Fallen Bear Project

Fisheries Resource Report

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I. Regulatory Framework

Idaho Panhandle Forest Plan:
There were 6 general standards in the Idaho Panhandle National Forests' Forest Plan (United States Forest Service 1987) however, the first 2 standards listed in the IPNF Forest Plan are no longer valid, and have been replaced by the Inland Native Fish Strategy (INFS), which amended the plan in 1995. Documentation to support this change is found in Appendix F. INFS direction includes, but is not limited to, meeting Riparian Habitat Conservation Area (RHCA) standards and guidelines, Riparian Management Objectives (RMOs), initiating development and implementation of a Road/Transportation Management Plan for the area, and providing and maintaining fish passage in all existing and potential fish-bearing streams.

The remaining four IPNF Forest Plan standards are:

- standard 3) manage specific stream and river segments for low access fishing opportunities
- standard 4) provide fish passage to suitable habitat;
- standard 5) Utilize data from stream, river inventories to prepare fisheries prescriptions that coordinate with other resource activity,
- standard 6) coordinate management activities with water resource concerns as described in MA16, Appendix I and Appendix O. There are four goals; 8, 9, 11, and 13 within the Idaho Panhandle National Forests' Forest Plan which apply to the fisheries resource.

National Forest Management Act:
NFMA requires that projects " provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives," in the Plan area (16 USC §1604 NFMA § (g)(3) (B)).

Endangered Species Act:
Section 7 of the 1973 Endangered Species Act (ESA) includes direction that Federal agencies will not authorize, fund, or conduct actions that are likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat. The Endangered Species Act requires that a Biological Assessment be prepared which discloses the direct, indirect and cumulative effects of the *selected alternative* on listed species. Once a selected alternative is chosen, a copy of the Biological Assessment will be sent to the U. S. Fish and Wildlife Service (USFWS) for their concurrence or opinion, and a copy will be placed in the project file. When a concurrence letter or Biological Opinion is received from the USFWS, it will be placed in the project file.

Executive Order 12962 (June 7, 1995)
This order states objectives "to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities by: (h) evaluating the effects of Federally funded, permitted, or authorized actions on aquatic systems and recreational fisheries and document those effects relative to the purpose of this order."

Regional directive 2670/1950 (August 17, 1995), directs that information for a Biological Evaluation of sensitive species be incorporated in the main text or appendix of an EA or EIS. The summary of conclusion of the biological evaluation will be presented in forms, which are included as an appendix to the EA or EIS.

Additional regulatory requirements related to fisheries resources (*e.g.* Clean Water Act and Idaho Water Quality Standards, Idaho 303(d) list) are addressed in the Soil and Water Resources Review and are considered under the for fisheries resource analysis.

II. AFFECTED ENVIRONMENT

A. Analysis Methods

1. Analysis Area

The Fallen Bear Project Area is located in the middle portion of the St. Joe River watershed in Townships 44N and 45N, Range 8E (Boise Meridian) in Shoshone County, Idaho

Direct and Indirect Effects Analysis boundary:

Each individual fisheries stream within the project area was analyzed for direct and indirect effects from the proposed project.

Cumulative effects boundary:

The cumulative effects areas are the two 7th code Hydrologic units (Tumbledown and Bruin Creeks) and the 8th code unit (Stevens Creek) within the Fallen Bear Project area. Each stream was analyzed as their own cumulative effects area. The downstream most point of the St. Joe River within the project area was also analyzed for cumulative effects because all the drainages of the project area flow into the St. Joe. The cumulative effects boundary (CE) was selected because the area includes all proposed activities and has the potential for displaying effects from activities such as the proposed activities. The area upstream of the project area was not considered because the Fallen Bear Project Area (approximately 10,655 acres) accounts for only approximately 0.9% of the St. Joe River basin (1,128,359 acres), whereas the area upstream of the project area accounts for approximately 13% of the St. Joe River basin. Because of its small size compared to the upstream area the volume of flow coming from the upper drainage area would mask any affects from the project.

2. Methodology: The affected environment describes the difference between the desired condition, what is expected for the streams of the project area, and the existing condition, what is actually present. A comparison between the desired condition and the existing condition will result in identification of the limiting factors for fish production in the project area.

Desired condition is based on direction from the IPNF Forest Plan. Additional regulations and literature were considered to support the direction provided in the Forest Plan. Professional judgment and local knowledge were utilized to determine which criteria best suited the streams of this project area. Table 1 identifies the means of data collection for each criteria.

A limiting factor is a factor, which limits or reduces the ability of an area to produce the desired product (Everest and Sedell 1984). In this case the desired products are fish. The identification of limiting factors focuses the project analysis to those factors which are currently not meeting the desired condition and those factors which are most sensitive to effects created by the proposed action. Following the descriptions of the individual drainages is a summary of the limiting factors. The number and type of limiting factor is then considered in the determination of the overall condition of the streams. The overall condition of the fish habitat is categorized as:

- Unaltered: Fish habitat is considered to be unaltered if no limiting factors are identified.
- Adequate: Fish habitat is considered to be adequate if 2 or 3 limiting factors are identified (not including extremely high road density or migration barriers).
- Moderately Altered/moderate risk: Fish habitat is considered to be moderately altered from the historic range of variability and/or moderate risk of further undesirable change if 2 or 3 limiting factors are identified (including extremely high road density or migration barriers) or if 4 limiting factors are identified (none being Extremely high road density).
- Highly altered/high risk: Fish habitat is considered to be highly altered from historic range of variability and/or high risk of further undesirable change if extremely high road density and at least 3 other limiting factors are identified.

3. Assumptions and Limitations

a) Presence/absence surveys: These surveys were conducted during the day within 100m segments. This sampling intensity is not rigorous enough to establish population densities and may miss detection of bull trout (Thurow et al 2006)

b) R1/R4 habitat survey depicts a snapshot in time. The survey does not accurately display altered or changing stream conditions between various survey years (Roper et al 2002)

c) WATSED was used to determine change in Peak flows. See the Water report for details of assumptions and limitations.

d) Habitat surveys: A limited qualitative habitat survey was done on Stevens Creek by the district fish biologist, therefore documentation is based on professional judgment of the stream conditions rather than quantitative numbers.

e) Miles of Fish habitat: GIS mapping, primarily based on USGS determinations for fish bearing and intermittent, was used to calculate miles of fish bearing water. Some streams were ground-truthed and the GIS map adjusted to the field verified status.

f) USFWS Criteria: these criteria were developed for drainages of the 5th or 6th code Hydrologic Unit Code (HUC) size. Streams of this project area are 7th and 8th code HUCs therefore some of the criteria would only apply to the larger St. Joe River cumulative effects area. This analysis will not use the USFWS Population characteristics indicator because this was developed to assist in the determination of effects to listed species and this document will address selected management indicator species.

g) Road Density includes road miles for all roads that are open, prescription A and B. Prescriptions C and D are not included in the road density calculation because the intent of these prescriptions is to create a road that poses no hydrologic problems.

4. Scientific Uncertain and Controversy:

Public scoping did not identify fisheries related scientific uncertainty or controversy.

B. Desired Condition:

Management plans such as the Idaho Panhandle Forest (IPNF) Plan include a section titled Desired Future Condition (DFC). The IPNF DFC for the fisheries resource, for the first decade of the plan, is "fisheries habitat will be improved". The DFC for the fifth decade states that fish habitat will be better … and this will result in an increase in catchable trout. To achieve this desired future condition it is necessary to know what constitutes "better fish habitat". The USFWS (1998) developed a list of indicators and measurement parameters (Table 1) which can be used to establish a definition of "better fish habitat" and assist in the determination of limiting factors. This analysis uses some of the criteria, which were identified in the USFWS document and some criteria which are from Idaho State regulations.

