this sense, the road would not differ much from a hiking trail (even trails create some edge effects, however, such as invasion of weedy plants caused by pant-legs dispersal). As forest roads are "improved," road clearance increases and allows more penetration of sunlight and wind. Edge species are then attracted to these openings. Two-lane roads with maintained rights-of-way and all interstate highways are lined by edge habitat. A forest criss-crossed by improved roads may be largely edge habitat, and its value for conservation of native flora and fauna diminished accordingly." This rationale acknowledges that small forest roads typically have much less of an impact on wildlife than larger, higher volume road systems. Refer to the responses to Opposing Views #1, 6 and 11 above. A financial analysis was conducted (FEIS, Economics).
10/254 **(View 41)**	**Comment:** "Numerous studies have Reported lower densities of breeding Ovenbirds (*Seiurus aurocapillus*) adjacent to forest edges. However, none of these studies has considered habitat use and reproductive success to address mechanisms underlying the observed pattern, and most were conducted in fragmented landscapes and ignored juxtapositions of forest with narrow openings such as roads. We studied the influence of forest roads on Ovenbird density in an extensively forested region of Vermont, evaluating habitat use and reproductive success relative to mechanisms proposed to explain the density-edge relationship. Territory densities on seven study plots were 40% lower within edge areas (0 to 150 m from unpaved roads) than within interior areas (150 to 300 m from roads). We simulated the distribution of Ovenbird territories and concluded that passive displacement, where birds perceive habitat interfaces as boundaries and limit their territories entirely to forest habitat, did not account for the observed density-edge pattern. Territory size was inversely related to distance from roads, providing an alternative explanation for reduced densities near edges and suggesting that habitat quality was higher away from roads. Pairing success was lower within edge areas than within interior zones, but the difference was not statistically significant. The proportion of males that produced fledglings did not differ between edge and interior areas. We conclude that habitat quality for Ovenbirds may be lower within 150 m of unpaved roads in extensive forested landscapes, affecting territory density and possibly reproductive success." **Response:** Ovenbirds were not analyzed for this project as this species' range does not overlap with the analysis area, nor is the species found in the state of Idaho. However, the focus of this document is primarily the negative edge effects of roads on forest interior species, which does apply to the proposed project. Refer to the responses to Opposing Views #1, 6 and 15 above.
10/253 **(View 42)**	**Comment**: "Increasingly, previously extensive, continuous tracts of forest are being reduced to widely dispersed patches of remnant forest vegetation by logging and road-building, but few measures of the effects of roads on forest fragmentation are available. Fragmentation affects animal populations in a variety of ways, including decreased species diversity and lower densities of some animal species in the resulting smaller patches. This study seeks to quantify the effects of roads and logging activities on forest habitat." "Roads precipitate fragmentation by dissecting previously large patches into smaller ones, and in so doing they create edge habitat in patches along both sides of the road, potentially at the expense of interior habitat. As the density of roads in landscapes increases, these effects increase as well. McGurk and Fong (1995) considered the additive effects of clearcuts and roads, but did not measure the amount of associated edge habitat. Thus a more direct measurement of the impacts of roads on landscapes is needed." **Response:** This study looked at habitat fragmentation from a negative edge effect standpoint in coniferous forests of Wyoming and how the fracturing of interior forests may impact forest interior species. The study concluded that roads associated with logging activities often have potentially detrimental impacts on animal and plant communities. The authors suggested that timber harvests should be planned to minimize impact on the landscape and exacerbation of the current landscape fragmentation problems on many forestlands. Refer to the responses to Opposing Views #1, 6 and 15 above.

10/254 **(View 43)**	**Comment**: "Erosion on roads is an important source of fine-grained sediment in streams draining logged basins of the Pacific Northwest. Runoff rates and sediment concentrations from 10 road segments subject to a variety of traffic levels were monitored to produce sediment rating curves and unit hydrographs for different use levels and types of surfaces. These relationships are combined with a continuous rainfall record to calculate mean annual sediment yields from road segments of each use level. A heavily used road segment in the field area contributes 130 times as much sediment as an abandoned road. A paved road segment, along which cut slopes and ditches are the only sources of sediment, yields less than 1% as much sediment as a heavily used road with a gravel surface." **Response:** Refer to the responses to Opposing Views #4 and 18 above.
10/255 **(View 44)**	**Comment:** "Roads are associated with high sediment inputs and altered hydrology, both of which can strongly influence downstream channel habitats. Roads are also important as a source of indirect human impacts and as an agent of vegetation change and wildlife disturbance." "Any ground disturbance increases the potential for erosion and hydrologic change, and roads are a major source of ground disturbance in wildlands. Compacted road surfaces generate overland flow, and much of this flow often enters the channel system, locally increasing peak flows. Localized peak flows are also increased where roads divert flow from one swale into another, and where roadcuts intercept subsurface flows." "Overland flow from the road surface is a very effective transport medium for the abundant fine sediments that usually are generated on road surfaces. Road drainage also can excavate gullies and cause landslides downslope in swales. Cut and fill slopes are often susceptible to landsliding, and road-related landsliding is the most visible forestry-related erosional impact in many areas." **Response:** Refer to the responses to Opposing Views #1, 4, 6, 15, and 18 above.
10/256 **(View 45)**	**Comment:** Disturbances from roadbuilding and logging changed the sediment/discharge relationship of the South Fork from one which was supply dependent to one which was stream power dependent, resulting in substantial increases in suspended sediment discharges." **Response:** This 34 year old research paper was prepared in a time before modern Best Management Practices had been developed, tested, and proved to provide superior reductions in sediment delivery to streams. Papers like this are useful in that they formed the basis for the modern Best Management Practices utilized today.
10/257 **(View 46)**	**Comment:** "Sediment eroded from gravel roads can be a major component of the sediment budget in streams in this region (Van Lear, et al, 1995)." **Response:** This reference from Georgia and Tennessee discusses different sediment sources associated with watershed restoration planning. Although the landscape for this project in Idaho is different than that of the southeastern U.S., the process used to develop this project is similar. The installation of new culverts and reconditioning of existing culverts will decrease the effects roads in the project area have on the stream network and sediment contributions.This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EIS. Please also see the response to opposing views #3, #4, #5, and #18.
10/258 **(View 47)**	**Comment:** Early studies of elk were among the first to address effects of roads on wildlife, establishing a precedent for subsequent research on a wide range of terrestrial and aquatic species. These early elk-roads studies included those reported in a symposium on the topic in 1975 (Hieb 1976), the seminal studies of Jack Lyon in Montana and northern Idaho (Lyon 1979, 1983, 1984), the Montana Cooperative Elk-Logging Study (Lyon et al. 1985), and work by Perry and Overly (1977) in Washington and Rost and Bailey (1979) in Colorado. As research and analysis techniques have become more sophisticated, particularly with the advent of geographic information systems (GIS) and high-resolution remote imagery, the study of effects of roads on terrestrial and aquatic communities has evolved into a unique discipline of "road ecology" (Forman et al. 2003). Road effects are far more pervasive than originally believed and include such disparate consequences as population and habitat fragmentation, accelerated rates of soil erosion, and invasion of exotic plants along roadways. Indeed, "in public wildlands management, road systems are the largest human investment and the feature most damaging to the environment" (Gucinski et al. 2001:7). Summaries of the effects of roads on wildlife habitats and biological systems in general have been compiled by Forman and Alexander (1998), Trombulak and Frissell (2000), Gucinski et al. (2001), Forman et al. (2003) and Gaines et al. (2003)." **Response:** The cited document describes the current knowledge on road effects to elk; outlines how a distance-band approach could be used instead of the traditional road density approach to assess road effects to elk and habitat effectiveness; and discusses the broader implications of road-related policies and land management with regard to elk. The effects analysis for elk is located in the EIS in Chapter 3, Wildlife. The indicator used to assess impacts to elk and elk habitat for the Clear Creek Integrated Restoration project was the amount and distribution of security cover habitat.

10/259 **(View 48)**	**Comment:** "The consequences of road construction to wildlife are generally negative. Roads result in increased human access, habitat fragmentation, disturbance, and in some cases direct mortality due to vehicle collisions." "Research has documented an 80% decline in grizzly bear habitat use within 1 km of open roads used by motorized vehicles in Montana9. This has been ascribed either to bears avoiding humans or to the selective overharvest of bears habituated to humans that would otherwise more fully use areas heavily influenced by people." **Response:** The concepts discussed in the opposing view are well understood by the ID Team wildlife biologist and were considered in the environmental effects analysis in the wildlife resource sections of Chapter 3 of the EIA. Please also see the response to opposing view #37.
10/260 **(View 49)**	**Comment:** The effects of forest roads on hydrology are related to the effects of forest clearing. Most loggingrequires road access, and the roads often remain after the logging, so there are both short and long-term effects. Forest road surfaces are relativelyimpermeable. Water readily runs over the road surface and associatedroadside ditches, often directly to a stream channel, with the net effect ofextending channel networks and increasing drainage density. In additionto providing conduits for overland flow, forest roads involve slope-cuts andditching that may intersect the water table and interrupt natural subsurfacewater movement. This diversion of subsurface water may bequantitatively more important than the overland flow of storm water in somewatersheds. The importance of roads in altering basin hydrology has been underscored in paired-watershed studies and recent modelingstudies. **Response:** This reference discusses hydrology in mountains in a general textbook approach presenting a number of accepted traits associated with wildland hydrology. The excerpt deals with the effects forest roads can have on hydrology based on a few other cited sources. The EIS fully acknowledges these effects and discusses them in detail in the Watershed section. The road maintenance work that will be completed prior to project implementation addresses the most critical effects the road system is having on the project streams by applying BMPs, which decrease the effects roads in the project area have on the stream network.
10/261 **(View 50)**	**Comment:** Roads are often the major source of soil erosion from forested lands **Response:** This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EIS. Please also see the response to opposing views #3, #4, #5, and #18.
10/262 **(View 51)**	**Comment:** More subtle causes of habitatloss include the construction of roads and power lines. These linearbarriers also have been correlated with a decline in neotropical migrantsongbirds (Berkey 1993; Boren et al. 1999; Ortega and Capen 2002).Whether by forest conversion or the construction of roads and power lines,fragmentation subdivides habitat into smaller and smaller parcels. Theresult is an increase of edge habitat, or the boundary between intact forestand surrounding impacted areas. Small forests with large amounts of edgehabitat are a hostile landscape for nesting neotropical migratory songbirds.In these areas, songbirds face two great threats: 1) the loss of eggs andnestlings to predators and, 2) parasitism by cowbirds. **Response:** This article addresses potential causes for the apparent decline in songbird populations, listing loss of habitat as the major factor and construction of roads and power lines as a more subtle cause. According to the article, the primary issue in regard to road fragmentation of songbird habitat is creation of edge habitat and the fracturing of interior forest habitat, which can lead to nest predation, brood parasitism, noise disturbance, or avoidance. The effects analysis for migratory species can be found in the Wildlife section of the EIS.

10/263 **(View 52)**	Comment: Roads are a widespread and increasing feature of most landscapes. We reviewed the scientific literature on the ecological effects of roads and found support for the general conclusion that they are associated with negative effects on biotic integrity in both terrestrial and aquatic ecosystems. Roads of all kinds have seven general effects: mortality from road construction, mortality from collision with vehicles, modification of animal behavior, alteration of the physical environment, alteration of the chemical environment, spread of exotics, and increased use of areas by humans. Road construction kills sessile and slow-moving organisms, injures organisms adjacent to a road, and alters physical conditions beneath a road. Vehicle collisions affect the demography of many species, both vertebrates and invertebrates; mitigation measures to reduce roadkill have been only partly successful. Roads alter animal behavior by causing changes in home ranges, movement, reproductive success, escape response, and physiological state. Roads change soil density, temperature, soil water content, light levels, dust, surface waters, patterns of runoff, and sedimentation, as well as adding heavy metals (especially lead), salts, organic molecules, ozone, and nutrients to roadside environments. Roads promote the dispersal of exotic species by altering habitats, stressing native species, and providing movement corridors. Roads also promote increased hunting, fishing, passive harassment of animals, and landscape modifications. Not all species and ecosystems are equally affected by roads, but overall the presence of roads is highly correlated with changes in species composition, population sizes, and hydrologic and geomorphic processes that shape aquatic and riparian systems. More experimental research is needed to complement post-hoc correlative studies. Our review underscores the importance to conservation of avoiding construction of new roads in roadless or sparsely roaded areas and of removal or restoration of existing roads to benefit both terrestrial and aquatic biota. **Response:** The citation is a general synthesis of some of the deleterious effects of roads on the natural environment. It is very broad based and while some of it pertains to conditions in the project area, it contains no specific information that can be used in the analysis. The EIS recognizes some of these effects and in the case of aquatics, attempts to reduce the sediment-related effects project area roads have on stream channels by implementing BMPs. This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EIS.
