Aquatic Species Biological Assessment for the Nez Perce Cattle & Horse Allotment

LEADORE RANGER DISTRICT

SALMON-CHALLIS NATIONAL FOREST

LEMHI COUNTY, IDAHO

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Signature 

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1 INTRODUCTION

The Leadore Ranger District of the Salmon-Challis National Forest (SCNF) authorizes livestock grazing activities within the Nez Perce Cattle & Horse Allotment. This biological assessment describes the proposed action and discusses the probable impacts of that action on listed species and designated and proposed critical habitat that may be affected. This biological assessment forms the basis for any necessary consultation with the Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (collectively the "Services") pursuant to section 7 of the Endangered Species Act (ESA) of 1973 (as amended) and its implementing regulations. This biological assessment replaces all previous consultations associated with this allotment. The regulations for consultation require the action agency to re-initiate consultation if certain triggers are met (50 CFR 402.16). Occasionally during the implementation of a proposed action, changes in circumstances, situations or information can raise the question as to whether those re-initiation thresholds have been reached. Should that situation occur the Salmon-Challis National Forest, will assess the changes and any potential impacts to listed species, review the re-initiation triggers, coordinate with Services for advice (if needed) and arrive at a determination whether re-initiation of consultation is necessary.

2 BACKGROUND INFORMATION

The Nez Perce Allotment grazing activities are conducted within one 5th field hydrologic unit code, Texas Creek (HUC 1706020401).

The following is a general description of the Nez Perce Allotment. The Nez Perce Allotment is located approximately 10 miles south of Leadore, Idaho. In the Texas Creek 5th field HUC the Nez Perce Allotment is within the Nez Perce Creek, Negro Green Creek, Deer Creek and Meadow Lake Creek drainages. Within the Nez Perce Allotment boundary there are four private land parcels and no State lands.

Natural Physical Characteristics

Hydrology

Deer Creek drainage: The Deer Creek drainage from the bottom of the Nez Perce Allotment drains approximately 6 square miles, has a mean annual precipitation of approximately 26 inches and has a peak stream flow during the June high spring runoff of approximately 22 cfs. Deer Creek is disconnected to Texas Creek. There are numerous unscreened diversions on Texas Creek which has been in place since the late 1800s. During portions of the year Texas Creek is dewatered before its confluence with the Lemhi River (USDI, Bureau of Land Management, 2003). Deer Creek, within the ESA Action Area, has one Forest Service water right point of diversion (0.02cfs) and one private land owner water right point of diversion (1.08cfs).

Negro Green Creek drainage: The Negro Green Creek drainage from the bottom of the Nez Perce Allotment drains approximately 3 square miles, has a mean annual precipitation of approximately 25 inches and has a peak stream flow during the June high spring runoff of approximately 9 cfs. Negro Green Creek is disconnected to Texas Creek. Negro Green Creek, within the ESA Action Area, has two Forest Service water right points of diversions (each for 0.02cfs) and one private land owner water right point of diversion (0.83cfs).

Nez Perce Creek drainage: The Nez Perce Creek drainage from the bottom of the Nez Perce Allotment drains approximately 6 square miles, has a mean annual precipitation of approximately 24 inches and has a peak stream flow during the June high spring runoff of approximately 24 cfs. This stream is not connected to Texas Creek. Nez Perce Creek, within the ESA Action Area, has three Forest Service water right points of diversions (each for 0.02cfs).

Meadow Lake Creek drainage: The Meadow Lake Creek drainage from the bottom of the Nez Perce Allotment drains approximately 3 square miles, has a mean annual precipitation of approximately 27 inches and has a peak stream flow during the June high spring runoff of approximately 9 cfs. Meadow Lake Creek is disconnected to Texas Creek. Meadow Lake Creek, within the ESA Action Area, has three Forest Service water right points of diversions (each for 0.02cfs).