Table 1. Issue indicators and criteria

<table>
<tr><th>Issue Indicator</th><th>Measurement Parameter</th><th>Criteria</th><th>Reference</th><th>Collection Method</th></tr>
<tr><td>Population Characteristics</td><td>Presence/ Absence of fish species</td><td>Presence of native fish species</td><td></td><td>Presence/absence electrofishing surveys</td></tr>
<tr><td>Water Quality</td><td>Temperature</td><td>A stream is temperature impaired if the temperature standard is exceeded greater than 10% of the specified time period (Pettit, personal communication PF Doc. #).
<table>
<tr><th>Metric</th><th>Spring Salmonid Spawning</th><th colspan="2">Bull Trout</th></tr>
<tr><td>Dates</td><td>April 15 – July 15</td><td>Juvenile
6/1-8/31</td><td>Spawning
9/1-10/31</td></tr>
<tr><td>MDMT</td><td>13 °C</td><td></td><td></td></tr>
<tr><td>MWMT</td><td></td><td>13 °C</td><td></td></tr>
<tr><td>MDAT</td><td>9°C</td><td></td><td>9°C</td></tr>
</table></td><td>Idaho State criteria (Idaho DEQ 2005).</td><td>Stream temperature data was collected using automated Onset temperature recorders.</td></tr>
<tr><td></td><td>Sediment</td><td>
<table>
<tr><td>Sediment production</td><td>Good</td><td>Moderate</td><td>Poor</td></tr>
<tr><td># stream</td><td><0.5</td><td>0.5-1.0</td><td>>1.5</td></tr>
</table></td><td>Biological Assessment: St. Joe River Basin/NF</td><td>GIS Road and Stream layers</td></tr>
</table>

		crossings/stream mile A stream is also considered sediment limited if the State of Idaho identifies sediment as a pollutant of concern and has developed a TMDL for that stream	Clearwater 1998	
	Chemical Contamination/ Nutrients	Low levels of chemical contamination, no excess nutrients, no CWA 303d designated reaches	USFWS 1998	Qualitative review
Habitat Access	Physical Barriers (human created)	No Physical Barriers	INFS standard RF-5, IPNF FP standard Fish - 4	R1 Fish Passage at culvert survey
Habitat Elements	Substrate Embeddedness	Reach embeddedness <20%	USFWS 1998	Data not collected parameter will not be used for this analysis
	Large Woody Debris	> 20 pieces/mile >12" dia >35' long	INFS RMO 1995 and USFWS 1998	R1/R4 stream habitat survey
	Pool Frequency and Quality	Wetted Width: 0-10' / 10-20' / 20-25' / 25-50' Pools/1000': 7.4-11.4 / 9-18.2 / 4.4-10.6 / 2-8.9	INFS RMO 1995 and USFWS 1998	R1/R4 stream habitat survey
	Large Pools (stream width >3m)	Each reach has many larger pools >1meter deep	USFWS 1998	R1/R4 stream habitat survey
	Off channel habitat	Watershed has many ponds, oxbows, backwaters and other off-channel areas with cover and side-channels are low energy areas	USFWS 1998	Qualitative review
	Refugia	Habitats capable of supporting strong and significant populations are protected and are well distributed and connected for all life stages and forms of the species	USFWS 1998	Qualitative review
Channel Condition and Dynamics	Average wetted width/maximum depth ratio in scour pools	$\leq$ 10	USFWS 1998	R1/R4 stream habitat survey
	Streambank condition	>80% of any stream reach has $\geq$ 90% stability	USFWS 1998	Data not collected, parameter will no longer be analyzed
	Floodplain connectivity	Off-channel areas are frequently hydrologically linked to main channel; overbank flows occur and maintain wetland functions, riparian vegetation and succession	USFWS 1998	Qualitative review
Flow/ Hydrology	Change in Peak/Base Flows	WATSED model results which present compare relative differences between alternatives	Fallen Bear Water Report	Fallen Bear Water Report
	Increase in drainage network	Zero or minimum increases in active channel length correlated with human caused disturbance (pertains to water diversions)	USFWS 1998	No water diversions in project area
Watershed Condition	Road Density and Location	Lee et al 1997 found that the "status of four non-anadromous salmonid species (which include bull trout and westslope cutthroat trout) are less likely to use moderate to highly roaded areas for spawning and rearing and if found are less likely to be at strong population levels" Rating: Very low / Low / Moderate / High / Extremely High Densities: 0.02-0.1 mi/mi^2 / 0.1-0.7 mi/mi^2 / 0.7-1.7 mi/mi^2 / 1.7-4.7 mi/mi^2 / 4.7+ mi/mi^2	ICBEMP definitions for road density ratings (Quigley and others 1996 p. 67).	GIS Total Road Density, Encroaching Road Density (roads with 50' of stream) and RHCA road density (roads within RHCA buffers)
	Disturbance History	< 15% ECA of entire watershed with no concentration of disturbance in unstable or potentially unstable areas, and/or refugia, and/or riparian areas.	USFWS 1998	GIS Harvest history coverage
	Riparian Conservation Area	RHCA condition: Good / Moderate / Poor % RHCA harvested in last 15 years: <13% / 13-33% / >33%	Biological Assessment : St. Joe River Basin/NF Clearwater 1998	GIS RHCA buffer and Harvest history layers

C. Existing Condition:

1. Fish Population Characteristics

a) Bull Trout: The bull trout is listed as a Threatened species under the Endangered Species Act. The non- Federally managed sections of the St. Joe River downstream of the project area have been listed as "critical habitat" (September 26, 2005). Recent bull trout population status reviews have found considerable reductions in the distribution and abundance throughout their historic range (USDA Forest Service 1996a; Rieman and McIntyre 1993). The IPNF Forest Plan monitoring reports (1998, 2000 and 2002) indicate that bull trout populations appear to be stable throughout most of northern Idaho (Project file documents USDA Forest Service IPNF 1998, 2000, 2002).

Genetic analysis has shown bull trout populations in the St. Joe River system to be a unique stock though they are closely linked to the upper Columbia River clad - one of three major groupings of bull trout throughout the Columbia and Klamath River drainages (Williams, unpublished). Currently, bull trout are known to occupy habitat in the St. Joe River and many of its tributaries. However, in a status review of bull trout on the Idaho Panhandle National Forests, stocks from the St. Joe River system were considered to be at moderate risk of extinction (Cross 1992).

The historic range of bull trout includes Bruin Creek (Fields 1935, Maclay 1941). No bull trout were located during surveys of streams in the project area (project file F-1). The segment of the St. Joe, which is within the project area, is not utilized by bull trout for spawning, however they do use this section as a migratory corridor (F-2 personal communication,Dupont 2006). Because of this corridor use, there is the strong potential for bull trout to occasionally utilize the streams of the project area.

b) Westslope Cutthroat Trout: The westslope cutthroat trout is currently designated as a Sensitive species on the IPNF of Region 1. Population status reviews of the westslope cutthroat trout in Idaho have determined that populations occupy almost 96% of the historical range (Shepard et al 2003). Idaho Department of Fish and Game (2003) summarized 20 years of snorkeling data on 4 streams (including the St. Joe) in Idaho which indicates that "westslope cutthroat trout have maintained or increased their population abundance over a very large area within the state of Idaho during the past 15-34 years." Idaho Fish and Game surveyed the St. Joe from 1969 until present, except for several years during the 1980's. These surveys indicated that current populations are lower than the peak years in 1977 and 1980, but higher than the earliest years of the survey (Idaho Department of Fish and Game 2003).

IPNF Forest Plan monitoring reports (1998, 2000 and 2002) indicate that westslope cutthroat trout populations appear to be stable throughout most of northern Idaho (USDA Forest Service, IPNF 1998, 2000, 2002).

Historically Westslope cutthroat trout were documented in the streams of the Fallen Bear project area (Fields 1935; Maclay 1941). Recent presence/absence surveys of Bruin Creek have found Westslope cutthroat trout densities which ranged from 3.7 to 9.1 fish/100m^2 (project file F-1). Fish ranged in size from young-of-the-year to 23.0 cm. The presence of multiple age classes indicates that the stream is utilized for spawning and rearing. Densities in Tumbledown Creek ranged from 2.5 to 3.1 fish/100m^2 (project file F-1). Fish ranged from young of the year (habitat survey observations) to 15.2cm. The presence of multiple age classes indicates that the stream is utilized

for spawning and rearing. Westslope cutthroat trout were observed in Stevens Creek but densities were not determined.

c) Sculpin spp: Lee *et al.* (1980) indicates that torrent sculpin are found within the St. Joe River system. Sculpin spp. were found in the streams of the project area, but were not identified to species. Sculpin spp. densities in Bruin Creek ranged from 2.9 to 13.9 fish/100m^2. Size ranged from 3.0 to 11.9cm, indicating the stream is used for spawning and rearing. In Tumbledown Creek densities ranged form 3.1 to 10.0 fish/100m^2. Sizes ranged from 2.5 to 9.0 indicating the stream is utilized for spawning and rearing.

d) Non-native species: Rainbow trout were planted in the St. Joe River within the segment of river adjacent to the project area in the 1960s. No recent surveys have located rainbow trout within any of the tributaries of the project area (project file F-1).

e) Management Indicator Selection (MIS): Native bull trout and westslope cutthroat trout have been selected as appropriate MIS for the fisheries analysis of these watersheds because they are present in the project area and were determined in the IPNF to be appropriate MIS. Torrent sculpin will not be included in further discussion because the distribution of sculpin species and the key considerations for managing their populations are generally contained within those for native bull trout and westslope cutthroat trout populations (coldwater MIS fish).