10/264 **(View 53)**	**Comment:** Roads are a major contributor to habitat fragmentation because they divide large landscapes into smaller patches and convert interior habitat into edge habitat. As additional road construction and timber harvest activities increase habitat fragmentation across large areas, the populations of some species may become isolated, increasing the risk of local extirpations or extinctions (Noss and Cooperrider 1994)." "Habitat fragmentation creates landscapes made of altered habitats or developed areas fundamentally different from those shaped by natural disturbances that species have adapted to over evolutionary time (Noss and Cooperrider 1994 *in* Meffe et al. 1997). Adverse effects of habitat fragmentation to both wildlife populations and species include: "Increased isolation of populations or species, which leads to:• Adverse genetic effects; i.e. inbreeding depression (depressed fertility and fecundity, increased natal mortality) and decreased genetic diversity from genetic drift and bottlenecks,• Increased potential for extirpation of localized populations or extinction of narrowly distributed species from catastrophic events such as hurricanes, wildfires or disease outbreaks,• Changes in habitat vegetative composition, often to weedy and invasive species, Changes in the type and quality of the food base,• Changes in microclimates by altering temperature and moisture regimes,• Changes in flows of energy and nutrients,• Changes in the availability of cover and increases edge effect, bringing together species that might otherwise not interact, potentially increasing rates of predation, competition and nest parasitism, and• Increased opportunities for exploitation by humans, such as poaching or illegal collection for the pet trade." **Response:** This paper includes a list of potential effects of roads and highways. It also includes an appendix with a literature review of road effects to wildlife and habitats, with the literature cited following it. The quoted section above lists potential effects of roads. It is recognized that lower-standard, unpaved forest roads have potential effects. The effects of forest fragmentation on wildlife are addressed in the response to opposing views #1, #3, #42, and #51; as well as the response to comment #11 in attachment #1.
10/265 **(View 54)**	**Comment:** Our analysis also indicated that >70 percent of the 91 species are affected negatively by one or more factors associated with roads…Roads in forested areas increase trapping pressures for martens and fishers, resulting in significantly higher captures in roaded versus unroaded areas (Hodgman and others 1994) and in logged versus unlogged areas, in which the difference was again attributed to higher road densities in logged stands (Thompson 1994). Secondary roads also might increase the likelihood that snags and logs will be removed for fuel wood. This could impact fishers, martens and flammulated owls, and also could have anegative effect on the prey base for goshawks (Reynolds and others1992)…. An additional, indirect effect of roads is that road avoidance leads to underutilization of habitats that are otherwise high quality. **Response:** This large multi-agency effort defined habitat requirements and assessed trends in these habitats for terrestrial vertebrates across 145 million acres of public and private lands. They also summarized knowledge about species-road relationships, and described the results in relation to broad-scale patterns of road density. These and other potential impacts of roads on wildlife, including fishers, martens, flammulated owls, goshawks, and other users of standing and downed dead wood, are thoroughly discussed in the EIS.

10/266 **(View 55)**	**Comment:** According to the DEIS, the Forest now manages a total of 5,914 miles of roads across the Forest.Scientific literature has established that roads have numerous widespread, pervasive and, if left untreated, long-lasting biological and physical impacts on aquatic ecosystems that continue long after completion of construction.(Angermeier et al. 2004). Roads increase surface water flow, alter runoff patterns, alter streamflow patterns and hydrology, and increase sedimentation and turbidity. Roads are the main source of sediment to water bodies from forestry operations in the United States. (US EPA 2002).Road construction can lead to slope failures, mass wasting and gully erosion. Road crossings can act as barriers to movement for fish and other aquatic organisms, disrupting migration and reducing population viability.(Schlosser and Angermeier 1995). Chemical pollutants that enter streams via runoff, such as salt and lead from road use and management,compound these impacts. Most of these adverse effects are persistent and will not recover or reverse without human intervention. The techniques for road remediation are well established, agreed upon and readily available.(Weaver et al. 2006). **Response:** The citation is a comment letter to the Forest Service on travel management in the Oregon Cascade Mountains which is a very different climate and setting than the northern Rockies. The letter cites other literature that discusses the adverse effects of roads on aquatic environments. This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EA.
10/267 **(View 56)**	**Comment:** Fires do not leave a large road network in place (assuming the blaze was not suppressed otherwise there may be dozer lines, etc.). Logging creates roads that fragment habitat and generally increase human access, both of which affect the use of the land by wildlife. Moreover, roads and logging equipment can become vectors for the dispersal of weeds. **Response:** The cited article is an opinion piece that discusses the ecological differences between logging and wildland fire. The article presents wildland fire as a beneficial force and logging as a source of deleterious impacts on the forests. The article describes the ecosystem functions performed by fire and lists potential road-related impacts associated with logging, including habitat fragmentation, human access, disturbance, habitat avoidance (grizzly bears), hunting, poaching, and roads as vectors for invasive weeds. This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EIS. Please see response to opposing views #1 and #40.
10/268 **(View 57)**	**Comment:** Forest fragmentation occurs when large, contiguous blocks of forest are broken up into isolated islands by development, roads, or clearing for agriculture. Just as inbreeding among the royal families of Europe spread hemophilia, forest fragmentation negatively impacts the long term sustainability of both plant and animal communities. Geographic isolation results in inbreeding and diminishes biodiversity. **Response:** The cited article broadly discusses the potential causes of forest fragmentation, including road-related impacts, impacts to human health, and economic impacts. The article lists the following road- related impacts: habitat fragmentation, inbreeding and diminished biodiversity stemming from isolation of populations, road kill, and increased predation of woodland birds. This opposing view is of the same nature and scope as previous opposing views found above. The concepts discussed in the opposing view are all well understood by the ID Team and were considered in the environmental effects analysis in the resource sections of Chapter 3 of the EIS. Please see response to opposing views #1 and #40.

Artley Attachment #9a: Herbicides Containing Glyphosate Should Never Be Applied to Areas where Mammals (including humans), fish, or birds might visit

Letter #/ Comment #	Comment and Response
10/269 **(View 1)**	**Comment:** Chronic Effects of Glyphosate versus Formulations: Throughout this study glyphosate itself showed no chronic effects on developing tadpoles. The tadpoles reared in the formulations Roundup Original® and Transorb® did show significant physical abnormalities. Abnormalities were also found upon exposure to the surfactant POEA. For all endpoints POEA showed practically identical results to the Roundup Original® formulation whereas the same cannot be said for the Transorb® formulation. The surfactant used in the Transorb formulation is not known (being protected as "Trade Secret"), but has been described as a "surfactant blend". This "surfactant blend" may be responsible for inhibition of metamorphosis, as well as the skewed sex ratio towards female seen in the present study…Developmental abnormalities induced by Roundup are likely a result of endocrine disruption. The thyroid axis can be greatly affected by corticoids and sex steroids which influence hypothalamic and pituitary control (See Dodd and Dodd, 1976, and Hayes, 1997 for review). Corticoids, sex steroids and prolactin have caused delayed metamorphosis and decreased size by both antagonizing and inhibiting thyroid action (Hayes, 1997). Sex steroid can induced sex reversal and intersex in amphibians and mammals, while low thyroid levels interfere with vitellogenesis. A concentration at which the animals were not effected (NOEC) by The Roundup formulations was not determined by this study. **Response:** Most of the citations in Attachment #9a are information articles, opinion pieces, or scientific studies related to the human health or environmental effects of glyphosate formulations, especially RoundUp, or the legal and political issues surrounding Monsanto, the company that makes RoundUp and other glyphosate formulations. Weed spraying in the project area is covered by the 1988 Nez Perce National Forest Noxious Weed Decision Notice and Finding of No Significant Impact (DN/FONSI) and Environmental Assessment. Consultation for the Biological Assessment – Herbicide Treatment of Invasive and Noxious Weeds on the Nez Perce National Forest (2013-2022) is ongoing. This unpublished document is available at the Nez Perce-Clearwater National Forests Office in Grangeville, Idaho. Analysis and evaluation of noxious weeds in the Clear Creek Integrated Restoration project is based on direction contained in the Federal Noxious Weed Law (1974) as amended (1975), Executive Order13112 for Invasive Species. Forest Service Policy (FSM 2080.5; 2000-95-5; USDA-FS 1995), Northern Region Supplement (FSM 2080; R1 2000-2001-1; USDA-FS 2001), the,Nez Perce National Forest Plan (II-7, II-20, II-26, III-6), and Idaho State Noxious Weed Code (title 22, chapter 24). In general, the Forest is directed to implement an effective weed management program with the objectives of preventing the introduction and establishment of noxious weeds; containing and suppressing existing weed infestations; and cooperating with local, state, and other Federal Agencies in the management of noxious weeds. Noxious weeds in the project area and management actions related to noxious weeds are discussed in the FEIS in Chapter 3.
10/270 **(View 2)**	**Comment:** After spraying, glyphosate herbicides can remain in soils for long periods. The herbicide can drift onto neighbouring fields, streams or hedges. Roundup kills beneficial insects. It wipes out habitat for birds and animals. Glyphosate causes genetic damage to fish. It is "extremely lethal to amphibians", according to assistant professor of biology Rick Relyea at the University of Pittsburgh. It is hazardous to earthworms. Glyphosate reduces nitrogen fixation. Roundup reduces the growth of mycorrhizal fungi. Roundup can increase the spread and severity of plant diseases (see WRM Bulletin no. 18)… Glyphosate herbicides can have a range of impacts on human health, including genetic damage, skin tumours, thyroid damage, anaemia, headaches, nose bleeds, dizziness, tiredness, nausea, eye and skin irritation, asthma and breathing difficulties. Several studies have indicated a link between glyphosate herbicides and non-Hodgkin's lymphoma, a type of cancer. **Response:** Please see the response to View 1. The reference link that the commenter provided for this View did not work.

Letter #/ Comment #	Comment and Response
10/271 **(View 3)**	**Comment:** In California, where there is a mandatory system of reporting pesticide poisoning, Glyphosate is the third most common cause of pesticide illness in farm workers. It is the most common form of reported pesticide poisoning in landscape gardeners." "Two separate studies in Sweden have linked exposure to Glyphosate to Hairy Cell Leukemia and Non Hodgkins Lymphoma. These types of cancers were extremely rare, however non-Hodgkins lymphoma is the most rapidly increasing cancer in the Western world. It has risen by 73% in the USA since 1973. Another study has found a higher incidence of Parkinson disease amongst farmers who used herbicides, including glyphosate." "Other studies show that Glyphosate and commercial herbicides containing Glyphosate cause a range of cell mutations and damage to cell DNA. These types of changes are usually regarded as precursors to cancer and birth defects." "Studies show that exposure to Glyphosate is associated with a range of reproductive effects in humans and other species. Research from Ontario, Canada found that a father's exposure to Glyphosate was linked to an increase in miscarriages and premature births in farm families… Glyphosate caused a decrease in the sperm count of rats and an increase in abnormal and dead sperms in rabbits. Pregnant rabbits exposed to Glyphosate had a decrease in the weight of their babies." **Response:** Please see the response to View 1.
10/272 **(View 4)**	**Comment:** Symptoms of exposure to glyphosate include eye irritation, blurred vision, skin rashes, burning or itchy skin, nausea, sore throat and difficulty breathing, headache, lethargy, nose bleeds and dizziness. In lab tests, glyphosate and herbicides containing glyphosate caused genetic damage to human and animal cells. Studies of farmers and other people exposed to glyphosate herbicides link this exposure to increased risks of cancer, miscarriages and attention deficit disorder. Additional laboratory tests have confirmed the results of these studies. Laboratory evidence indicates that glyphosate herbicides can reduce production of sex hormones. Studies of glyphosate contamination of water are limited, but new results indicate that it can easily contaminate streams in both agricultural and urban areas. Glyphosate herbicides cause more off-target damage incidents than all but one other herbicide — 2, 4-D. Glyphosate herbicides cause genetic damage and harm to the immune system in fish. In frogs, glyphosate herbicides cause genetic damage and abnormal development. **Response:** Please see the response to View 1.
10/273 **(View 5)**	**Comment:** Very low doses of some types of the herbicide Roundup can endocrine disruptor the formulations' toxicity may be tied to their "inactive" ingredients rather than the active weed-killing ingredient glyphosate. French scientists report that a number of Roundup formulations tested at very dilute concentrations can alter hormone actions and cause human liver cells to die within 24 hours of treatment. The toxicity of some of the formulations was independent of how much glyphosate - the active herbicide in Roundup - they contained, suggesting it is other "inert" ingredients that may alone - or in combination with each other and/or the weed killer - assault the cells. This study's results are similar to prior studies - as reported in a recent Environmental Health News article - that find human embryo cells are affected more by the Roundup formulations and an inert ingredient than by the active ingredient. The levels of Roundup used in this study are similar to what is typically found in food crops or animal feed treated with Roundup. Because of this, it is possible that people, livestock and wildlife may be exposed to levels of the herbicide mix that can damage cells." **Response:** Please see the response to View 1.
10/274 **(View 6)**	**Comment:** A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world's biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2]. In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies. **Response:** Please see the response to View 1. The reference link that the commenter provided for this View did not work.

Letter #/ Comment #	Comment and Response
10/275 **(View 7)**	**Comment:** Safe, effective management and control of established exotic-weeds requires input from and the joint effort of scientists from several distinct disciplines, including biological control specialists, chemical control specialists, wildlife ecologists, animal science specialists, economists, and the public. The basic premise of IPM centers on employing first biological and other non-chemical pest controls, with the use of chemical pesticides only as a last resort. Since pesticide effects on public health and the environment cost the United States a conservatively estimated $9 billion per year, this should be a much welcome change. **Response:** This article is an excerpt from a speech given by David Pimentel, PhD at the 19th National Pesticide Forum in Boulder, Colorado in 2001. A team of specialists with backgrounds in several distinct disciplines analyzed the control of s in the 1988 Nez Perce National Forest Noxious Decision Notice and Finding of No Significant Impact (DN/FONSI) and Environmental Assessment. Noxious weeds in the project area and management actions related to noxious weeds are discussed in the Clear Creek Integrated Restoration FEIS in Chapter 3.
10/276 **(View 8)**	**Comment:** Glyphosate was ranked third worst among all pesticides causing severe health problems among those working in agriculture in the State of California." "The application of glyphosate causes the production of phyto-oestrogens in legumes. These phyto-oestrogens mimic the role of hormones in the bodies of mammals who ingest them. Hence, they may cause severe reproductive system disruptions. The data on estrogen-content of the plants submitted by Monsanto does not reflect the real scope of this problem, because the tested plants were grown in a glyphosate-free environment." **Response:** Please see the response to View 1. This reference appears to be a quote from an advertisement for a book offered for sale on this website: http://www.twnside.org.sg/title/weiz-cn.htm
10/277 **(View 9)**	**Comment:** Glyphosate (N- (phosphonomethyl) glycine, C3H8NO5P), a herbicide, used to control unwanted annual and perennial plants all over the world. Nevertheless, occupational and environmental exposure to pesticides can pose a threat to nontarget species including human beings. Therefore, in the present study, genotoxic effects of the herbicide glyphosate were analyzed by measuring chromosomal aberrations (CAs) and micronuclei (MN) in bone marrow cells of Swiss albino mice. A single dose of glyphosate was given intraperitoneally (*i.p*) to the animals at a concentration of 25 and 50 mg/kg b.wt. Animals of positive control group were injected *i.p*. benzo(a)pyrene (100 mg/kg b.wt., once only), whereas, animals of control (vehicle) group were injected *i.p*. dimethyl sulfoxide (0.2 mL). Animals from all the groups were sacrificed at sampling times of 24, 48, and 72 hours and their bone marrow was analyzed for cytogenetic and chromosomal damage. Glyphosate treatment significantly increases CAs and MN induction at both treatments and time compared with the vehicle control (P<.05). The cytotoxic effects of glyphosate were also evident, as observed by significant decrease in mitotic index (MI). The present results indicate that glyphosate is clastogenic and cytotoxic to mouse bone marrow. **Response:** Please see the response to View 1.
10/278 **(View 10)**	**Comment:** PITTSBURGH--The herbicide Roundup® is widely used to eradicate weeds. But a study published today by a University of Pittsburgh researcher finds that the chemical may be eradicating much more than that. Pitt assistant professor of biology Rick Relyea found that Roundup®, the second most commonly applied herbicide in the United States, is "extremely lethal" to amphibians. This field experiment is one of the most extensive studies on the effects of pesticides on nontarget organisms in a natural setting, and the results may provide a key link to global amphibian declines…In a paper titled "The Impact of Insecticides and Herbicides on the Biodiversity and Productivity of Aquatic Communities," published in the journal Ecological Applications, Relyea examined how a pond's entire community--25 species, including crustaceans, insects, snails, and tadpoles--responded to the addition of the manufacturers' recommended doses of two insecticides--Sevin® (carbaryl) and malathion--and two herbicides--Roundup® (glyphosate) and 2,4-D. Relyea found that Roundup® caused a 70 percent decline in amphibian biodiversity and an 86 percent decline in the total mass of tadpoles. Leopard frog tadpoles and gray tree frog tadpoles were completely eliminated and wood frog tadpoles and toad tadpoles were nearly eliminated. One species of frog, spring peepers, was unaffected." **Response:** Please see the response to View 1. The reference linked in Mr. Artley's comment is an opinion article published by Walter Reeves, "The Georgia Gardener:" http://www.walterreeves.com/tools_chemicals/article.phtml?cat=22&id=889.

Letter #/ Comment #	Comment and Response
10/279 **(View 11)**	**Comment:** For all nine species of larval anurans, the Kruskal-Wallis analyses detected significant effects of pesticide concentration on mortality (p # 0.002; Fig. 1). The subsequent mean comparisons, using Dunnett's tests, indicated the lowest concentrations that caused significantly greater mortality than the control (p , 0.05). For two species (bullfrogs and spring peepers), 1 mg a.e./L of glyphosate caused significantly greater mortality than the control. For the remaining seven species (green frogs, leopard frogs, wood frogs, Cascades frogs, American toads, western toads, and gray tree frogs), 2 mg a.e./L of glyphosate was the lowest concentration to cause significantly greater mortality than the control. Based on the probit analyses, the estimated LC5096-h values for the nine species of larval anurans ranged from 0.8 to 2.0 mg a.e./L (Table 2). **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/280 **(View 12)**	**Comment:** A recent study of Roundup presents new evidence that the glyphosate-based herbicide is far more toxic than the active ingredient alone. The study, published in the June 2005 issue of *Environmental Health Perspectives*, reports glyphosate toxicity to human placental cells within hours of exposure, at levels ten times lower than those found in agricultural use. The researchers also tested glyphosate and Roundup at lower concentrations for effects on sexual hormones, reporting effects at very low levels. This suggests that dilution with other ingredients in Roundup may, in fact, facilitate glyphosate's hormonal impacts." "The evidence presented in the recent study is supported by earlier laboratory studies connecting glyphosate with reproductive harm, including damaged DNA in mice and abnormal chromosomes in human blood. Evidence from epidemiological studies has also linked exposure to the herbicide with increased risk of non-Hodgkin's lymphoma, and laboratory studies have now begun to hone in on the mechanism by which the chemical acts on cell division to cause cancer. A Canadian study has linked glyphosate exposure in the three months before conception with increased risk for miscarriage and a 2002 study in Minnesota connected glyphosate exposure in farm families with increased incidence of attention deficit disorder. **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/281 **(View 13)**	**Comment:** Our studies show that glyphosate acts as a disruptor of mammalian cytochrome P450 aromatase activity from concentrations 100 times lower than the recommended use in agriculture, and this is noticeable on human placental cells after only 18 hr, and it can also affect aromatase gene expression. It also partially disrupts the ubiquitous reductase activity but at higher concentrations. Its effects are allowed and amplified by at least 0.02% of the adjuvants present in Roundup, known to facilitate cell penetration, and this should be carefully taken into account in pesticide evaluation. The dilution of glyphosate in Roundup formulation may multiply its endocrine effect. Roundup may be thus considered as a potential endocrine disruptor. Moreover, at higher doses still below the classical agricultural dilutions, its toxicity on placental cells could favor some reproduction problems. **Response**: Please see the response to View 1.
10/282 **(View 14)**	**Comment:** There are serious health implications from the use of this pesticide. There is a long list of reported toxic effects from glyphosate exposure and this Swedish study provides compelling evidence of the links between glyphosate and cancer." **Response**: Please see the response to View 1.
10/283 **(View 15)**	**Comment:** This review suggests that the silvicultural use of glyphosate needs to be re-evaluated with respect to nontarget impacts on amphibians in B.C. In addition, knowledge gaps hinder effective and realistic assessment of these impacts. Glyphosate impacts can be species-specific in amphibians, but acute toxicity values are known for only two native B.C. amphibians (the Wood Frog, *Rana sylvatica*, and the Leopard Frog, *R. pipiens*). The impact of glyphosate herbicides on salamander species and on terrestrial stages of amphibians is not well understood. There is insufficient information on the levels of glyphosate contamination in small ephemeral wetlands, which are favoured habitats of amphibians, and which may be exposed to direct overspraying with herbicide under current use guidelines. Although the surfactant in glyphosate herbicides, POEA, has been identified as potentially the primary ingredient causing toxicity to amphibians, the option of using surfactants of lower toxicity has not been assessed. These knowledge gaps need to be addressed so that best management practices can be developed to minimize non-target impacts on amphibians from the use of glyphosate herbicides in forestry. **Response**: Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/284 **(View 16)**	**Comment:** Glyphosate is a broad-spectrum herbicide which will have major impacts on biodiversity (see Greenpeace Report, 1998, and references therein). It kills all plants indiscriminately. This will destroy wild plants as well as insects, birds, mammals and other animals that depend on the plants for food and shelter. In addition, Roundup (Monsanto's formulation of glyphosate) can be highly toxic to fish. Glyphosate also harms earthworms and many beneficial mycorrhizal fungi and other microorganisms that are involved in nutrient recycling in the soil. It is so generally toxic that researchers are even investigating its potential as an antimicrobial (Roberts *et al,* 1998). **Response**: Please see the response to View 1.
10/285 **(View 17)**	**Comment:** Glyphosate was formerly considered relatively non-toxic however there is now a considerable body of evidence for deleterious effects of Roundup, glyphosate and its adjuvants on a wide range of non-target species, including humans. In 2003 the Danish Government announced unprecedented restrictions on glyphosate following analyses which demonstrated that it had been percolating through the soil and polluting the ground water at a rate 5-times that allowable for drinking water. Subsequently, another study confirmed that both glyphosate and its degradation product amino-methylphosphonic acid (AMPA) can leach through structured soils thereby posing a potential risk to the aquatic environment (5). More recently, an analytical method for glyphosate and AMPA based on liquid chromatography coupled to electrospray tandem mass spectrometry has been applied to water samples previously found to contain glyphosate (6). The glyphosate concentrations in the re-anaylzed samples were found to be 2 – 14 –fold higher than previously (6) suggesting that contamination of groundwater and other aquatic systems by glyphosate may be even greater than previously thought. **Response:** Please see the response to View 1.
10/286 **(View 18)**	**Comment: 1.** Glyphosate was ranked third worst among all pesticides causing severe health problems among those working in agriculture in the State of California. 2. The application of glyphosate causes the production of phyto-oestrogens in legumes. These phyto-oestrogens mimic the role of hormones in the bodies of mammals who ingest them. Hence, they may cause severe reproductive system disruptions. The data on estrogen-content of the plants submitted by Monsanto does not reflect the real scope of this problem, because the tested plants were grown in a glyphosate-free environment (see above)." **Response:** Please see the response to View 1. This appears to be a quote from an advertisement for a book offered for sale on this website: http://www.twnside.org.sg/title/weiz-cn.htm
10/287 **(View 19)**	**Comment:** A recently published study by Italian researchers [3] examined the toxicity of four popular glyphosate based herbicide formulations on human placental cells, kidney cells, embryonic cells and neonate umbilical cord cells and surprisingly found total cell death of each of these cells within 24 hours. The researchers reported several mechanisms by which the herbicides caused the cells to die including: cell membrane rupture and damage, mitochondrial damage and cell asphyxia. Following these findings, the researchers tested G, AMPA and POEA by themselves and concluded that, 'It is very clear that if G, POEA, or AMPA has a small toxic effect on embryonic cells alone at low levels, the combination of two of them at the same final concentration is significantly 'deleterious'. Although previous researchers have proposed that the supposed 'inert ingredients' alter the role of cell membrane disruptors in fish, amphibians, microorganisms [4] and plants [5], independent of G, this study is the first of its kind to report similar findings in human cells. The researchers concluded that, "the proprietary mixtures available on the market could cause cell damage and even death around residual levels to be expected, especially in food and feed derived from R [Roundup] formulation-treated crops" which are pervasive in GM-soya. **Response:** Please see the response to View 1.
10/288 **(View 20)**	**Comment:** A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name "Round Up," causes birth defects when applied in doses much lower than what is commonly used in soy fields. The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in the nation's top medical school, Dr. Carrasco shows me the results of the study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects—one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/289 **(View 21)**	**Comment:** Controversy exists around the use of herbicides more commonly used by home gardeners, such as, 2, 4- D and Roundup. A manufacturer supported review of studies found Roundup safe for use around humans while anti-herbicide groups cite studies that find it affecting human embryonic, placental, and umbilical cells *in vitro* as well as testosterone development in mice. **Response:** Please see the response to View 1.
10/290 **(View 22)**	**Comment:** According to Mr. Carrasco's research, even tiny quantities of glyphosate could cause embryonic malformations in frogs and thus, by extrapolation, may have implications for humans. "I suspect the toxicity classification of glyphosate is too low ... in some cases this can be a powerful poison," Mr Carrasco told the *Financial Times* in an interview. He says residents near soya-producing areas began reporting problems from 2002, a couple of years after the first big harvests using genetically modified seeds, which were approved for use in Argentina in 1996. Research by other Argentine scientists and evidence from local campaigners has indicated a high incidence of birth defects and cancers in people living near crop-spraying areas. One study conducted by a doctor, Rodolfo Páramo, in the northern farming province of Santa Fé reported 12 malformations per 250 births, well above the normal rate. **Response:** Please see the response to View 1.
10/291 **(View 23)**	**Comment:** Fish and aquatic invertebrates are more sensitive to Roundup than terrestrial organisms.[24] Glyphosate is generally less persistent in water than in soil, with 12 to 60 day persistence observed in Canadian pond water, yet persistence of over a year have been observed in the sediments of ponds in Michigan and Oregon."[9]… Monsanto has stated that the studies have been repeated, and that Roundup's EPA certification does not now use any studies from Craven Labs or IBT. Monsanto also said that the Craven Labs investigation was started by the EPA after a pesticide industry task force discovered irregularities.[**Response:** Please see the response to View 1.
10/292 **(View 24)**	**Comment:** In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies.' **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/293 **(View 25)**	**Comment:** These latest studies confirm a wealth of evidence on the toxicities of glyphosate and Roundup formulations [2] (Glyphosate Toxic & Roundup Worse , *SiS* 26), and pinpoint the different sites of action, all of which result in cell death. Epidemiological studies have previously linked glyphosate to spontaneous abortions, non-Hodgkin lymphoma, and multiple myeloma. Laboratory studies showed that glyphosate inhibits transcription in sea urchin eggs and delays development. Brief exposures to glyphosate in rats caused liver damage, and adding the surfactant in Roundup had a synergistic effect, causing greater liver damage. Roundup was also found to be much more lethal to frogs than to weeds, and could have contributed to the global demise of amphibians within the past decades. **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/294 **(View 26)**	**Comment:** Terrestrial toxicity: A number of species of birds, mammals and beneficial insects suffer population loses through habitat and/or food supply destruction resulting from the use of glyphosate. There are also direct lethal and sublethal effects… Laboratory studies show significant effects on nitrogen fixation, denitrification and nitrification. **Response:** Please see the response to View 1. The reference link provided for this View did not work.