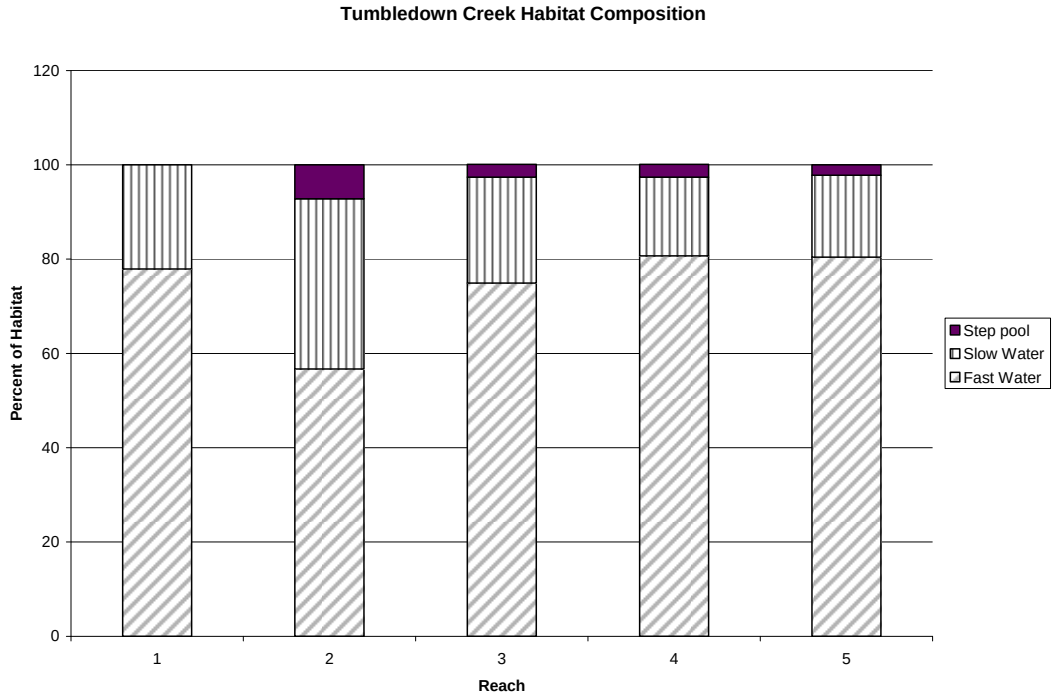
2. Habitat Characteristics

Figure 1 Tumbledown Creek habitat composition

a) Tumbledown Creek: Tumbledown Creek is a tributary to the St. Joe River. This drainage contains approximately 4.6 miles of fish-bearing stream, 1.8 miles of perennial non-fish bearing streams and 11.4 miles of intermittent streams. The IPNF Forest Plan does not have a specific designation for this stream.

The majority of the streams of the Tumbledown drainage, including the mainstem are high gradient. Gradient of the lowest reaches of the mainstem were about 15%. Habitat types reflect this topography in that the majority of the habitat types are high gradient i.e. cascade, high gradient riffle and step pools.

Encroaching roads (roads within 50’ of the stream) and roads within the Riparian Habitat Conservation Area (RHCA) only occur in the headwaters area on non-fish bearing channels, except for the Highway 50 crossing at the mouth of the stream. Therefore, the mainstem of Tumbledown Creek is not directly impacted by roads.



Riparian harvest has occurred in Tumbledown in the past but there has been no harvesting along the mainstem of Tumbledown. Harvest activity that occurred in the drainage was on smaller non-fish bearing streams. The harvest records show that the harvest which entered riparian areas occurred between 1970 and 1991 and impacted approximately 35% of the non-fish bearing and intermittent stream length within the drainage. Timber harvest can negatively effect stream habitat by reducing shading, thus increasing stream temperatures, reducing the amount of woody debris recruitment and increasing sediment input to streams (Quigley et al 1997, pages 1100-1102). The lack of timber harvest along the mainstem of Tumbledown reduces the negative effects of the past riparian harvest on the fish habitat of the drainage. Regeneration timber harvest between 1969 and 1991 treated 26% of the drainage, of this 68% was done in the 1970s.

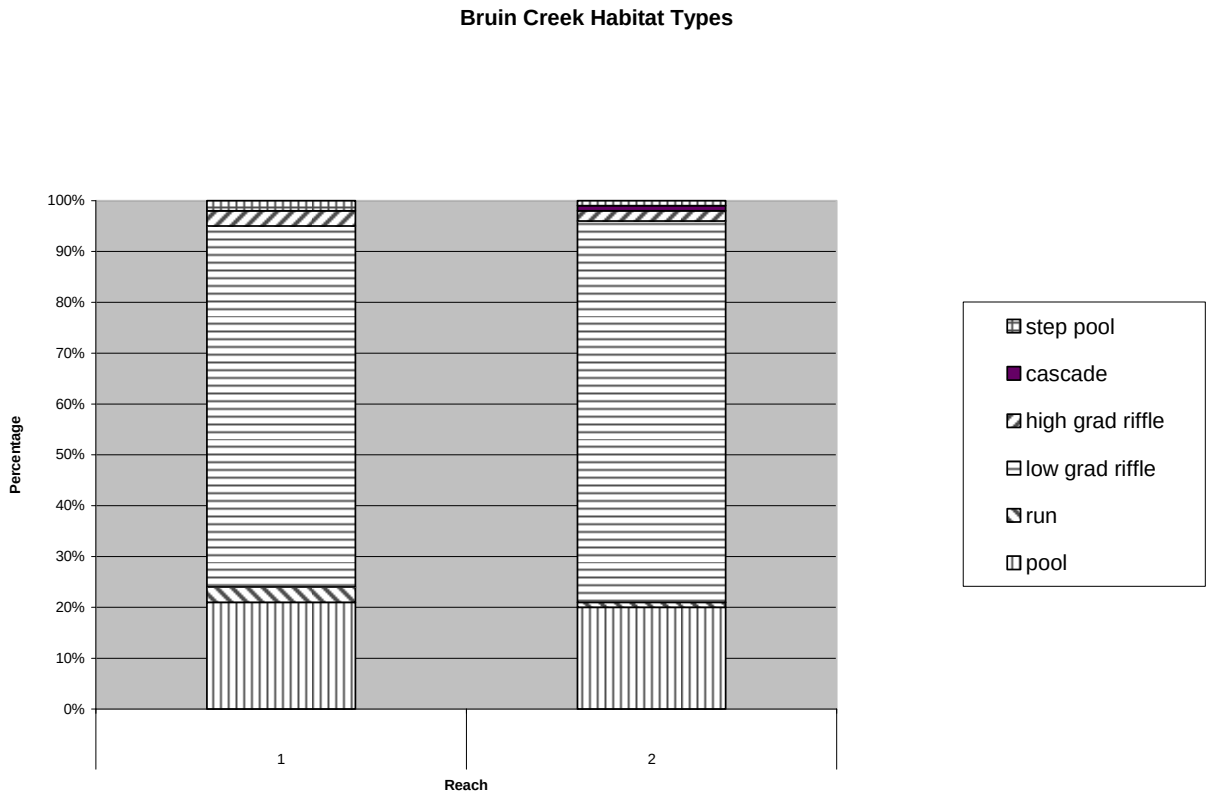
Table 2: Tumbledown Creek Existing Condition Compared to Desired Condition Criteria