Letter #/ Comment #	Comment and Response
10/295 **(View 27)**	**Comment:** Regarding your article, Mystery of Disappearing Honeybees (*SiS* 34), I am a Dutch beekeeper in the east of the Netherlands near Germany, and we see the same problem with bees, as in Belgium, Germany, France and the whole of Europe. In the Netherlands the government is set to give permission for growing GMOs, even in such a very small country. It will cause a lot of damage: bad for biodiversity, the earth, water, air, drinking water and food. I just lost 68 percent of my bees, and I blame the city workers who sprayed glyphosate twice at the end of October last year. My beehives were 4 metres from the spray, whereas the legal distance is 200 metres. By the beginning of January 2008, the bees started to die. The municipal authorities in villages and small cities spray glyphosate on weeds in public places, gardens and footpaths. In big cities, they would use steam instead of weed killers. I did a 'test' in September 2007 with a bit of glyphosate, and within three or five minutes, the bees were dead. It is very important for the city workers to give people warning when they spray, but they never do. We must study the toxic effects of GMOs and glyphosate, for the sake of the next generation, our children, as well as the sick and old people. **Response:** Please see the response to View 1.
10/296 **(View 28)**	**Comment:** Glyphosate herbicides can have a range of impacts on human health, including genetic damage, skin tumours, thyroid damage, anaemia, headaches, nose bleeds, dizziness, tiredness, nausea, eye and skin irritation, asthma and breathing difficulties. Several studies have indicated a link between glyphosate herbicides and non-Hodgkin's lymphoma, a type of cancer. Not surprisingly, considering the amount of money that Monsanto makes from sales of glyphosate products, the company plays down the health risks of glyphosate. Monsanto claims that glyphosate herbicides pose only a "low risk to human health" as long as glyphosate is used "according to label directions". **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/297 **(View 29)**	**Comment:** A 1999 study, *A Case-Control Study of Non-Hodgkin Lymphoma and Exposure to Pesticides,* (American Cancer Society, 1999), found that people exposed to glyphosate are 2.7 times more likely to contract non-Hodgkin Lymphoma. A Finnish study shows that glyphostate decreases the defenses of enzymes of the liver and intestines.18 RoundUp, as a mixture of all its ingredients, has been shown to shut down a powerful antioxidant in the liver that detoxifies harmful compounds so they can be excreted through bile. A paper published in August 2000 shows that RoundUp alters gene expression and inhibits necessary steroid production by disrupting a particular protein expression. In 2002, a paper shows that RoundUp can also affect early cell division processes in embryos. **Response:** Please see the response to View 1.
10/298 **(View 30)**	**Comment:** The USDA first deregulated Roundup Ready alfalfa in 2005. Internal emails recently obtained by Truthout show that Monsanto worked closely with regulators to edit its original petition to deregulate the alfalfa. One regulator accepted Monsanto's help in conducting the USDA's original environmental assessment of the alfalfa. Farmers and biotech opponents soon filed a lawsuit against the USDA to challenge the initial deregulation. In 2007, a federal court ruled that the USDA did not consider the full environmental impacts of Roundup Ready alfalfa and vacated the agency's decision to deregulate the alfalfa. Monsanto and its allies appealed the decision, and last year, the Supreme Court reversed the lower court's ruling, but ordered the USDA to produce an Environmental Impact Statement (EIS) on the alfalfa before allowing it back into America's fields. The USDA released a final EIS on Roundup Ready alfalfa in late 2010, and the GE alfalfa was fully deregulated on January 27. The USDA went on to approve two more GE seeds within weeks of the alfalfa decision. Roundup Ready alfalfa was deregulated just weeks after USDA Secretary Tom Vilsack was pressed by Republican Congressmen, some of whom recently received campaign contributions from Monsanto and the biotech industry, to dump a proposal to geographically isolate Roundup Ready alfalfa from organic and conventional alfalfa and, instead, legalize the GE seed without any government oversight. The latest lawsuit filed by CFS and its allies argues that the final EIS ignores or downplays the threats Roundup Ready alfalfa poses to conventional alfalfa farms and the environment. **Response:** Please see the response to View 1. The reference link provided for this View did not work.
10/299 **(View 31)**	**Comment:** JH: You said you had found that very low doses of glyphosate had caused these effects on aromatase. Are they the kind of doses that would be used in practical agriculture in the European Union?" "GE-S: They are about ten to 100 times less than the doses used by agricultural workers. One has to be cautious because these are in vitro results but we do not want to wait for death when the precautionary principle suggests a need for measures to avoid any harmful effects on foetuses and children." **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/300 **(Vew 32)**	**Comment:** The December/January 2010 issue of The Organic & Non-GMO Report featured an interview with Robert Kremer, an adjunct professor in the Division of Plant Sciences at the University of Missouri, whose research showed negative environmental impacts caused by glyphosate, the main ingredient in Monsanto's Roundup herbicide, which is used extensively with Roundup Ready genetically modified crops." "The widespread use of glyphosate is causing negative impacts on soil and plants as well as possibly animal and human health. These are key findings of Don Huber, emeritus professor of plant pathology, Purdue University. **Response:** Please see the response to View 1.
10/301 **(View 33)**	**Comment:** There is, indeed, direct evidence that glyphosate inhibits RNA transcription in animals at a concentration well below the level that is recommended for commercial spray application. Transcription was inhibited and embryonic development delayed in sea urchins following exposure to low levels of the herbicide and/or the surfactant polyoxyethyleneamine. The pesticide should be considered a health concern by inhalation during spraying [4]." "New research shows that a brief exposure to commercial glyphosate caused liver damage in rats, as indicated by the leakage of intracellular liver enzymes. In this study, glyphosate and its surfactant in Roundup were also found to act in synergy to increase damage to the liver [5]. **Response:** Please see the response to View 1.
10/302 **(View 34a)**	**Comment:** In contrast to malathion, Roundup had strong direct effects on the tadpoles. Roundup caused a 40% reduction in total tadpole survival and biomass. The impact of Roundup (with POEA [polyethoxylated tallow-amine] surfactant) is consistent with previous laboratory studies in a variety of species. Mann and Bidwell (1999) estimated LC5048h at 3.9 to 15.5 mg active ingredient (AI)/L in four species of Australian tadpoles while Perkins et al. (2000) estimated LC5096h values of 12.4 mg AI/L in the African clawed frog *(Xenopus laevis).* In both studies, it was clear that the high toxicity of Roundup was caused by the POEA surfactant and not from the active ingredient (glyphosate). Lajmanovich et al. (2003) examined the impact of Kleeraway (another formulation of glyphosate that contains the POEA surfactant) on a South American tadpole *(Scinax nasicus)* and found an LC5048h of 1.74 mg AI/L. In North American tadpoles *(Bufo americanus, Rana pipiens,* and *R. clamitans),* Edginton et al. (2004) found LC5096h of 1.5–4.7 mg AI/l using Vision (a formulation that also includes the POEA surfactant). For the three species used in our mesocosm experiment, Relyea (2005*b*) found LC5016d values of 1.4 mg AI/L for gray tree frogs, 2.5 mg AI/L for American toads, and 2.5 mg AI/L for leopard frogs. All of this suggests that Roundup with the POEA surfactant can cause substantial mortality in larval amphibians. **Response:** Please see the response to View 1.
10/303 **(Vew 34b)**	**Comment:** The decline in amphibians across the globe has sparked a search for the causes, and recent evidence suggests a connection with pesticides. However, for most pesticides, tests on amphibians are rare and conducted only for short durations (1 to 4 days) and without natural stressors. Recent studies have discovered that the stress of predator cues in the water can make insecticides much more lethal to larval amphibians, but it is unknown whether this phenomenon can be generalized to other types of pesticides. Using six species of North American amphibian larvae *(Rana sylvatica, R. pipiens, R. clamitans, R. catesbeiana, Bufo americanus,* and *Hyla versicolor),* I examined the impact of a globally common herbicide (Roundup) on the survival of tadpoles for 16 days with and without the chemical cues emitted by predatory newts *(Notophthalmus viridescens).* LC5016-d estimates varied from 0.55 to 2.52 mg of active ingredient (AI)/L, which was considerably lower than the few previous studies using Roundup (1.5 to 15.5 mg AI/L). Moreover, in one of the six species tested (R. *sylvatica),* the addition of predatory stress made Roundup twice as lethal. This discovery suggests that synergistic interactions between predatory stress and pesticides may indeed be a generalizable phenomenon in amphibians that occurs with a wide variety of pesticides." **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/304 **(View 35)**	**Comment:** Species richness was reduced by 15% with Sevin, 30% with malathion, and 22% with Roundup, whereas 2,4-D had no effect. Both insecticides reduced zooplankton diversity by eliminating cladocerans but not copepods (the latter increased in abundance). The insecticides also reduced the diversity and biomass of predatory insects and had an apparent indirect positive effect on several species of tadpoles, but had no effect on snails. The two herbicides had no effects on zooplankton, insect predators, or snails. Moreover, the herbicide 2,4-D had no effect on tadpoles. However, Roundup completely eliminated two species of tadpoles and nearly exterminated a third species, resulting in a 70% decline in the species richness of tadpoles. This study represents one of the most extensive experimental investigations of pesticide effects on aquatic communities and offers a comprehensive perspective on the impacts of pesticides when nontarget organisms are examined under ecologically relevant conditions." **Response:**
10/305 **(View 36)**	**Comment:** He is joined in his conclusions by Robert Bellé, from the National Center for Scientific Research (CNRS) biological station in Roscoff (Finistere), whose team has been studying the impact of glyphosate formulations on sea-urchin cells for several years. This recognized model for the study of early stages of cancer genesis earned Tim Hunt the 2001 Nobel Prize in medicine. In 2002, the Finisterian team had shown that Roundup acted on one of the key stages of cellular division. The Breton team has recently demonstrated (*Toxicological Science*, December 2004) that a "control point" for DNA damage was affected by Roundup, while glyphosate alone had no effect. "We have shown that it's a definite risk factor, but we have not evaluated the number of cancers potentially induced, nor the time frame within which they would declare themselves," the researcher acknowledges. A sprayed droplet could affect thousands of cells. On the other hand, "the concentration in water and fruits is lower, which is rather reassuring. **Response:** Please see the response to View 1.
10/306 **(View 37)**	**Comment:** We have evaluated the toxicity of four glyphosate (G)-based herbicides in Roundup (R) formulations, from 105 times dilutions, on three different human cell types. This dilution level is far below agricultural recommendations and corresponds to low levels of residues in food or feed. The formulations have been compared to G alone and with its main metabolite AMPA or with one known adjuvant of R formulations, POEA. HUVEC primary neonate umbilical cord vein cells have been tested with 293 embryonic kidney and JEG3 placental cell lines. All R formulations cause total cell death within 24 h, through an inhibition of the mitochondrial succinate dehydrogenase activity, and necrosis, by release of cytosolic adenylate kinase measuring membrane damage. They also induce apoptosis via activation of enzymatic caspases 3/7 activity. This is confirmed by characteristic DNA fragmentation, nuclear shrinkage (pyknosis), and nuclear fragmentation (karyorrhexis), which is demonstrated by DAPI in apoptotic round cells. G provokes only apoptosis, and HUVEC are 100 times more sensitive overall at this level. The deleterious effects are not proportional to G concentrations but rather depend on the nature of the adjuvants. AMPA and POEA separately and synergistically damage cell membranes like R but at different concentrations. Their mixtures are generally even more harmful with G. In conclusion, the R adjuvants like POEA change human cell permeability and amplify toxicity induced already by G, through apoptosis and necrosis. The real threshold of G toxicity must take into account the presence of adjuvants but also G metabolism and time-amplified effects or bioaccumulation. This should be discussed when analyzing the in vivo toxic actions of R. This work clearly confirms that the adjuvants in Roundup formulations are not inert. Moreover, the proprietary mixtures available on the market could cause cell damage and even death around residual levels to be expected, especially in food and feed derived from R formulation-treated crops. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/307 **(View 38)**	**Comment:** We exposed human liver HepG2 cells, a well-known model to study xenobiotic toxicity, to four different formulations and to glyphosate, which is usually tested alone in chronic *in vivo* regulatory studies. We measured cytotoxicity with three assays (Alamar Blue®, MTT, ToxiLight®), plus genotoxicity (comet assay), anti-estrogenic (on ERα, ERβ) and anti-androgenic effects (on AR) using gene reporter tests. We also checked androgen to estrogen conversion by aromatase activity and mRNA. All parameters were disrupted at subagricultural doses with all formulations within 24 h. These effects were more dependent on the formulation than on the glyphosate concentration. First, we observed a human cell endocrine disruption from 0.5 ppm on the androgen receptor in MDA-MB453-kb2 cells for the most active formulation (R400), then from 2 ppm the transcriptional activities on both estrogen receptors were also inhibited on HepG2. Aromatase transcription and activity were disrupted from 10 ppm. Cytotoxic effects started at 10 ppm with Alamar Blue assay (the most sensitive), and DNA damages at 5 ppm. A real cell impact of glyphosate-based herbicides residues in food, feed or in the environment has thus to be considered, and their classifications as carcinogens/mutagens/reprotoxics is discussed. **Response:** Please see the response to View 1.
10/308 **(View 39)**	**Comment:** In the study published in the 15 March 1999 Journal of American Cancer Society, the researchers also maintain that exposure to glyphosate 'yielded increased risks for NHL.' They stress that with the rapidly increasing use of glyphosate since the time the study was carried out, 'glyphosate deserves further epidemiologic studies. **Response:** Please see the response to View 1.
10/309 **(View 40)**	**Comment:** There is, indeed, direct evidence that glyphosate inhibits RNA transcription in animals at a concentration well below the level that is recommended for commercial spray application. Transcription was inhibited and embryonic development delayed in sea urchins following exposure to low levels of the herbicide and/or the surfactant polyoxyethyleneamine. The pesticide should be considered a health concern by inhalation during spraying [4]." New research shows that a brief exposure to commercial glyphosate caused liver damage in rats, as indicated by the leakage of intracellular liver enzymes. In this study, glyphosate and its surfactant in Roundup were also found to act in synergy to increase damage to the liver [5]. Three recent case-control studies suggested an association between glyphosate use and the risk of non-Hodgkin lymphoma [6-8]; while a prospective cohort study in Iowa and North Carolina that includes more than 54 315 private and commercial licensed pesticide applicators suggested a link between glyphosate use and multiple myoeloma [9]. Myeloma has been associated with agents that cause either DNA damage or immune suppression. **Response:** Please see the response to View 1.
10/310 **(View 41)**	**Comment:** New scientific studies link Roundup (glyphosphate), the most widely used herbicide in the world, to a host of health risks, such as cancer, miscarriages and disruption of human sex hormones. **Response:** Please see the response to View 1.
10/311 **(View 42)**	**Comment:** A series of studies has found that farmers develop non-Hodgkin's lymphoma more often than other people do, but until now it has been difficult for scientists to explain why this increase occurs. New research, however, shows that exposure to the herbicide glyphosate, commonly sold as Roundup, is one explanation. The study was published in 2003 by researchers at the National Cancer Institute, the University of Nebraska Medical Center, Kansas University Medical Center, and the University of Iowa College of Medicine. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/312 **(View 43)**	**Comment:** This summary is derived almost entirely from toxicological studies on tadpoles and late-stage anuran embryos. The impact of glyphosate herbicides on other amphibians and other life stages is virtually unknown. • Recent studies have shown that tadpoles are one of the vertebrate groups most sensitive to the toxicity effects of most commercial formulations of glyphosate herbicides, including Vision. • The estimated LC50 values for some species of amphibians are at or below the expected environmental concentration (EEC) of 1.43 mg a.e./L of Vision (Table 1). Most LC50 values are calculated from experimental durations of 24 to 96 hours, but at low concentrations death may not occur until after 96 hours. This suggests that amphibians may be even more sensitive than the published LC50 values suggest. • Although LC50 values have traditionally been used to set hazard quotients, recent risk analysis methodology suggests that LC10 values are better for judging population-level impacts of environmental contaminants (Solomon and Thompson 2003). In at least one published study, all North American amphibian larvae tested to date had LC10 values estimated at or below the EEC for Vision, especially at pH higher than 7.0. • In addition to direct mortality effects, glyphosate herbicides also cause sublethal effects, including reduced growth and development rates, behavioural impairment, and genomic effects. The populationlevel consequences of these sublethal effects have not been tested under field conditions. For example, reduced growth and development rates, which have been documented under laboratory conditions, could translate into increased mortality if amphibian larvae are unable to metamorphose before the end of the season. Similarly, impaired behavioural response to prodding under laboratory conditions could translate to increased susceptibility to predators under field conditions. • Impacts have been shown to be synergistically enhanced by interaction with some environmental factors. Of particular concern is that the effects of glyphosate herbicide may be greater when pond pH is 7 or higher (Edginton et al. 2004a). Amphibians in general avoid acidic conditions, preferring to breed in ponds with higher pH, which could increase their vulnerability to glyphosate herbicide impacts. • More detailed toxicological studies indicate that the toxicity of glyphosate herbicides arises not from the active ingredient, glyphosate, but from the surfactant, POEA. • POEA is thought to interfere with the synthesis of collagen and to reduce the branchial cartilage in the gills of tadpoles and to cause lysis of gill epithelial cells in fish. This could result in loss of osmotic stability and asphyxiation. The toxic mode of action in terrestrial, postmetamorphic amphibians is not known at formulations without POEA surfactants, such as Rodeo, and formulations with other surfactants, such as Roundup Biactive, have reduced toxicity to amphibians. **Response:** Please see the response to View 1.
10/313 **(View 44)**	**Comment:** Chronic Effects of Glyphosate versus Formulations: Throughout this study glyphosate itself showed no chronic effects on developing tadpoles. The tadpoles reared in the formulations Roundup Original® and Transorb® did show significant physical abnormalities. Abnormalities were also found upon exposure to the surfactant POEA. For all endpoints POEA showed practically identical results to the Roundup Original® formulation whereas the same cannot be said for the Transorb® formulation. The surfactant used in the Transorb formulation is not known (being protected as “Trade Secret”), but has been described as a “surfactant blend”. This “surfactant blend” may be responsible for inhibition of metamorphosis, as well as the skewed sex ratio towards female seen in the present study. Developmental abnormalities induced by Roundup are likely a result of endocrine disruption. The thyroid axis can be greatly affected by corticoids and sex steroids which influence hypothalamic and pituitary control (See Dodd and Dodd, 1976, and Hayes, 1997 for review). Corticoids, sex steroids and prolactin have caused delayed metamorphosis and decreased size by both antagonizing and inhibiting thyroid action (Hayes, 1997). Sex steroid can induced sex reversal and intersex in amphibians and mammals, while low thyroid levels interfere with vitellogenesis. A concentration at which the animals were not effected (NOEC) by The Roundup formulations was not determined by this study. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/314 **(Vew 45)**	**Comment:** Concern #1: Roundup is only intended for terrestrial use, not aquatic use While it may be intended for terrestrial use, there is overwhelming evidence that Roundup gets into aquatic habitats, typically through inadvertent (or unavoidable) aerial overspray (Newton et al. 1984, Goldsborough and Brown 1989, Feng et al. 1990, Thompson et al. 2004). To determine the effect on amphibians, Relyea (2005a) simulated a direct overspray of a small wetland using pond mesocosms (1000-liter tanks). The result was widespread death for many species and the death rate was much higher than expected based on previous studies of Roundup. It is relatively common knowledge that Roundup should not be applied to large ponds and lakes, but it seems to be much less commonly appreciated that many amphibians are not produced in large ponds and lakes due to predation by fish. Instead, small temporary wetlands that may appear to be unimportant and only have 6" of water can, in fact, produce thousands of tadpoles. These small, temporary pools are either not avoided or not avoidable by aerial pesticide applications. Moreover, Roundup is not only lethal to amphibian larvae. New studies have found that Roundup can be highly lethal to terrestrial amphibians as well (Relyea 2005c)." **"Concern #2: The application rate of Roundup was 7 times too high** The application rate of 6 ounces per 300 square feet came directly from the label of Monsanto's "Roundup Weed and Grass Killer". What Monsanto is claiming is that the application rate for this Roundup is higher than their listed application rate for other forms of Roundup. However, both application rates come from Monsanto. Moreover, it is well accepted by Monsanto and the applicators of Roundup that some types of weeds require up to four times the recommended application rate to be effective." **"Concern #4: A past risk assessment has shown that Roundup poses minimal risk to amphibians** The risk assessment was conducted by Giesy et al. (2000), in cooperation with Monsanto, and the assessment was based on the available data at that time. For amphibians, data only existed for four species of Australian tadpoles and one species of African frog. From these studies, the LC50 estimates (the amount of pesticide needed to kill 50% of the animals) were 4 to 16 mg a.i./L (Mann and Bidwell 1999, Perkins et al. 2000). More recent LC50 laboratory data for North American amphibians demonstrate that North American amphibians are much more sensitive; LC50 values range from 0.5 to 4.7 mg a.i./L (Edginton et al. 2004, Relyea 2005b). According to U.S. Fish and Wildlife classifications, this means that Roundup can no longer be considered slightly to moderately toxic, but rather moderately to highly toxic to North American amphibians. **Response:** Please see the response to View 1.
10/315 **(View 46)**	**Comment:** Based on the best available information, the Agency makes a Likely to Adversely Affect determination for the CRLF from the use of glyphosate. Additionally, the Agency has determined that there is the potential for modification of CRLF designated critical habitat from the use of the chemical. This assessment indicates that direct effects to the terrestrial-phase CRLF eating broadleaf plants, small insects and small herbivorous mammals on a dietary-basis may be at risk following chronic exposure to glyphosate at application rates of 7.5 lb a.e./A and above (forestry, areas with impervious surfaces and rights of way). In addition, for one particular formulation (Registration No. 524-424), medium and large-sized CRLF's eating small herbivorous mammals on a dose-basis may be at risk following acute exposure at an application rate of 5.5 lb formulation/A (industrial outdoor uses). At the lowest application rate of 1.1 lb formulation/A, there is potential risk to medium-sized CRLF's eating small herbivorous mammals on a dose-basis (ornamental lawns and turf). **Response:** Please see the response to View 1.
10/316 **(View 47)**	**Comment:** Glyphosate is the poster child for the global pesticide controversy due to its place in the ongoing debate over mega-farming and genetically engineered crops. Industry scientists say it's one of the safest herbicides in the world, while independent scientists have discovered potential links among the widespread use of glyphosate-based herbicides and non-Hodgkin's lymphoma, birth defects and even attention deficit disorder. Research also shows that additives like surfactants in glyphosate in herbicides like Roundup are more toxic than glyphosate itself and can increase the toxicity of glyphosate." "The war on invasive species is a war on a fact of life. Humans have caused or exacerbated these species "invasions" by changing habitats and introducing species to new areas, and now we are trying to turn back the clock in an attempt to prevent nature from taking its new course. As long as people attempt to dominate the land, extract its resources and shape it to their liking, there will be money to be made and dramatic consequences for other livings things. The search for a balance between supporting our collective desire to prosper and a healthy natural world is sure to spark more heated debates for years to come. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/317 **(View 48)**	**Comment:** We also observed a gradual loss of the r3 and r5domains in embryos treated with GBH (compare Figure 5E,Fwith D), which resembles the results observed in frog embryosin the krox-20 domains (Figures 1B and 2E). Hybridization withthe c-shh probe showed that, as in Xenopus, the prechordalmesoderm domain is preferentially lost in GBH-treated chickembryos (compare Figure 5G with H,I). As the GBH concentra-tion increases, the expression along the embryonic dorsal midlinealso gradually disappears (Figure 5H,I).Therefore, our experiments with chick embryos further extendconclusions from studies about the teratogenic effects of GBHin amphibians to other vertebrate species.DiscussionThe results presented above argue that both GBH andglyphosate itself interfere with key molecular mechanismsregulating early development in both Xenopus and chickenembryos, leading to congenital malformations. Sublethal dosesof the herbicide (430 µM of glyphosate in 1/5000 dilutions ofGBH) and injections leading to a final concentration of 8 to 12µM of glyphosate in the injected side of the embryo weresufficient to induce serious disturbances in the expression ofslug, otx2, and shh. These molecular phenotypes were correlatedwith a disruption of developmental mechanisms involving theneural crest, embryonic dorsal midline formation, and cephalicpatterning. Because glyphosate penetration through the cellmembrane requires facilitation by adjuvants present in commercial formulations (5, 6), we tested the effects of glyphosatealone by directly microinjecting it into Xenopus embryos. Thesimilarity of the phenotypes obtained in both situations suggeststhat they are attributable to the active principle of GBH andnot to the adjuvants.We will discuss our results in the following context: (1) thecorrelation of our phenotypes with those observed in animalmodels with an impairment of RA signaling or deficits in theexpression of critical genes that control embryonic development;(2) the probable mechanisms underlying the phenotypes inducedby GBH and glyphosate; (3) possible correlations with clinicalcases of human offspring exhibiting malformations in zonesexposed to GBH.Misregulation of RA, shh, and otx2 Are Involved inCephalic Malformations and Neural Crest-Derived Pheno-types Reminiscent of the Effects of GBH and Glyphosate.The phenotypes obtained after GBH treatments or injections ofglyphosate alone are strikingly reminiscent of those observedas a consequence of an excess of RA signaling in vertebratesand humans. Acute or chronic increase of RA levels leads toteratogenic effects during human pregnancy and in experimentalFigure 4. Phenotype induced by GBH is mediated by an increase ofRA signaling (A). Analysis of RA activity with the reporter plasmidRAREZ. All embryos were injected with the reporter plasmid RAREZ,except for uninjected controls, and left untreated or were treated asindicated in the figure until stage 14- 15, when they were processed.Results are expressed as arbitrary luminiscence units per µg of protein.A two-tailed t test was employed to analyze the significance in thedifference of the means. ** $p < 0.01$; *** $p < 0.0001$. (B-G) WMISHfor shh and otx2 at tailbud stages. (B) Control embryo. Notochord (n);floor plate (fp); brain (space between bars), eye (arrowhead). (C)Embryo treated with 1/5000 GBH manifesting microcephaly (spacebetween bars), reduced eyes (arrowhead), diminished Shh signalingfrom the prechordal mesoderm (arrow), and shortened A-P axis (78%,n)9). **Response:** Please see the response to View 1.