Issue Indicator	Measurement Parameter	Existing Condition	Meets Criteria
Population Characteristics	Presence/absence	Westslope cutthroat trout and sculpin spp. present Bull trout absent	Yes
Water Quality	Temperature	Exceeded temperature criteria in both years of data collection	**No**
	Sediment	2.2 stream crossings/stream mile = poor	**No**
	Chemical Contamination/Nutrients	No chemical contamination/nutrients	Meets
Habitat Access	Physical Barriers (human created)	No human created barriers	Meets
Habitat Elements	Large Woody Debris	Reach # 1 2 3 4 5 Pieces/mile 0 38.9 70.5 120.0 130.6	Reach # 1 2 3 4 5 Meets criteria **No** Yes Yes Yes Yes
	Pool Frequency and Quality	Reach 1 2 3 4 5 Pools 4 32 39 51 84 miles 0.035 0.18 0.44 0.7 1.08 Pools/mile 114.3 177.8 88.6 72.9 77.8	Reach # 1 2 3 4 5 Meets criteria Yes Yes Yes Yes Yes
	Large Pools (stream width >3m)	Reach # 1 2 3 4 5 # pools 1 1 3 0 0	Reach # 1 2 3 4 5 Meets criteria Yes Yes Yes **No** **No**
	Off channel habitat	Not applicable due to channel types	N/A
	Refugia	Not applicable, determined at the 5 HUC level	N/A
Channel Condition and Dynamics	Average wetted width/maximum depth ratio in scour pools	Reach 1 2 3 4 5 Avg Width 3.35 3.48 3.57 3.65 3.04 Avg max depth 0.60 0.55 0.60 0.54 0.44 Avg width/max depth ratio 5.58 6.33 5.95 6.76 6.91	Reach # 1 2 3 4 5 Meets criteria Yes Yes Yes Yes Yes
	Floodplain connectivity	N/A channel types provide little potential for floodplain	N/A
Flow/Hydrology	Change in Peak/Base Flows	The WATSED model estimated a 5 % increase over natural peak flows	Meets, undetectable increase
Watershed Condition	Road Density and Location	Road Density: Total road; Encroaching Road; RHCA Road Miles/mile^2: 3.2; 6.5; 6.9	Road Density: Total road; Encroaching Road; RHCA Road Rating: **High**; Extremely High; Extremely High
	Disturbance History	~ 8% of drainage in regeneration harvest in the past 20 years	Good
	Riparian Conservation Area	RHCA condition: Acres in RHCA; Acres harvest RHCA; % RHCA harvested % RHCA harvested in the last 15 years: 661; 0; 0	Good

Summary: Tumbledown Creek, in general, is providing adequate fish habitat. Tumbledown Creek, however, does not meet desired condition for temperature, sediment (as determined by the number of stream crossings), and road density. The lowest reach of Tumbledown Creek does not meet the INFS criteria for large woody debris quantity but does meet for all other reaches surveyed. This lack of large woody debris is not a concern because reach 1 is only 175 feet long. Although the number of stream crossings and road density is high the majority occur on non-fish-bearing streams higher up on the slopes which have a lower influence on the habitat within a fish bearing stream (Quigley and others 1997).

b) Bruin Creek: Bruin Creek is a tributary to the St. Joe River. It contains approximately 5.9 miles of fish-bearing stream, 1.7 miles of perennial potentially fish-bearing streams, 4.0 miles of perennial non-fish-bearing streams and 10.3 miles of intermittent streams. Bruin Creek was identified in the IPNF Forest Plan as a spawning and rearing stream, which contributed to the trout production of the St. Joe River. The stream habitat survey identified that pool frequency met the desired condition even though pool habitat only made up about a quarter of the stream habitat (Figure 2). This indicates that pools are frequent but small. The majority of the pool habitat is created by woody debris. The second most common creator is boulders. In 1993 woody debris was added to the stream to increase habitat complexity.

Figure 2. Bruin Creek Habitat Composition



Bruin Creek is paralleled (within 300' of the stream) by Forest Service Road 1223 for approximately 62% of the length of the mainstem. The culvert under this road is a migration barrier. However, there is only approximately 0.5 miles of fish habitat upstream of the culvert until migration is blocked by a natural barrier. Another culvert migration barrier is located at the mouth

of Bruin Creek under Hwy 50. Hwy 50 is maintained by Shoshone County under an agreement with the U. S. Forest Service. Baffles were installed in this culvert in 1993 but the system did not work as intended and the culvert continues to be a migration barrier.

Timber harvest in 1971 and 1975 harvested along approximately 1.7 miles of the mainstem of Bruin Creek, one side was a shelterwood type harvest the other side of the stream was a sanitation type harvest. Between 1968 and 1992 there have been 1,552 acres (35% of the drainage) harvested using a regeneration prescription, 62% of this harvest was done in the 1960s.

Table 4: Bruin Creek existing condition compared to desired condition criteria

Issue Indicator	Measurement Parameter	Existing Condition				Meets Criteria
Population Characteristics	Presence/absence	Westslope cutthroat trout and sculpin spp. Present; Bull trout absent				Meets
Water Quality	Temperature	Exceeded temperature criteria in all four years of data collection				**No**
	Sediment	4.3 stream crossings/stream mile = poor				**No**
	Chemical Contamination / Nutrients	No chemical contamination/nutrients				Meets
Habitat Access	Physical Barriers (human-created)	Human-created barriers				**No**
Habitat Elements	Large Woody Debris	Reach #	Pieces/mile			
		1	81.5			Meets
		2	52.1			Meets
	Pool Frequency and Quality	Reach #	Pools	Miles	Pools/mile	
		1	136	1.89	72	Meets. (Meets USFWS, close to INFS)
		2	175	2.15	81.4	Meets.(Meets USFWS, close to INFS)
	Large Pools (stream width >3m)	Reach #	# Pools			
		1	1			Meets
		2	1			Meets
	Off channel habitat	Not applicable due to channel types				N/A
	Refugia	Not applicable, determine at the 5th HUC level				N/A
Channel Condition and Dynamics	Avg. wetted width/max depth ration in scour pools	Reach #	Avg. Width	Avg. max depth	Avg. width/max depth ratio	
		1	3.33	0.55	6.0	Meets
		2	2.45	0.47	5.2	Meets
	Floodplain connectivity	N/A channel types provide little potential for floodplain				N/A
Flow/Hydrology	Change in Peak/Base Flows	The WATSED model estimated a 8% increase over natural peak flows				Meets, increase undetectable in stream
Watershed Condition	Road Density and Location	Road Density Rating	Total Road	Encroaching Road	RHCA Road	
		Extremely High	7.09 miles	Extremely High	Extremely High	**No**
	Disturbance History	~ 6% of drainage in regeneration harvest in the past 20 years				Good
	Riparian Conservation Area	Acres in RHCA	Acres of harvest in RHCA	% RHCA Harvested		
		926	0	0		Good

Summary: Bruin Creek, in general, is providing fish habitat that is moderately altered/high risk. Bruin Creek does not meet desired condition for temperature, sediment (as determined by the number of stream crossings), migration barriers and road density (extremely high).

c) Stevens Creek: This drainage flows directly into the St. Joe River. The Stevens Creek drainage contains 0.8 miles of fish bearing stream, and 3.0 miles of perennial non-fish-bearing stream. The IPNF Forest Plan does not have a specific designation for this stream.

This is a small stream that offers a minor amount of fish habitat. A stream survey was not conducted on this stream therefore data is not available for the majority of the parameters displayed in the comparison table. The stream appears to have downcut within several sections, and there were numerous recreational trails across the stream. A minor amount of riparian harvest has occurred. There are two migration barriers; one on a National Forest system road that leads to the upper Conrad Campground and one under Hwy 50. Highway 50 is maintained by Shoshone County under an agreement with the U. S. Forest Service. Road density within the Stevens Creek drainage is 1.75 miles/mi^2, which is a high density.

Summary: Stevens Creek is considered to be Moderately altered/moderate risk based on migration barriers, recreational impacts to the stream banks and high road densities.

Small St. Joe Face Drainages

Haggerty: This drainage flows directly into the St. Joe River, but due to the high gradient and several natural barriers the stream is non-fish-bearing. The drainage contains approximately 2.0 miles of perennial non-fish bearing water and approximately 1.3 miles of intermittent streams. The IPNF Forest Plan does not have a specific designation for this stream. This stream will no longer be discussed individually but effects from activity in this drainage will be included with discussions regarding the St. Joe River within the Project area.

Shady: This drainage flows directly into the St. Joe River, but due to the high gradient the stream is non-fish-bearing. The drainage contains approximately 1.0 miles of perennial non-fish-bearing water and approximately 0.6 miles of intermittent streams. The IPNF Forest Plan does not have a specific designation for this stream. Shady Creek is not discussed individually but effects from activity in this drainage are included with discussions regarding the St. Joe River within the project area.

St. Joe River within the Project Area: The St. Joe River feeds into the southern portion of Coeur d'Alene Lake, which is also fed to the north by the Coeur d'Alene River. Coeur d'Alene Lake and its tributaries form the upper Spokane River basin, which occurs within the interior Columbia River basin. The St. Joe, within the project area, is identified as a “Priority watershed” as defined in the INFS (USDA 1995). Priority watersheds are watersheds that have excellent habitat or strong populations of inland native fish (with a priority on bull trout), watersheds that could provide those, or degraded watersheds with high restoration potential.

The St. Joe River Basin Geographic Assessment labels this portion of the St. Joe River as the “middle part of the St. Joe Drainage. Approximately 148,272 acres of the St. Joe drainage lie upstream of the project area. Of this upstream area, 33% of the acres are in a Hydrologic unit

(HUC) which is almost entirely roadless and has had no timber management, 38% of the acres are in a HUC that has had very limited harvest and 29% of the acres are in HUCs that have had timber management but have had little activity within the last 20 years.