10/318 **(View 49)**	**Comment:** Although there is only a handful of studies on the safety of GM soybeans, there is considerable evidence that glyphosate—especially in conjunction with the other ingredients in Roundup—wreaks havoc with the endocrine and reproductive systems. 'I think the concentration of glyphosate in the soybeans is the likely cause of the problem,' says Ewen. Glyphosate throws off the delicate hormonal balance that governs the whole reproductive cycle. 'It's an endocrine buster,' says Ewen, 'that interferes with aromatase, which produces estrogen.' Aromatase is required by luteal cells to produce hormones for the normal menstrual cycle, but it's those luteal cells that have shown considerable alterations in the rats fed GM soybeans. Glyphosate is also toxic to the placenta, the organ which connects the mother to the fetus, providing nutrients and oxygen, and emptying waste products. In a 2009 French study at the University of Caen, scientists discovered that glyphosate can kill the cells in the outer layer of the human placenta (the trophoblast membrane), which in turn can kill the placenta. The placenta cells are, in Ewen's words, 'exquisitely sensitive to glyphosate.' Only 1/500th the amount needed to kill weeds was able to kill the cells. The amount is so small, according to the study authors the 'residual levels to be expected, especially in food and feed derived from R[oundup] formulation-treated crops' could be enough to 'cause cell damage and even [cell] death.' Furthermore, the effect of the toxin may bioaccumulate, growing worse with repeated consumption from Roundup laden foods. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/319 **(View 50)**	**Comment:** Such reports gained further traction after an Argentine government scientist, Andres Carrasco conducted a study, "Glyphosate-Based Herbicides Produce Teratogenic Effects on Vertebrates by Impairing Retinoic Acid Signaling" in 2009. The study, published in the journal Chemical Research in Toxicology in 2010, found that glyphosate causes malformations in frog and chicken embryos at doses far lower than those used in agricultural spraying. It also found that malformations caused in frog and chicken embryos by Roundup and its active ingredient glyphosate were similar to human birth defects found in genetically modified soy-producing regions. "The findings in the lab are compatible with malformations observed in humans exposed to glyphosate during pregnancy," wrote Carrasco, director of the Laboratory of Molecular Embryology at the University of Buenos Aires. "I suspect the toxicity classification of glyphosate is too low." " "Fagan told HuffPost that among developmental biologists who are not beholden to the chemical industry or the biotechnology industry, there is strong recognition that Carrasco's research is credible. "For me as a scientist, one of the reasons I made the effort to do this research into the literature was to really satisfy the question myself as to where the reality of the situation lies," he added. "Having thoroughly reviewed the literature on this, I feel very comfortable in standing behind the conclusions Professor Carrasco came to and the broader conclusions that we come to in our paper." "We can't figure out how regulators could have come to the conclusions that they did if they were taking a balanced took at the science, even the science that was done by the chemical industry itself. **Response:** Please see the response to View 1.
10/320 **(View 51)**	**Comment:** This study was just routine," said Russian biologist Alexey V. Surov, in what could end up as the understatement of this century. Surov and his colleagues set out to discover if Monsanto's genetically modified (GM) soy, grown on 91% of US soybean fields, leads to problems in growth or reproduction. What he discovered may uproot a multi-billion dollar industry. After feeding hamsters for two years over three generations, those on the GM diet, and especially the group on the *maximum* GM soy diet, showed devastating results. By the third generation, most GM soy-fed hamsters lost the ability to have babies. They also suffered slower growth, and a high mortality rate among the pups. And if this isn't shocking enough, some in the third generation even had hair growing inside their mouths—a phenomenon rarely seen, but apparently more prevalent among hamsters eating GM soy. "In addition to the GMOs, it could be contaminants, he said, or higher herbicide residues, such as Roundup. There is in fact much higher levels of Roundup on these beans; they're called "Roundup Ready." Bacterial genes are forced into their DNA so that the plants can tolerate Monsanto's Roundup herbicide. Therefore, GM soy always carries the double threat of higher herbicide content, couple with any side effects of genetic engineering. Without detailed tests, no one can pinpoint exactly what is causing the reproductive travesties in Russian hamsters and rats, Italian and Austrian mice, and livestock in India and America. And we can only speculate about the relationship between the introduction of genetically modified foods in 1996, and the corresponding upsurge in low birth weight babies, infertility, and other problems among the US population. But many scientists, physicians, and concerned citizens don't think that the public should remain the lab animals for the biotech industry's massive uncontrolled experiment. Alexey Surov says, "We have no right to use GMOs until we understand the possible adverse effects, not only to ourselves but to future generations as well. We definitely need fully detailed studies to clarify this. Any type of contamination has to be tested before we consume it, and GMO is just one of them. **Response:** Please see the response to View 1.
10/321 **(View 52)**	**Comment:** A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name "Round Up," causes birth defects when applied in doses much lower than what is commonly used in soy fields. The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in the nation's top medical school, Dr. Carrasco shows me the results of the study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects—one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed. "We injected the amphibian embryo cells with glyphosate diluted to a concentration 1,500 times than what is used commercially and we allowed the amphibians to grow in strictly controlled conditions." Dr. Carrasco reports that the embryos survived from a fertilized egg state until the tadpole stage, but developed obvious defects which would compromise their ability to live in their normal habitats. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/322 **(View 53)**	**Comment:** A study released by an Argentine scientist earlier this year reports that glyphosate, patented by Monsanto under the name "Round Up," causes birth defects when applied in doses much lower than what is commonly used in soy fields. The study was directed by a leading embryologist, Dr. Andres Carrasco, a professor and researcher at the University of Buenos Aires. In his office in the nation's top medical school, Dr. Carrasco shows me the results of the study, pulling out photos of birth defects in the embryos of frog amphibians exposed to glyphosate. The frog embryos grown in petri dishes in the photos looked like something from a futuristic horror film, creatures with visible defects-one eye the size of the head, spinal cord deformations, and kidneys that are not fully developed. **Response:** Please see the response to View 1.
10/323 **(View 54)**	**Comment:** Relyea found that Roundup caused a 70 percent decline in amphibian biodiversity and an 86 percent decline in the total mass of tadpoles. Leopard Frog tadpoles and Gray Treefrog tadpoles were completely eliminated and Wood Frog tadpoles and toad (Bufo) tadpoles were nearly eliminated. One species of frog, Spring Peepers, was unaffected. "The most shocking insight coming out of this was that Roundup, something designed to kill plants, was extremely lethal to amphibians," said Relyea, who conducted the research at Pitt's Pymatuning Laboratory of Ecology. "We added Roundup, and the next day we looked in the tanks and there were dead tadpoles all over the bottom. **Response:** Please see the response to View 1.
10/324 **(View 55)**	**Comment:** The EPA has twice caught scientists deliberately falsifying results at research laboratories hired by Monsanto to study glyphosate. In 1983, the EPA revealed that Industrial Biotest Laboratories (IBL) routinely falsified results of their 1971 research performed on glyphosate. Tests performed at IBL included eleven out of nineteen total chronic toxicology studies on glyphosate; studies instrumental in its retaining registration in 1974. In 1991, the EPA alleged that Craven Laboratories, another lab hired by Monsanto to study the effects of glyphosate, had falsified test results. Several methods were used, including manipulation of equipment and notebook entries." "Alaska has an economic and cultural dependence on the welfare of salmon and other fish species, so it is particularly vital for Alaskans to know that glyphosate, and even more so glyphosate herbicides, are acutely toxic to fish. The toxicity of glyphosate, which is most potently dangerous to younger fish, increases as water temperature rises. Ironically, the use of glyphosate causes water temperatures to increase for several years following treatment, as the herbicide kills shading vegetation. This is significant in more than one way for salmon, as juvenile salmon require cold water to thrive under even normal environmental circumstances. The effects of glyphosate on fish have been documented using rainbow trout, which exhibited erratic swimming and labored breathing, effects which can increase the risk that fish will be eaten, as well as affecting ability to feed, migrate, and reproduce. **Response:** Please see the response to View 1.
10/325 **(View 56)**	**Comment:** Worldwide, amphibian populations are reported to be in a state of decline. Causative factors are incompletely understood. In ecosystems of northeastern North America, multiple stressors of pesticide contamination and acidification may be involved. As an initial component of a multi-tier investigation, the effects of forest-use herbicides Vision® (glyphosate) andRelease® (triclopyr) are being studied using *Xenopus laevis*, *Rana pipiens* and *Rana clamitans*. Two different life stages of amphibians, embryos (blastula stage) and larvae (Gosner stage 25), are being used. Interactive effects of various herbicide concentrations and pH (5.5 and 7.5) are being studied using the organisms exposed in 96hr static renewal tests. The Frog Embryo Teratogenesis Assay - Xenopus (FETAX) protocol is used for the embryo stage for the determination of mortality, malformation and growth data. The larval exposures are being developed and refined to compare sensitivities to the FETAX assay. The larval 96hr static renewal exposure is followed by a 10-day water-only recovery period. Sensitivities are being compared to determine the appropriateness of the exotic amphibian *Xenopus laevis* for toxicity testing. Results on toxicity to date indicate that Vision® is more toxic to all species at pH 7.5 than at pH 5.5. The reverse has been shown for Release®. In addition, the larval stage has consistently been shown to be more sensitive than the blastula stage. Understanding species sensitivities and herbicide/pH interactions will aid in altering forestry herbicide use patterns to minimize effects on amphibians and other nontarget organisms. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/326 **(View 57)**	**Comment:** We have evaluated the toxicity of four glyphosate (G)-based herbicides in Roundup (R) formulations, from 105 times dilutions, on three different human cell types. This dilution level is far below agricultural recommendations and corresponds to low levels of residues in food or feed. The formulations have been compared to G alone and with its main metabolite AMPA or with one known adjuvant of R formulations, POEA. HUVEC primary neonate umbilical cord vein cells have been tested with 293 embryonic kidney and JEG3 placental cell lines. All R formulations cause total cell death within 24 h, through an inhibition of the mitochondrial succinate dehydrogenase activity, and necrosis, by release of cytosolic adenylate kinase measuring membrane damage. They also induce apoptosis via activation of enzymatic caspases 3/7 activity. This is confirmed by characteristic DNA fragmentation, nuclear shrinkage (pyknosis), and nuclear fragmentation (karyorrhexis), which is demonstrated by DAPI in apoptotic round cells. G provokes only apoptosis, and HUVEC are 100 times more sensitive overall at this level. The deleterious effects are not proportional to G concentrations but rather depend on the nature of the adjuvants. AMPA and POEA separately and synergistically damage cell membranes like R but at different concentrations. **Response:** Please see the response to View 1.
10/327 **(View 58)**	**Comment:** Case example: Okanogan NF Integrated Weed Management Environmental Assessment (EA) (1997, 1999) The Okanogan NF Integrated Weed Management EA for 1997 received many comments from the public asking for documentation and analysis of the risks of herbicides to human health and safety, yet all of these concerns for safety were lumped into a single issue on p. 15-16: Noxious weed populations can degrade recreational experiences by decreasing the desirability of campsites, replacing native plant populations in developed and dispersed areas and changing the scenery. Herbicide contact could pose risks to human health through skin exposure, inhalation, or ingestion. Some noxious weeds also pose risks to human health. The marginalization of human health as mere "issues" rather than actual hazards suggests that there was never any intention of questioning the safety or use of herbicides, except in a very limited fashion, and this is borne out in the analysis section. Two years later the Okanogan NF prepared a second EA (1999) and through another public comment process, the issues identified through public comments were exactly the same. Why are the issues of public health ignored? According to the rationalization given in the EA (Okanogan NF, 1997, p. 17), public comments were addressed in a "higher level document". In other words, concerns about human health and safety were not considered in the EA. By its limited scope, the agency effectively avoids having to consider issues that it doesn't want to. The purpose of an EA is to assess a problem, propose and evaluate alternatives and select the most effective remedy, which should be the least harmful to the environment. In this case, the alternative to use herbicides had been selected prior to doing an analysis. The EA was only used to justify a predetermined decision rather than truly explore alternatives. **Response:** This report is a critical examination of current (2001) policies, plans, and programs for managing invasive species in the Pacific Northwest. The report is divided into discussion topics and provides operating principles, case examples, and recommended solutions. Chapter 3 includes a discussion of adverse impacts of chemicals on human health and the environment, safety precautions for handling chemicals and public notification. The excerpt above is a case example on the Okanogan NF taken from the section on adverse health impacts. The Nez Perce National forest followed regulation and policy in its analysis of noxious weed treatments in the 1988 noxious weed treatment EA and DN/FONSI.
10/328 **(View 59)**	Comment: In one study, for instance, we exposed neural stage embryos and newly hatched tadpoles of green frogs to low levels of the herbicide glyphosate. Following 96 hours of exposure to the herbicide, surviving animals were moved to fresh water. Nominal glyphosate concentrations of 1.2 to 4.0 ppm initially caused tadpoles paralysis from which they eventually recovered. During the first 24 hours of exposure to 8.0 ppm, all tadpoles either died or were completely paralysed. Furthermore, almost all of the survivors from the first 24 hours of exposure died before the completion of the 96-hour exposure period. Follow-up tests indicated that much of the toxicity could be attributed to the surfactant used in the RoundUp® formulation of glyphosate." **Response:** Please see the response to View 1.
10/329 **(View 60)**	**Comment:** BUENOS AIRES – The herbicide used on genetically modified soy – Argentina's main crop – could cause brain, intestinal and heart defects in fetuses, according to the results of a scientific investigation released Monday. Although the study "used amphibian embryos," the results "are completely comparable to what would happen in the development of a human embryo," embryology professor Andres Carrasco, one of the study's authors, told Efe." "Carrasco said that the research found that "pure glyphosate, in doses lower than those used in fumigation, causes defects ... (and) could be interfering in some normal embryonic development mechanism having to do with the way in which cells divide and die." " "The companies say that drinking a glass of glyphosate is healthier than drinking a glass of milk, but the fact is that they've used us as guinea pigs," he said." **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/330 **(View 61)**	**Comment:** Recognizing the threat posed by expanding use of dangerous pesticides across 18 western states, competition from invading bullfrogs, nonnative diseases, and loss of wetlands, the U.S. Fish and Wildlife Service will announce tomorrow their conclusion that western populations of the northern leopard frog may warrant protection under the Endangered Species Act." "The use of Roundup (a proprietary herbicide containing glyphosate), which is lethal to amphibians even at recommended levels according to recent studies, also threatens the western leopard frog. Roundup Ready crops (resistant to Roundup so the herbicide can be broadly applied to kill weeds) comprise a significant portion of crop acreage in the midwestern United States. In 2004, Roundup Ready soybean crops comprised 89 percent of all soybean crops in Iowa, 82 percent in Minnesota, 92 percent in Nebraska, 82 percent in North Dakota, and 95 percent in South Dakota. **Response:** Please see the response to View 1.
10/331 **(View 62)**	**Comment:** Eduardo Neaves, a 12-year-old, went swimming in a canal in Coral Gables, Florida that was contaminated with four times the recommended amount of RoundUp herbicide. The child became completely paralyzed, and five years after the incident suffers residual nervous system damage. The EPA, according to this article, in 1985 reported on the case of a 59- year-old woman in Tennessee who has suffered central nervous system damage after exposure to RoundUp. Monsanto's original neurotoxicity studies on RoundUp were ruled invalid by the EPA due to "extensive gaps in the raw data supporting study findings and conclusions. There has been no requirement for a new study on the neurotoxicity of RoundUp. **Response:** Please see the response to View 1.
10/332 **(View 63)**	**Comment:** A group of international scientists has released a report detailing health and environmental hazards from the cultivation of genetically modified (GM) Roundup Ready soy and the use of glyphosate (Roundup®) herbicide. The report, GM Soy: Sustainable? Responsible?,[1] highlights new research by Argentine government scientist, Professor Andrés Carrasco,[2] which found that glyphosate causes malformations in frog and chicken embryos at doses far lower than those used in agricultural spraying. "The findings in the lab are compatible with malformations observed in humans exposed to glyphosate during pregnancy," said Carrasco." **Response:** Please see the response to View 1.
10/333 **(View 64)**	**Comment:** Three recent studies show that Roundup, which is used by farmers and home gardeners, is not the safe product we have been led to trust. A group of scientists led by biochemist Professor Gilles-Eric Seralini from the University of Caen in France found that human placental cells are very sensitive to Roundup at concentrations lower than those currently used in agricultural application. An epidemiological study of Ontario farming populations showed that exposure to glyphosate, the key ingredient in Roundup, nearly doubled the risk of late miscarriages. Seralini and his team decided to research the effects of the herbicide on human placenta cells. Their study confirmed the toxicity of glyphosate, as after eighteen hours of exposure at low concentrations, large proportions of human placenta began to die. Seralini suggests that this may explain the high levels of premature births and miscarriages observed among female farmers using glyphosate." **Response:** Please see the response to View 1.
10/334 **(View 65)**	**Comment:** A Colombian court on Friday ordered the government to suspend immediately aerial spraying of drug crops with the herbicide glyphosate, a potential blow to President Andres Pastrana's anti-cocaine offensive. Bogota Judge Gilberto Reyes Delgado, ruling in favor of indigenous groups that had protested the spraying program, said he had asked the government to provide studies on glyphosate's effects on the environment and human health." "Ecuador recently asked Colombia to stop aerial crop spraying near the border the two nations share over fears glyphosate could harm Ecuadoreans' health and damage subsistence crops in the region's jungle towns. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/335 **(View 66)**	**Comment:** In short, Monsanto's Roundup Ready technology is emerging as an environmental disaster. The question isn't why a judge demanded an environmental impact study of Roundup Ready sugar beets in 2010; it's that no one did so in 1996 before the technology was rolled out. After all, the Union of Concerned Scientists was already quite, well, concerned back then." "As I wrote in June, rather than spark a reassessment of the wisdom of relying on toxic chemicals, the failure of Roundup Ready has the U.S. agricultural establishment scrambling to intensify chemical use. Companies like Dow Agriscience are dusting off old, highly toxic poisons like 2, 4-D and promoting them as the "answer" to Roundup's problems." **Response:** Please see the response to View 1.
10/336 **(View 67)**	**Comment:** Glyphosate is no more than slightly toxic to fish, and practically non-toxic to amphibians (McComb 1990) and aquatic invertebrate animals." (page 4) "For glyphosate and its formulations, findings are from studies conducted by the manufacturer. These studies have been presented to EPA to support product registration, but may not be available to the public. (page 5) "Since the 1988 rating, EPA has concluded that glyphosate should be classified as having evidence of noncarcinogenicity for humans. There was no convincing evidence of carcinogenicity in new studies in two animal species (Dykstra and Ghali 1991). **Response:** Please see the response to View 1.
10/337 **(View 68)**	**Comment:** Two new studies indicate that Monsanto's herbicide, Roundup, is a hormone-disruptor and is associated with birth defects in humans. Farm families that applied pesticides to their crops in Minnesota were studied to see if their elevated exposure to pesticides caused birth defects in their children. The study found that two kinds of pesticides -- fungicides and the herbicide Roundup -- were linked to statistically significant increases in birth defects. Roundup was linked to a 3-fold increase in neurodevelopmental (attention deficit) disorders. [EHP Supplement 3, Vol. 110 (June 2002), pgs. 441-449.] "A recent test tube study reveals that Roundup can severely reduce the ability of mouse cells to produce hormones. Roundup interferes with a fundamental protein called StAR (steroidogenic acute regulatory protein). The StAR protein is key to the production of testosterone in men (thus controlling male characteristics, including sperm production) but also the production of adrenal hormone (essential for brain development), carbohydrate metabolism (leading to loss or gain of weight), and immune system function. The authors point out that "a disruption of the StAR protein may underlie many of the toxic effects of environmental pollutants." [EHP Vol. 108, No. 8 (August 2000), pgs. 769-776.] **Response:** Please see the response to View 1.
10/338 **(View 69)**	**Comment:** Tests done on glyphosate to meet registration requirements have been associated with fraudulent practices. Laboratory fraud first made headlines in 1983 when EPA publicly announced that a 1976 audit had discovered "serious deficiencies and improprieties" in toxicology studies conducted by Industrial Biotest Laboratories (IBT).44 Problems included "countless deaths of rats and mice that were not reported," "fabricated data tables," and "routine falsification of data."44 IBT was one of the largest laboratories performing tests in support of pesticide registrations.44 About 30 tests on glyphosate and glyphosatecontaining products were performed by IBT, including 11 of the 19 chronic toxicology studies.45 A compelling example of the poor quality of IBT data comes from an EPA toxicologist who wrote, "It is also somewhat difficult not to doubt the scientific integrity of a study when the IBT stated that it took specimens from the uteri (of male rabbits) for histopathological examination."46 (Emphasis added.) In 1991, laboratory fraud returned to the headlines when EPA alleged that Craven Laboratories, a company that performed contract studies for 262 pesticide companies including Monsanto, had falsified test results.47 "Tricks" employed by Craven Labs included "falsifying laboratory notebook entries" and "manually manipulating scientific equipment to produce false reports."48 Roundup residue studies on plums, potatoes, grapes, and sugarbeets were among the tests in question.49 The following year, the owner/president of Craven Laboratories and three employees were indicted on 20 felony counts. A number of other employees agreed to plead guilty on a number of related charges.50 The owner was sentenced to five years in prison and fined $50,000; Craven Labs was fined 15.5 million dollars, and ordered to pay 3.7 million dollars in restitution.48 Although the tests of glyphosate identified as fraudulent have been replaced, these practices cast shadows on the entire pesticide registration process. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/339 **(View 70)**	**Comment:** In 2004 the "Counterpart Regulations," strongly supported by industry, were proposed to streamline EPA's pesticide review process at the expense of the most vulnerable life forms in our country, Endangered and Threatened Species aka Listed Species (1,265 species are "Listed"). The critical change these regulations bring about is elimination of the requirement for consultations with wildlife experts at the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) by EPA reviewers evaluating adverse impacts of pesticides on Listed Species and their habitats. RCC opposed the Counterpart Regulations with comments, but, sadly, the Regulations were issued in final form on July 29, 2004, despite our objections. Over 125,000 public comments were received by the Fish and Wildlife Service, and they ran 2 to 1 against the Counterpart Regulations. RCC Insight: Apparently, the public's concerns did not make a difference to the people at FWS and NMFS, or did they? We wonder whether the scientists involved with protecting wildlife at both "Services" would want to be bringing their experience and knowledge to bear on decisions made by EPA with respect to pesticides, if it were up to them. Perhaps they would prefer to be part of the evaluation process and they do not concur with finalizing the Counterpart Regulations. However, the fact is that decision-makers, by finalizing these changes, support an action that will weaken Endangered Species' protection from poisoning and habitat degradation due to pesticides. This latest environmental rollback can mean increasingly hazardous conditions in rivers, lakes and wetlands. A further risk is weakening of the Endangered Species Act itself. (Text of our "Comments" is available through our website -- rachelcarsoncouncil.com) **Response:** Consultation for the Biological Assessment – Herbicide Treatment of Invasive and Noxious Weeds on the Nez Perce National Forest (2013-2022) is ongoing.
10/340 **(View 71)**	**Comment:** Used in yards, farms and parks throughout the world, Roundup has long been a top-selling weed killer. But now researchers have found that one of Roundup's inert ingredients can kill human cells, particularly embryonic, placental and umbilical cord cells. Until now, most health studies have focused on the safety of glyphosate, rather than the mixture of ingredients found in Roundup. But in the new study, scientists found that Roundup's inert ingredients amplified the toxic effect on human cells—even at concentrations much more diluted than those used on farms and lawns. One specific inert ingredient, polyethoxylated tallowamine, or POEA, was more deadly to human embryonic, placental and umbilical cord cells than the herbicide itself – a finding the researchers call "astonishing." "The research team suspects that Roundup might cause pregnancy problems by interfering with hormone production, possibly leading to abnormal fetal development, low birth weights or miscarriages. Monsanto, Roundup's manufacturer, contends that the methods used in the study don't reflect realistic conditions and that their product, which has been sold since the 1970s, is safe when used as directed. Hundreds of studies over the past 35 years have addressed the safety of glyphosate. "Roundup has one of the most extensive human health safety and environmental data packages of any pesticide that's out there," said Monsanto spokesman John Combest. "It's used in public parks, it's used to protect schools. There's been a great deal of study on Roundup, and we're very proud of its performance." The EPA considers glyphosate to have low toxicity when used at the recommended doses. "Risk estimates for glyphosate were well below the level of concern," said EPA spokesman Dale Kemery. The EPA classifies glyphosate as a Group E chemical, which means there is strong evidence that it does not cause cancer in humans. **Response:** Please see the response to View 1.
10/341 **(View 72)**	**Comment:** However, the U.S. government regulatory agencies seem to have given Monsanto a long rope. The clout Monsanto enjoys in the U.S. government is by no means incidental. According to the Organic Consumers Association, Clarence Thomas, before being the Supreme Court Judge who put George W. Bush in office (in his first term), was a Monsanto lawyer; Anne Veneman, the U.S. Secretary of Agriculture, was on the board of directors of Monsanto's Calgene Corporation; Donald Rumsfeld, the Secretary of Defence, was on the board of directors of Monsanto's Searle Pharmaceuticals; Secretary of Health Tommy Thompson received $50,000 in donations from Monsanto during his winning campaign for Wisconsin's governorship; and the two Congressmen who received the most donations from Monsanto during the last election were Larry Combest (Chairman of the House Agricultural Committee) and John Ashcroft (the Attorney-General). **Response:** This article discusses bribery charges against Monsanto and development of genetically modified crops and other product lines. The quote above identifies the apparent close connections between Monsanto and regulatory agencies in 2005 and the people mentioned are no longer in office. These associations have no apparent connection to the Clear Creek Integrated Restoration project.

Letter #/ Comment #	Comment and Response
10/342 **(View 73)**	**Comment:** A recent study which shows clear links between exposure to the herbicide glyphosate and non- Hodgkin's lymphoma (NHL), a form of cancer that afflicts the lymphatic system, has caused worldwide concern over the safety of the herbicide on humans. The study was conducted by eminent oncologists Dr Lennart Hardell and Dr Mikael Eriksson of Sweden and published in the journal Cancer by the American Cancer Society on March 15." **"Monsanto's Argument:** Previous evaluations conducted by the US Environmental Protection Agency (EPA) and the World Health Organization (WHO) suggest that glyphosate is not a mutagenic or carcinogenic. WHO and the Food and Agriculture Organization (FAO) have approved the safety of glyphosate residues in genetically-engineered Roundup Ready soyabeans. **PAN's Counter Argument:** The EPA and WHO evaluations were done more than five years ago and based mainly on data submitted to them by Monsanto. These evaluations did conclude that "there is no evidence of mutagenicity or carcinogenicity" based on the available data, but they do not support definitive assertions that glyphosate "is not mutagenic or carcinogenic". Previous EPA and WHO evaluations which made similar claims for other chemicals had to be revised as new evidence came to light. The establishment of the WHO's Acceptable Daily Intake (ADI) is based on limited studies using limited parameters which do not account for vulnerable groups such as children, the elderly, the sick and other groups that might have increased susceptibility to glyphosate exposure. **Response:** Please see the response to View 1.