Habitat Characteristics: Approximately 8.5 miles of the St. Joe River border the southern edge of the project area. The St. Joe River is paralleled by Hwy 50 for its entire length within the project. The majority of road length is within 100 feet of the river. This road is maintained by Shoshone County. No habitat surveys have been conducted on this segment of the river to determine habitat quality, however in 1998 woody debris was added to the riverbank at two locations within the project area to provide added lateral cover. Road density on the lands that drain into this portion of the St. Joe River is 3.42 miles/miles^2 (high density). The 2002 Integrated Report identifies the St. Joe River (source to North Fork St. Joe River), which includes the project area, as impaired due to stream water temperature that exceeds water quality standards (IDEQ, 2005). The HUC that includes the project area is considered to be "functioning at risk" (F-22, Patten, IPNF Forest Hydrologist)

Summary: The St. Joe River within the project area is considered as moderately altered/moderate risk due to high road density, high stream temperatures, and the road paralleling the river.

3. Summary of Limiting Factor Assessment:

The St. Joe River Basin GA (page 29) indicates that the general trend for streams of the "middle part of the St. Joe Drainage" is toward impaired in-stream habitat conditions. The GA identified generalized factors limiting fish production (USDA 1996, pages 26-34). The information provided in the Existing condition refined the generalized factors to those which are specific for the streams of the Fallen Bear area. The identification of the specific factors are based on the information provide in Table 3 and 4, the descriptions for each individual stream, discussions between biologists from the USFS and Idaho Department of Fish and Game (IDFG) (Svingen 1993), and review of Idaho DEQ St. Joe Subbasin Assessment. Four specific limiting factors to fish production in the project area have been identified:

1. **Excessive stream temperatures**. Tumbledown and Bruin Creek exceed Idaho State bull trout summer and fall criteria
2. **High road densities**. All drainages in the project area exceed road density amounts based on ICBEMP definitions.
3. **Stream crossings**: Many stream crossings in the project area do not meet the 100 year flood flows
4. **Migration Barriers.** Culverts create migration barriers which decrease the opportunity for dispersal and increase the risk of sediment introduction into streams.

III. Environmental Consequences

A. Analysis Methodology:

1. Issue Indicator Determination:

The issue indicator (measure) for this project was selected based on consideration of the desired condition for fish from the IPNF Forest Plan, public comments, and the determination of the limiting factors. The measure selected for this project area is the *miles of improved fish habitat*. Miles of improved fish habitat is contingent on improvement of existing limiting factors and lack of negative impact from the proposed timber harvest and associated activities. Four limiting factors; stream temperature, road density, number of stream crossings and migration corridors, were considered in the determination of the existing overall condition of the fish habitat within the project area. Table 5 lists the existing condition for the streams of the project area. The definition for the categories in this table are described under the section titled Analysis Method. These determinations will be the baseline for determining change due to implementation of alternatives.

Table 5 Summary of Fish habitat rating (miles)

Stream Name	Unaltered	Adequate	Moderately altered/ moderate risk	Highly altered/ high risk
Tumbledown Creek		4.6		
Bruin Creek			5.9	0
Stevens Creek			0.8	
St. Joe River within project area			8.5	
Total	0	4.6	14.7	0

2). Direct/Indirect effects

Direct/Indirect effects analysis considers how the proposed action will affect fish habitat and the desired condition of trending toward improved fish habitat.

Effects to temperature can be created by timber harvest activity however, that concern has been alleviated due to the use of bufferstrips (F-34 INFS Compliance).

The determination of road density effects on fish is based on research conducted for the ICBEMP (Lee et al 1997). This research determined that many of the aquatic strong holds occur in areas of low road density (Lee et al 1997), high and moderate road densities are considered to reduce the use of streams by non-anadromous fish. Streamside roads (roads within the RHCA and roads within 50’ of the stream) are likely to be the most impactive road segments (Dose and Roper 1994). Therefore, the higher the amount of streamside road left in a drainage the higher the risk for degrading instream habitat.

Stream crossings are a source of sediment, cause unnatural channel width, slopes and streambed substrate compositions (Lee et al 1997 pg 1104).

Migration barriers do occur within the project area however, the ones that should be removed are on county maintained roads.

Timber harvest can affect water quality, large woody debris recruitment and sediment delivery (Lee et al 1997 pg 1101).

Additional information to assist in the determination of the status of these factors comes in part from information provided in the watershed section of this document (specifically relating to stream channels and water quality) and how this will affect the existing fish habitat.

3. Cumulative Effects

The Cumulative effects analysis takes into consideration; past activity, current conditions, future foreseeable actions, non-Forest Service managed activity, and proposed actions. Information for this analysis comes from several areas.

- Current conditions were described previously.
- Past activity, on going activity and future foreseeable actions utilized in this analysis are described in Chapter 3 of the Fallen Bear EA and the effects are described in Table 6 of this document.
- Non-Forest Service managed activity includes the presence of FH 50, which is managed by Shoshone County, under an agreement with the U. S. Forest Service.
- Information about the proposed action comes from the descriptions provided in Table 7 and the descriptions of the Direct/Indirect effects of the individual drainages.
- The combination of this information will result in a determination of where the actions will trend the fish habitat within the streams; i.e. will the stream trend toward unaltered, adequate, moderately altered/moderate risk or highly altered/high risk.

B) Effects Analysis

1) Summary of Alternative Effects

Table 5 summarizes the miles of fish habitat by the expected long-term (greater than 20 years) trend by alternative based cumulative effects excluding non-Forest Service managed activity.

Table 5- Trend of fish habitat function (miles)

Status	Alt A	Alt B	Alt C
Improving	0	15.2	19.8
Status quo	19.8	4.6	0
Degrading	0	0	0
Total Fish bearing Miles	19.8	19.8	19.8

The trends shown are slightly misleading because road density, a main limiting factor does improve for each stream, thus the status of tread towards improvement; however, the remaining road densities, in all streams in all alternatives, remains above the level at which aquatic strong holds are found (Table 6). The only exception is for Tumbledown Creek in Alternative C, which does drop to a road density level at which strong holds are found. The main difference between Alternative B and C is that more long-term storage is occurring in Alternative C in Tumbledown Creek than in Alternative B. This increase in road storage decreases the road density and the number of stream crossings, which are two of the main limiting factors to fish production.

Table 6. Road Density Rating following activity

Stream	Alt A	Alt B	Alt C
Tumbledown	high	Moderate	**low**
Bruin	Extremely high	High	High
Stevens	High	Moderate	moderate
St. Joe River wihtin the project arae	High	Moderate	moderate

When including all aspects of cumulative effects, including the presence of migration barriers on Highway 50, there is a trend toward improvement because of all the road storage, however the status of the streams does not change from the current condition because of the barriers (Table 7).

Table 7. Miles of Fish habitat by status by alternative

Status	Alt A	Alt B	Alt C
Unaltered	0	0	4.6
Adequate	4.6	4.6	0
Moderately altered/at risk	15.2	15.2	15.2
Highly altered/high risk	0	0	0

2) Effects Common to All Alternatives:

Table 8 lists all the past, current and reasonably foreseeable activities which have occurred or will occur in the project area and their effects to fish and fish habitat. It does not include effects from proposed action activities. Some of these activities are Forest Service authorized activities others are general uses which do not require specific authorization. This table provides a summary of the direct and indirect effects from the individual activities. These activities and their effects were taken into consideration during the cumulative effects analysis for the individual drainages.