10/343 **(View 74)**	**Comment:** To protect our health, the U.S. Environmental Protection Agency (EPA) sets maximum legal residue levels for every pesticide, for dozens of crops. But a new study in the respected journal *Toxicology* has shown that, at low levels that are currently legal on our food, Roundup could cause DNA damage, endocrine disruption and cell death. The study, conducted by French researchers, shows glyphosate-based herbicides are toxic to human reproductive cells." "Solvents and surfactants, legally considered 'inert ingredients,' are mixed with glyphosate in products such as Roundup weed killer to create chemical formulations that increase mobility and more direct access to the cells. 'Those same factors that aid penetration into a plant, also aid penetration into the skin,' says Vincent Garry, professor emeritus of pathology at the University of Minnesota. 'These chemicals are designed to kill cells.' " "Herbicide manufacturers are subject to fewer rules in the testing of inert ingredients than they are for active ingredients, explains Caroline Cox, research director at the Center for Environmental Health in Oakland, Calif. 'The tests the EPA requires for inert ingredients cover only a small range of potential health problems,' Cox says. 'Testing for birth defects, cancer and genetic damage are required only on the active ingredients. But we're exposed to both.' " " 'Our bodies are gigantic spider webs of chemical communications that work in the parts-per-trillion range,' says Warren Porter, professor of zoology and environmental toxicology at the University of Wisconsin. 'When you put so-called 'insignificant' amounts of toxic chemicals into the mix, you have a molecular bull in a china shop. The possibilities for impact are endless. … **Response:** Please see the response to View 1.
10/344 **(View 75)**	**Comment:** Glyphosate is of relatively low oral and dermal acute toxicity. It has been placed in Toxicity Category III for these effects (Toxicity Category I indicates the highest degree of acute toxicity, and Category IV the lowest). The acute inhalation toxicity study was waived because glyphosate is nonvolatile and because adequate inhalation studies with end-use products exist showing low toxicity. **Response:** Please see the response to View 1.
10/345 **(View 76)**	**Comment:** The findings of Richard et al. (2005) are an important addition to our understanding that the health and environmental effects of formulated pesticide products are not fully reflected in tests conducted on the active ingredient(s) alone. It has been long known that the adjuvants (commonly and misleadingly called "inert" ingredients) may be toxic and may enhance or supplement the toxic effects of the active pesticidal ingredient. **Response:** Please see the response to View 1.. The link to the referenced document did not work: http://www.signaloflove.org/clearcutting/reports/cumulativeimpactstoamphibian
10/346 **(View 77)**	**Comment:** FACT: The EPA (Environmental Protection Agency) does not test pesticides for safety. It relies on the manufacturers' test data to make judgments. Recent probes have found that the experiments on which these data have been based, have been designed to show only what the manufacturer would like them to show. This criticism of self-serving misrepresentation can be aimed equally validly at irresponsible experimenters bent on demonstrating toxicity of a given pesticide… **Response:** This article faults EPA for potential conflicts of interest when relying on corporate research to determine product safety. EPA's approval processes for pesticides are not relevant to the Clear Creek Integrated Restoration project.

Letter #/ Comment #	Comment and Response
10/347 **(View 78)**	**Comment:** FACT: The primary focus of the Federal Insecticide, Fungicide, and Rodenticide Act, originally enacted in 1947, was to provide federal control of pesticide distribution, sale, and use. The act has been amended many times over the years. One of these amendments permitted manufacturers protection of trade secrets. It is under these provisions that manufacturers circumvent a law that originally intended all information to be known – at least by the EPA. The fact that today, with mass spectrometers, chemistry can determine the makeup of the inert ingredients, leaves only the end consumer in the dark. **Response:** EPA's obligations with regard to disclosing inert ingredients in pesticides are not relevant to the Clear Creek Integrated Restoration project.
10/347 **(View 79)**	**Comment:** A recent study by eminent oncologists Dr. Lennart Hardell and Dr. Mikael Eriksson of Sweden [1], has revealed clear links between one of the world's biggest selling herbicide, glyphosate, to non-Hodgkin's lymphoma, a form of cancer [2]… **Response:** Please see the response to View 1.. The link to the referenced document did not work: http://www.hancock.forests.org.au/docs/herbicidesUpdate0602.htm
10/348 **(View 80)**	**Comment:** Glyphosate-containing products are acutely toxic to animals, including humans. Symptoms include eye and skin irritation, cardiac depression, gastrointestinal pain, vomiting, and accumulation of excess fluid in the lungs. The surfactant used in a common glyphosate product (Roundup) is more acutely toxic than glyphosate itself; the combination of the two is yet more toxic… **Response:** Please see the response to View 1.
10/349 **(View 81)**	**Comment:** EPA Investigates Monsanto An internal memorandum by an official of the U.S. Environmental Protection Agency [EPA], has accused EPA of conducting a "fraudulent" criminal investigation of Monsanto, the St. Louis chemical corporation. [1] The 30-page memo, from William Sanjour to his supervisor, David Bussard, dated July 20, 1994, describes a two-year-long criminal investigation of Monsanto by EPA's Office of Criminal Investigation (OCI)…. **Response:** This 1994 article about a criminal investigation of Monsanto has no relevance to the Clear Creek Integrated Restoration project.
10/350 **(View 82)**	**Comment:** A study by French researchers at the University of Caen of glyphosate residue discovered that the inert ingredients in the herbicide (solvents, preservatives, surfactants) increased the toxic effect on human cells. According to the researchers, glyphosate residue can cause birth defects…. **Response:** Please see the response to View 1.
10/351 **(View 83)**	**Comment:** Over twenty years ago, the dangers of Monsanto's glyphosate as well as its associated GMOs were known scientifically to cause human health difficulties and Swedish researchers years ago in the Journal 'Cancer' noted glyphosate was connected to human cancer. Anyway, many scientists and public health workers researching it were fired. It's a mad empire's rush--the U.S empire and its corporate proxies--to desire (hell, the reality of) to own the world's food and dominate the whole world. It is destroying thousands of years of biodiversity security in the process. And Monsanto's empire of glyphosate is in virtually everything in the USA and worldwide. One foolish company, one corrupt federal government of the USA. Everyone should learn more about Monsanto in the film "The World According to Monsanto." (90 minutes). Monsanto's corporate contract should be revoked for endangering world health and killing off global crop biodiversity of thousands of years of work destroyed in one generation--in the mad rush to dominate the whole world's biodiversity. Monsanto and the USA will go down in history as the organizations that caused most biological devastation and human suffering in human history. **Response:** Please see the response to View 1.
10/352 **(View 84)**	**Comment:** BUENOS AIRES, Apr 15 , 2009 (IPS) - Glyphosate, the herbicide used on soybeans in Argentina, causes malformations in amphibian embryos, say scientists here who revealed the findings of a study that has not yet been published… **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/353 **(View 85)**	**Comment:** It's amazing how many organics people still think it's OK to just use a bit of Roundup on those weeds in the bush or the driveway, or …. of course, not on the food, but the bush, that's OK isn't it? **Response:** Please see the response to View 1.. The link to the reference document did not work: http://www.livingorganics.co.nz/roundups-not-ok.php
10/354 **(View 86)**	**Comment:** Research on genetically modified seeds is still published, of course. But only studies that the seed companies have approved ever see the light of a peer-reviewed journal. In DEIS CA Letter 10 a number of cases, experiments that had the implicit go-ahead from the seed company were later blocked from publication because the results were not flattering. "It is important to understand that it is not always simply a matter of blanket denial of all research requests, which is bad enough," wrote Elson J. Shields, an entomologist at Cornell University, in a letter to an official at the Environmental Protection Agency (the body tasked with regulating the environmental consequences of genetically modified crops), "but selective denials and permissions based on industry perceptions of how 'friendly' or 'hostile' a particular scientist may be toward [seedenhancement] technology… **Response:** This editorial is about the need for scientists to ask corporations for permission before they can publish independent research on genetically modified crops. Planting or research of genetically modified crops is not part of the Clear Creek Integrated Restoration project.
10/355 **(View 87)**	**Comment:** France's highest court has ruled that U.S. agrochemical giant Monsanto had not told the truth about the safety of its best-selling weed-killer, Roundup. The court confirmed an earlier judgment that Monsanto had falsely advertised its herbicide as "biodegradable" and claimed it "left the soil clean." Roundup is the world's best-selling herbicide… **Response:** Please see the response to View 1.. The provided link to the reference document did not work: http://info-wars.org/2009/11/23/france-finds-monsanto-guilty-of-lying/
10/356 **(View 88)**	**Comment:** Monsanto created Roundup in the 1970's to kill weeds and has since catapulted this product to be the world's number one selling herbicide. Before the patent on Roundup was set to expire in 2000, Monsanto needed a surefire way to keep the profits of Roundup from bottoming out. Monsanto quickly began purchasing the majority of the world's seed companies while simultaneously creating GMOs that farmers needed to sign contractual agreements to only use Roundup. Subsequently, revenue from Roundup DEIS CA Letter 10 never dropped and in fact topped more than $4 billion in 2008, up 59% from 2007… **Response:** Please see the response to View 1.
10/357 **(View 89)**	**Comment:** If you're still not convinced that Roundup is a highly toxic and persistent pesticide, read on, while at the same time remembering the other contributions that Monsanto has made to society such as: Saccharin, Astroturf, agent orange, dioxin, sulphuric acid, polychlorinated biphenyls (PCBs), plastics and synthetic fabrics, research on uranium for the Manhattan Project that led to the construction of nuclear bombs, styrene monomer, an endless line of pesticides and herbicides (Roundup), rBGH (recombinant bovine growth hormone that makes cows ill), genetically engineered crops (corn, potatoes, tomatoes, soy beans, cotton), and it's most significant product to date; **Lies, Factual Distortions and Omissions**. Here's one of the distortions that Monsanto had on its website a while back. 'Sustainability - the idea that the resources and people of this world are finite. That for any business decision we make, we must consider the effect it will have on us and our children. That the products we make must not use up all of a natural resource, or even worse, contaminate what is left behind. **Response:** Please see the response to View 1.
10/358 **(View 90)**	**Comment:** The U.S. response (to questions about biotech crop safety) has been an extremely patronizing one. They say 'We know best, trust us,'" added Gurian-Sherman, now a senior scientist at the Union of Concerned Scientists, a nonprofit environmental group. **Response:** Please see the response to View 1.

Letter #/ Comment #	Comment and Response
10/359 **(View 91)**	**Comment:** Defining Toxic Asbestos is an extreme example, which I use here and in my book *Pick Your Poison: How Our Mad Dash to Chemical Utopia is Making Lab Rats of Us All* to make a point, but many other "nontoxic" products could be full of toxic chemicals. I'm hoping this essay leaves you with a general distrust of the nontoxic label, both in the past and currently. When you see "nontoxic" on a product, keep the following facts in mind: **…** **Response:** This essay identifies an apparent conflict of interest when labeling hazardous art materials and concludes that toxic substances should be labeled with information and warnings so the consumer can use them safely. Chemicals used in the implementation of the Clear Creek Integrated Restoration project are labeled and have material safety data sheets (MSDS). They will be used according to the label instructions and employees are provided with the appropriate personal protective equipment.
10/360 **(View 92)**	**Comment:** Roundup is amongst the top most reported pesticides causing poisoning incidents (mainly skin irritation) in several countries. It also causes a range of acute symptoms including, recurrent eczema, respiratory problems, elevated blood pressure, allergic reactions. … **Response:** Please see the response to View 1.
10/361 **(View 93)**	**Comment:** When Sofía lost her newborn, she soon realized that such losses were all-too-common in her small community of Ituzaingó Annex. Aerial spraying with Monsanto's herbicide RoundUp had climbed dramatically in the region as the number of acres planted with the company's "RoundUp Ready" soy crops grew…. **Response:** Please see the response to View 1.
10/362 **(View 94)**	**Comment:** But humans are much bigger than insects and the doses to humans are miniscule, right? During critical first trimester development, a human is no bigger than an insect, so there is every reason to believe that pesticides could wreak havoc with the developing brain of a human embryo. But human embryos aren't out in corn fields being sprayed with insecticides and herbicides, are they? A recent study showed that every human tested had the world's most popular pesticide, Roundup, detectable in their urine at concentrations between five and twenty times the level considered safe for drinking water. The autism epidemic and the disappearance of bees are just two of many self-imposed disasters from allowing our world, including Utah, to be overwhelmed by environmental toxins. Environmental protection- including the smallest and most vulnerable among us - is human protection. **Response:** The physical problems listed above were associated with the use of glyphosate or its formulation as RoundUp. RoundUp may be used selectively for the Clear Creek Integrated Restoration project. If RoundUp is used, it will be applied according to label directions.
10/363 **(View 95)**	**Comment:** A formula seems to have been made to not only ruin the agricultural system, but also compromise the health of millions of people worldwide. With the invent of Monsanto's Roundup Ready crops, resistant superweeds are taking over farmland and public health is being attacked. These genetically engineered crops are created to withstand large amounts of Monsanto's top-selling herbicide, Roundup. As it turns out, glyphosate, the active ingredient in Roundup, is actually leaving behind its residue on Roundup Ready crops, causing further potential concern for public health. **Response:** Please see the response to View 1.

Letters: 01 Dennis Baird 02 Dick Artley 03 Michael Garrity 04 Idaho County Commissioners 05 Derek Weidensee 06 Harry Jageman 07 David Paddison 08 Al Espinosa 09 Steve Doyle 10 Dick Artley 11 Alan Schonefeld 12 Bill Beck 13 Dennis Talbert 14 Jean Public 15 Jonathan Oppenheimer ICL 16 Jeff Cook IDPR 17 Dave Cadwallader IDFG 18 Fred Rabe 19 Jonathan Oppenheimer ICL 20 Kevin Proescholdt 21 Marlene Trumbo NPT 22 Natalie Shapiro 23 Wayne Paradis 24 Lorenzo Trout 25 Ashley Lipscomb 26 Charles D. Branch 27 Clearwater Basin Collaborative 28 Gary Macfarlane FOC 29 George Perry 30 Bob Zybach 31 Cathy Willmes 32 Bill Caldwell 33 Lynne McWhorter EPA