Table 8: Summary of Past, Present and Future Activities

Action	Past	Present	Future	May Have Cumulative Effects	Possible Continuing Effect	Explanation
Timber Harvest	X			Yes	Yes	Timber harvest can primarily effect sediment input to streams, stream temperature, and large woody debris recruitment The most recent past timber harvest in the project area happened in 1991/1992. The amount of influence from this harvest on sediment rates has probably decreased and is no longer affecting the stream. The harvest within the riparian zone is likely still contributing to increased stream temperatures and a reduction in future potential woody debris recruitment.
Tree Planting	X			Yes	Benefit	Minimal ground disturbance. Growth of new trees improves watershed condition and near RHCA improves temperatures and potential for LWD recruitment
Precommercial Timber Stand Improvement	X			Yes	Benefit	Minimal ground disturbance. Trees grow more rapidly and are healthy stand conditions
Mechanical or Manual Site Preparation & Fuels Treatment	X			Yes	No	Minimal ground disturbance cause little influence to stream habitat.
Prescribed Burning for Site Preparation & Fuels Treatment	X			Yes	No	Monitoring reports describe that prescribed burning did not impact the stream habitat
Prescribed Burning for Wildlife Habitat Improvement	X			Yes	No	Burning occurred in 2007, monitoring determined no impacts to stream habitat
Wildfires	X			No	No Effect	Long-term effects of wildfire usually result from erosion (Quigley et al 1997). Erosional effects generally peak within 10 years following events (Brown 1989). The only large fires (greater than 200 acres) occurred in 1910 and 1967 so are no longer affecting the stream habitat.
Fire Suppression	X	X	X		Minimal	Fire suppression activities such as fire line construction could cause routing of sediment to streams but it would be a risk and minor amounts
Clearing Brush and Trees to Maintain Helispots	X	X	X	No	No effect	Work is done by hand, little ground disturbance and locations are usually near ridge tops.
Road Construction	X			Yes	Negative effect.	Increases in road densities have negative effects on utilization of streams by fish (Quigley et al 1997)
Road Decommissioning	X			Yes	Benefit	Short-term negative effects where culverts are removed due to introduction of sediment to channel but long term positive effect.
Road Maintenance	X	X	X	Yes	Negative effect	IPNF Road Maintenance Programmatic Biological Assessment (2004). Identifies elements that can be negatively impacted by road maintenance; sediment, temperature, chemical and large woody debris.
Conrad Campground	X	X	X	Yes	Minimal	Documented in the St. Joe River/NF Clearwater Basins BA, July 1998
Public Activities: firewood cutting, driving roads,	X			Yes	Negative effects	Primarily due to influence of roads, see Programmatic Road Maintenance BA, 2004

Action	Past	Present	Future	May Have Cumulative Effects	Possible Continuing Effect	Explanation
camping, snowmobiling, hunting, hiking, berry picking, fishing, Christmas tree cutting		X	X			
Trail Construction	X			No	No effect	The trails in the project area are primarily located on ridges, with the exception of a short segment of trail along Haggerty Creek, a non-fish bearing, stream, therefore there would be no effects from this activity
Trail Maintenance	X	X	X	No	No effect	IPNF Programmatic Biological Assessment for Trail Maintenance (2004) identified possible effects to bull trout and habitat are effects to species occurrence, temperature, sediment, large woody debris, stream flow and channel conditions. The trails in the project area are primarily located on ridges, with the exception of a short segment of trail along Haggerty Creek, a non-fish bearing stream; therefore there would be no effects from this activity.
Fisheries Habitat Improvement Projects	X			Yes	Benefit	Projects added woody debris provided increased habitat diversity within Bruin Creek.
Spraying Herbicides to Control and Prevent Noxious Weeds Under the St. Joe Noxious Weed EIS	X	X	X	No	No effect	St Joe Noxious Weed EIS design features reduce risk of effects to fish and fish habitat.
Outfitter and Guide Uses	X	X	X	No	No effect	IPNF Programmatic Biological Assessment for Outfitter and Guide Permits (2004) identified possible effects to bull trout and habitat are effects to species occurrence, sediment, temperature, and large woody debris. Conditions are included in the O&G permits that reduce the potential for impacts to fish and fish habitat.
Large woody debris removal from Bruin Creek	X			No	No Effect	Woody debris removal from a stream can cause negative impacts to streambank stability, pool quantity and quality, sediment entrainment. This activity was conducted in 1986. Woody debris placement project in 1993 eliminated the negative effects of the removal project
Flood damage & repair on Bruin Creek Road in 1997	X			Yes	Benefit	Reduces the amount of sediment entering the stream from the road.
Eureka Mine hard rock mining	X			No	No Effect	The mine is not near live water and therefore has no affect to a fish-bearing stream.
Installing bat-friendly barrier on Eureka Mine adit to block human access for safety			X	No	No effect	No ground disturbing activity would occur during the installation of the barriers.
Biotic Factors				No	No effects	Currently there are no invasive fish species present in the project area

4. Alternative A:

Direct/Indirect Effects: None of the identified limiting factors would be altered in any of the streams of the project area. The management activities, which could alleviate these concerns, road decommissioning and culvert removal or replacement, would not occur if this alternative were selected. Road maintenance would continue to occur which would ensure that culverts that are maintained have a reduced risk of failure, thus reducing the risk of sediment increases from those locations.

Cumulative Effects: There would be no change to the status of streams in the project area. Streams would have a slow improvement to stream temperature conditions due to continued growth of previously harvested riparian stands. Migration barriers on Highway 50 would remain.

5. Effects Common to All Action Alternatives:

Table 9 identifies the activities, which would occur regardless of which action alternative is selected. The effects described were taken into consideration during cumulative effects analysis for each drainage. Specific descriptions of these projects are located in the Fallen Bear EA.

Table 9: Activities Planned in all action alternatives

Proposed Activity	Quantity	Estimated Implementation Date	Direct/Indirect Effect	Design Feature	Comments
White Pine Pruning	777 acres	2009	No Effect		This project consists of cutting the lower branches of white pine trees. This is hand work with no ground disturbance.
Girdling larch seed trees	161 acres	2009	No Effect	IV.C	This is hand work with no ground disturbance
Inoculating girdled larch	50-100 trees	2009	No Effect	IV.D.1	This is hand work with no ground disturbance
Precommercial thinning	775	2009	No Effect/beneficial	IV. B.5	Thinning may increase the rate of growth of remaining trees thus providing benefits to the channel. Buffer strips would be maintained.
Planting	112-195 acres	2016	Beneficial		Minimal ground disturbance. Growth of new trees improves watershed condition and near RHCA improves temperatures and potential for LWD recruitment
Pocket Gopher Control	112-195 acres	2016	May effect	IV.A. 1-13	No direct effects because of design features. Indirect effects possible but not likely. Biological Assessment For Proposed Pocket Gopher Control 2008-2018.

6. Effects Analysis by Drainage

The following section discusses the direct, indirect and cumulative effects for each fish-bearing stream by alternative.

a) Tumbledown Creek:

Table 10: Project Activities within Tumbledown drainage

Decision Authority	Activity	Alt A	Alt B	Alt C
Forest Service Fallen Bear EA	Regeneration harvest (acres)(% of drainage)		11 (0.3%)	11
	Commercial Thin (acres)		98	98
	Fuel treatments		109	109
	Planting		11	11
	Pocket Gopher Control		11	11
	New Road Construction (mi)		0.68	0.62
	Road Reconstruction (mi)		0.62	0.20
	Road Reconditioning (mi)		3.46	2.64
	Road Density (mi/sq. mi)	3.21	1.40	0.29
	Precommercial thinning		279	279
	Mistletoe treatment		65	65
	White pine pruning		304	304
	Stream crossings total	40	12	1
	Fish migration barriers	0	0	0
Ongoing FS	Outfitter/Guide	y	y	y
	Noxious Weeds	y	y	y
	Fire Suppression	y	y	y
	Forest Products	y	y	Y
	Recreation Use	y	y	Y
	Road Maintenance	y	y	Y
	Data gathering	y	y	Y

Alternative B:

Direct/Indirect Effects: The timber harvest associated to this alternative would create no effects to the stream conditions due to the minimal amount of harvest and the use of buffers. The water resources report indicates that there would be no appreciable increase in sediment due to proposed activities, therefore proposed activities would result in no change to instream habitat.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

New Road construction would be minimal, would be located near the ridge and would not cross any streams. Following use, the road would be put into long-term storage and would not contribute to road density within the drainage.

Road reconstruction would occur mainly on roads near the ridge. The location of these roads and the use of design features V.A. 1 and 2 would reduce potential for negative impacts from road reconstruction and road maintenance.

Road decommissioning and storage would decrease road density from a high density level to a moderate density level. The reduction in roads and the location of the remaining roads helps to reduce the effects of road density on the stream habitat. Although this reduction is an improvement over current conditions Lee et al (1997) stated that areas with low road densities maintain aquatic

strong holds, therefore the remaining moderate road density does not entirely meet desired condition.

Number of stream crossings (sediment production) would improve from a “poor” condition to a “Good “condition. In the short term, this would add sediment to the stream channel during implementation; however, in the long term this activity would benefit the streams in Tumbledown drainage.

Cumulative Effects: Specific actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the reduction in road density and the number of stream crossings. The combination of proposed management activity effects, the information in Table 8 and the existing condition, indicate the fisheries habitat within Tumbledown Creek would maintain **Adequate conditions.**

Alternative C:

Direct/Indirect Effects: The timber harvest associated to this alternative would create no effects to the stream conditions due to the minimal amount of harvest and the use of buffers. The water resources report indicates that there would be no appreciable increase in sediment due to proposed activities, therefore no change to instream habitat.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

Effects from new road construction would be minimal because the amount of new construction would be minimal (0.62 miles), it would be located near the ridge, and would not cross any streams. Following use, the road would be put into long-term storage and would not contribute to road density within the drainage.

Road reconstruction would occur mainly on roads near the ridge. The location of these roads and the use of design features V.A. 1 and 2 (where roads cross headwater streams) would reduce potential for negative impacts from road reconstruction and road maintenance.

Road decommissioning and storage would decrease road density from a high-density level to a low-density level. Reducing road density to a low level and removing roads near the streams would benefit the stream habitat.

Number of stream crossings (sediment production) would improve from a “poor” condition to a “Good “condition, only 1 crossing would remain. In the short term this would add sediment to the stream channel during implementation however in the long term this activity would benefit the streams in Tumbledown drainage.

Cumulative Effects: Specific actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the large reduction in road density and the number of stream crossings. The combination of proposed management activity effects, the information in Table 8 and the existing condition, indicate the fisheries habitat within Tumbledown Creek would trend this stream toward an **unaltered condition.**

b.) Bruin Creek:

Table11; Project Activities within Bruin Creek drainage

Decision Authority	Activity	Alt A	Alt B	Alt C
	Regeneration harvest (acres) (% of drainage)		183(4.1%)	81(1.8%)
	Commercial Thin (acres)		113	33
	Fuel Treatments		296	114

Decision Authority	Activity	Alt A	Alt B	Alt C
	Planting		183	81
	Pocket Gopher Control		183	81
	New Road Construction (mi)		1.1	0.15
	Road Reconstruction (mi)		12.04	5.36
	Road Reconditioning (mi)		9.49	9.49
	Road Density (mi/sq. mi)	7.09	2.47	2.47
	Timber Stand Improvement		278	278
	Mistletoe treatment		82	82
	White pine pruning		267	267
	Stream crossings total	94	28	28
	Fish migration barriers (human)	2*	2*	2*
Ongoing FS	Outfitter/Guide	y	y	y
	Noxious Weeds	y	y	y
	Fire Suppression	y	y	y
	Forest Products	y	y	y
	Recreation Use	y	y	y
	Road Maintenance	y	y	y
	Data gathering	y	y	y

- one barrier is on Hwy 50

Alternative B:

Direct/Indirect Effects: The timber harvest associated with this alternative would create no effects to the stream conditions due to the minimal amount of harvest and the use of buffers. The water resources report indicates that there would be no appreciable increase in sediment due to proposed activities, therefore proposed activities would result in no change to instream habitat.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

There are three segments of new road construction proposed which combined total approximately one mile of road. These segments are near the ridge or midslope. There is one stream crossing associated to this new construction. Following use, the road would be put into long-term storage and would not contribute to road density within the drainage. The construction of this road would cause little sediment increase to stream channels except for the segment with the stream crossing. Design Features I.A.1 and V.A.2 would be implemented to reduce the potential for sediment introduction from the new road and the stream crossing.

The use of design features V.A. 1 and 2 would reduce potential for negative impacts from road reconstruction and road maintenance. All undersized culverts on reconstructed roads would be replaced with correctly sized culverts. This would create a short-term increase in sediment during installation but in the long term it would reduce the risk of culvert failure, which could cause large inputs of sediment.

Road decommissioning and storage would decrease road density from an extremely high-density level to a high-density level. The reduction in roads and the location of the remaining roads helps to reduce the effects of road density on the stream habitat. Although this reduction is an improvement over current conditions, Lee et al (1997) stated that areas with low road maintain aquatic strong holds, therefore the remaining high road density does not entirely meet desired condition.

Number of stream crossings (sediment production) would improve from a “poor” condition to a “moderate “condition. In the short term this would add sediment to the stream channel during implementation however in the long term this activity would benefit the streams in the Bruin drainage. However, a moderate rating for stream crossings does not entirely meet the desired condition.

Cumulative Effects: Specific actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the reduction in road density and the number of stream crossings. Although there would be an improvement due to the reduction in road densities, densities would continue to be at a level that reduces the quality of the stream habitat for fish. The continued presence of Road 1223 within the RHCA would continue to be a source for sediment introduction because of its close proximity to the stream. The reduction in stream crossings and the replacement of many undersized culverts would be an improvement however; this element (sediment) would still be at a moderate level. The combination of proposed management activity effects, the information in Table 6 and the existing condition, indicate the fisheries habitat within Bruin Creek would improve to an *Adequate condition.* However, **t**he stream would continue to be in a **Moderately altered/moderate risk** condition due to the culvert under Highway 50, which would remain a migration barrier.

Alternative C:

Direct/Indirect Effects: The timber harvest associated with this alternative would create no effects to the stream conditions due to the minimal amount of harvest and the use of buffers. The water resources report indicates that proposed activities would not result in an appreciable increase in sediment; therefore, the proposed activities would result in no change to instream habitat.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

New road construction is very limited (0.15 miles), does not cross any streams and would be put into long-term storage following use therefore there would be no effects from this activity.

Road reconstruction and road maintenance would utilize design features V.A. 1 and 2 to reduce potential for negative impacts. All undersized culverts on reconstructed roads would be replaced with correctly sized culverts. This would create a short-term increase in sediment during installation but in the long term it would reduce the risk of culvert failure, which could cause large inputs of sediment.

Road density decreases from an extremely high-density level (7.09 miles/sq mile) to a high density level (2.47 miles/sq mile). The reduction in roads and the location of the remaining roads helps to reduce the effects of road density on the stream habitat. Although this reduction is an improvement over current conditions Lee et al (1997) stated that areas with low road densities maintain aquatic strong holds.

The stream crossings (sediment production) criteria improves from a “poor” condition to a “moderate “condition. In the short term this would add sediment to the stream channel during implementation however in the long term this activity would benefit the streams in the Bruin drainage. However a moderate rating for stream crossings does not entirely meet the desired condition.

Cumulative Effects: Actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the reduction in road density and the number of stream crossings. Although there would be an improvement due to the reduction in road densities, densities would continue to be at a level that reduces the quality of the stream habitat for fish. The continued presence of Road 1223 within the RHCA would continue to be a source for sediment introduction because of its close proximity to the stream. The reduction in stream crossings and the replacement of many undersized culverts would be an improvement however, this element (sediment) would still be at a moderate level. The combination of proposed management activity

effects, the information in Table 8 and the existing condition, indicate the fisheries habitat within Bruin Creek would improve to an *Adequate condition.* However, **t**he stream would continue to be in a **Moderately altered/moderate risk** condition due to the culvert under Highway 50, which would remain a migration barrier.

C) Stevens Creek:

Table 12: Project Activities within Stevens Creek drainage

Decision Authority	Activity	Alt A	Alt B	Alt C
	Regeneration harvest (acres)		0	0
	Commercial Thin (acres)		28	0
	Road Reconstruction (mi)		0.31	0
	Road Reconditioning (mi)		0	0
	New Road Construction		0.36	0
	Road Density (mi/sq. mi)	1.75	1.10	1.10
	Stream crossings total*	3	2	2
	Fish migration barriers	1	1	1
Ongoing FS	Outfitter/Guide	y	y	Y
	Noxious Weeds	y	y	Y
	Fire Suppression	y	y	Y
	Forest Products	y	y	Y
	Recreation Use	y	y	Y
	Road Maintenance	y	y	Y
	Data gathering	y	y	y

* number of stream crossings within portion of Stevens Creek in project area plus the crossing at Highway 50

Alternative B

Direct/Indirect Effects: The proposed timber harvest would not create negative impacts to the fish habitat of Stevens Creek. The harvest is a commercial thin on 28 acres, located high in the drainage and no-entry bufferstrips would be utilized.

Fuel treatments would have no adverse effects (project file #F-35). Road density would be reduced from a high level to a moderate level. Because the majority of the remaining roads are high in the drainage, except for Hwy 50, which crosses near the mouth, the remaining roads would have a reduced influence on the fish habitat. There would be a reduction in the number of stream crossings, which may cause a short-term increase in sediment but in the long term would benefit the stream channels.

Cumulative Effects: The combination of management activity effects i.e., the road decommissioning and culvert removal; the information in Table 8 and the existing condition, indicate the fisheries habitat within Stevens Creek would trend towards *Adequate condition*. The stream would continue to be in a **Moderately altered/moderate risk** condition due to the culvert under Hwy 50 which would remain a migration barrier.

Alternative C:

Direct/Indirect Effects: There is no proposed timber harvest associated with this alternative, nor is there any fuel treatment proposed, therefore no effect to the channel.

Road density would be reduced from a high density to a moderate density and the number of stream crossings would also be reduced. This would cause an improvement to drainage conditions.

Cumulative Effects: The combination of management activity effects i.e., road decommissioning and culvert removal; the information in Table 6 and the existing condition, indicate the fisheries habitat within Stevens Creek would trend towards *adequate conditions***.** The stream would continue to be in a **Moderately altered/moderate risk** condition due to the culvert under Hwy 50, which would remain a migration barrier.

d) St. Joe River (and face and non-fish-bearing drainages) within the Project Area:

Table 13; Project Activities within St. Joe River within the project area

Decision Authority	Activity	Alt A	Alt B	Alt C
	Regeneration harvest (acres)		46	19
	Commercial Thin (acres)		121	50
	Fuel Treatment		167	69
	Planting		46	19
	Pocket Gopher Control		46	19
	New Road Construction (mi)		0.6	0
	Road Reconstruction (mi)		4.92	3.1
	Road Reconditioning (mi)		3.11	3.11
	Road Density (mi/sq. mi)	3.42	1.53	1.53
	Timber Stand Improvement		214	214
	Mistletoe treatment		0	0
	White pine pruning		203	203
	Stream crossings total	32	12	12
Ongoing FS	Outfitter/Guide	y	y	y
	Noxious Weeds	y	y	y
	Fire Suppression	y	y	y
	Forest Products	y	y	y
	Recreation Use	y	y	y
	Road Maintenance	y	y	y
	Data gathering	y	y	y

Alternative B:

Direct/Indirect Effects: The timber harvest associated with this alternative would create no effects to the stream conditions in the St. Joe River due to the minimal amount of regeneration harvest (1.8% of the face drainages) and the use of buffers. The water resources report indicates that there would be no appreciable increase in sediment (5% increase) or water yields (2% increase) due to proposed activities, therefore proposed activities would result in no change to stream habitat.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

Two segments of new road construction are proposed which, combined, total approximately 0.6 mile of road. These segments are near the ridge and do not include any stream crossings. Following use, the road would be put into long-term storage and would not contribute to road density within the drainage. The construction of this road would cause little sediment increase to stream channels. Design Features I.A.1 and V.A.2 would be implemented to reduce the potential for sediment introduction.

The use of design features V.A. 1 and 2 would reduce potential for negative impacts from road reconstruction and road maintenance. All undersized culverts on reconstructed roads would be replaced with correctly sized culverts. This would create a short-term increase in sediment during installation but in the long-term, it would reduce the risk of culvert failure, which could cause large inputs of sediment.

Road density would decrease from a high density level to a moderate density level. The reduction in roads and the location of the remaining roads would help to reduce the effects of road density on the stream habitat. However, Highway 50 would continue to lie within the RHCA and thus have an influence on the river habitat. The reduction in road density would be an improvement over current conditions; however, because areas with low road densities maintain aquatic strong holds (Lee and others 1997) the remaining moderate road density would not entirely meet desired condition.

The stream crossings criteria (sediment production) improves from a "poor" condition (2.4 crossings/stream mile) to a "moderate "condition (0.9 crossings/stream mile). This change, in the short-term, would add sediment to the stream channel during implementation however in the long-term this activity would benefit this segment of the St. Joe.

Cumulative Effects: Specific actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the reduction in road density and the number of stream crossings. The combination of proposed management activity effects entering the St. Joe from Tumbledown, Bruin and Stevens Creeks, the information in Table 8 and the existing condition, indicate the fisheries habitat within this section of the St. Joe River would improve to an *Adequate condition.* However, the continued presence of the county maintained road would maintain this segment of the St. Joe in a **Moderately altered/moderate risk** condition.

Alternative C

Direct/Indirect Effects: The timber harvest associated with this alternative would create no effects to the stream conditions due to the minimal amount of harvest and the use of buffers. The water resources report indicates that there would be no appreciable increase in sediment due to proposed activities, therefore the proposed activities would result in no change to instream habitat conditions.

Fuel treatments would have no adverse effects (project file #F-35) and reforestation activity would have beneficial effects.

No new road construction is proposed in face and non-fish-bearing drainages. Road reconstruction and road maintenance would utilize design features V.A. 1 and 2 to reduce potential for negative impacts. All undersized culverts on reconstructed roads would be replaced with correctly sized culverts. This would create a short-term increase in sediment during installation but in the long term, it would reduce the risk of culvert failure, which could cause large inputs of sediment.

Road density would decrease from a high-density level to a moderate density level. The reduction in roads and the location of the majority of the remaining roads would help to reduce the effects of road density on the stream habitat. However, Highway 50 would continue to lie within the RHCA and thus have an influence on the river habitat. The reduction in road density would be an improvement over current conditions; however because areas with low road densities maintain aquatic strong holds (Lee et al 1997) the remaining moderate road density level does not entirely meet desired condition.

The stream crossings (sediment production) criteria improves from a "poor" condition (2.4 crossings/stream mile) to a "moderate "condition (0.9 crossings/stream mile). In the short term, this would add sediment to the stream channel during implementation however in the long term this activity would benefit the streams in the St. Joe drainage within the project area.

Cumulative Effects: Specific actions proposed in this alternative would produce no adverse effects and would provide beneficial effects from the reduction in road density and the number of stream

crossings. The combination of proposed management activity effects entering the St. Joe from Tumbledown (improving trend), Bruin (improving water quality trend) and Stevens Creeks (improving water quality trend), the information in Table 8 and the existing condition, indicate the fisheries habitat within this section of the St. Joe River would improve to an *Adequate condition*. However, the continued presence of the county-maintained road would maintain this segment of the St. Joe in a **Moderate altered/moderate risk** condition.

Compliance with Standards and Laws

Compliance with IPNF Forest Plan and INFS Guidelines:
Compliance with the IPNF Forest Plan and INFS Guidelines apply to activity implemented or authorized by the Forest Service.
Inland Native Fish Strategy (Replacing previous standard 1 and 2)): This standard would be met in Alternatives B and C. Viability of native fish species (MIS) would be supported.
Standard 3 does not apply to this project because none of the streams identified in that standard are located in this project area.
Standard 4 would be met. New road construction would provide for fish passage and known passage problems on Forest Service roads utilized by the timber sale would be corrected.
Standard 5 was met. The information contained in this report uses fisheries surveys to coordinate activities with other resources. Road decommissioning and culvert replacement would benefit the fishery when they are implemented.
Standard 6. The intent of this standard is being met due to the extensive review of the stream systems and the implementation of standards described in INFS.

Compliance with NFMA regulations:
Both action alternatives would meet NFMA requirements by providing and improving habitat for a diversity fish communities

Compliance with ESA regulations:
Neither of the action alternatives would jeopardize the continued existence of bull trout, the listed species that historically was found in the project area. A biological assessment will be completed when an alternative is selected for implementation.

Compliance with Executive Order 12962:
All alternatives would maintain habitat and thus would not affect the fishery potential, which in turn would not reduce the potential for recreational fishing opportunities. All alternatives include as a part of their proposals, culvert replacements/removals and road decommissioning. These activities would increase recreational fishing opportunities by improving habitat thus improving the carrying capacity of the streams.

Compliance with Regional Directive 2670/1950 (August 17, 1995):
Information provided in this document is the basis for the determinations documented on Biological Evaluation forms. (Appendix A)

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Appendix A

SENSITIVE SPECIES BIOLOGICAL EVALUATION
SUMMARY OF CONCLUSION OF EFFECTS*

Project Name: Fallen Bear Environmental Assessment

Alternative: (This form will be completed when a decision is made)

Species	No Impact	May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing or Loss Of Viability To The Population Or Species	Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species	Beneficial Impact
Westslope Cutthroat Trout				

Conditions:Include any actions or activities that are necessary to maintain the determination of effects.

Recommendations: Include any activities or opportunities that are optional.

Conditions: See biological assessment

Recommendations: See biological assessment

***** Note: The rationale for the conclusion of effects is contained in the NEPA document

Form 1 (R-1/4/6-2670-95)

SENSITIVE SPECIES BIOLOGICAL EVALUATION
SUMMARY OF CONCLUSION OF EFFECTS*

Project Name: Fallen Bear Environmental Assessment

Species	ALT A	ALT B	ALT C
Westslope Cutthroat Trout	MIIH	MIIH	MIIH

Comments:

Prepared by: /s/ Lisa Hawdon Date: 10/28/08

NI =No Impact
MIIH =May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Loss Of Viability To The Population Or Species
WIFV =Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species
BI = Beneficial Impact

* Note: Rationale For Conclusion Of Effects Is Contained In The NEPA Document.

Form 2 (R-1/4/6-2670-95)