Land Description

Deer Creek drainage: The Deer Creek drainage at the bottom of the Nez Perce Allotment is has an elevation of approximately 6,800 feet and above the allotment at the divide the elevation is approximately 10,800 feet. It is estimated that 76% of the slopes are greater than 30 percent, 45% of the slopes are greater than 50 percent and that 41% of the area is covered by forest.

Negro Green Creek drainage: The Negro Green Creek drainage at the bottom of the Nez Perce Allotment is has an elevation of approximately 7,000 feet and above the allotment at the divide the elevation is approximately 10,600 feet. It is estimated that 71% of the slopes are greater than 30 percent, 33% of the slopes are greater than 50 percent and that 57% of the area is covered by forest.

Nez Perce Creek drainage: The Nez Perce Creek drainage at the bottom of the Nez Perce Allotment is has an elevation of approximately 6,800 feet and above the allotment at the divide the elevation is approximately 10,600 feet. It is estimated that 65% of the slopes are greater than 30 percent, 25% of the slopes are greater than 50 percent and that 62% of the area is covered by forest.

Meadow Lake Creek drainage: The Nez Perce Creek drainage at the bottom of the Nez Perce Allotment is has an elevation of approximately 8,000 feet and above the allotment at the divide the elevation is approximately 10,700 feet. It is estimated that 68% of the slopes are greater than 30 percent, 44% of the slopes are greater than 50 percent and that 46% of the area is covered by forest.

Soils and Geology

Deer Creek drainage: Soils within the Nez Perce Allotment are derived mainly from sedimentary parent materials.

Negro Green Creek drainage: Soils within the Nez Perce Allotment are derived mainly from quartzite parent materials.

Nez Perce Creek drainage: Soils within the Nez Perce Allotment are derived mainly from quartzite parent materials.

Meadow Lake Creek drainage: Soils within the Nez Perce Allotment are derived mainly from sedimentary parent materials.

Vegetative Characteristics (see Figure 6)

Riparian Vegetation

Deer Creek drainage: Deer Creek, within the Nez Perce Allotment, has a relatively narrow riparian corridor, but is heavily vegetated with willows and alders. Aspen are present in the middle to upper portions of the drainage, especially around springs and seeps. The vegetation on most of the middle and upper reaches of the drainage are dominated by conifers, with some shrubs in the understory. Deer Creek, on National Forest System lands, are generally in good ecological condition, except at cross fences where livestock may congregate near the stream.

Negro Green Creek drainage: Negro Green Creek, within the Nez Perce Allotment, has a relatively narrow riparian corridor, but is heavily vegetated with willows and alders, with a sparser *Carex/Juncus* component typical of the site type. Aspen are present in the middle to upper portions of the drainage, especially around springs and seeps. The vegetation on most of the middle and upper reaches of the drainage are dominated by conifers, with some shrubs in the understory. Negro Green Creek, on National Forest System lands, are generally in good ecological condition, except at cross fences where livestock may congregate near the stream.

Nez Perce Creek drainage: Nez Perce Creek, within the Nez Perce Allotment, has a relatively narrow riparian corridor, but is heavily vegetated with willows and alders, with a sparser *Carex/Juncus* component typical of the site type. Aspen are present in the middle to upper portions of the drainage, especially around springs and seeps. The vegetation on most of the middle and upper reaches of the drainage are dominated by conifers, with some shrubs in the understory. Nez Perce Creek, on National Forest System lands, are generally in good ecological condition, except at cross fences where livestock may congregate near the stream.

Meadow Lake Creek drainage: Meadow Lake Creek, within the Nez Perce Allotment, has a relatively narrow riparian corridor, but is heavily vegetated with willows and alders, with a sparser *Carex/Juncus* component typical of the site type. Aspen are present in the middle to upper portions of the drainage, especially around springs and seeps. The vegetation on most of the middle and upper reaches of the drainage are dominated by conifers, with some shrubs in the understory. Meadow Lake, on National Forest System lands, are generally in good ecological condition, except at cross fences where livestock may congregate near the stream.

Upland Vegetation

Deer Creek drainage: Major plant communities are made up of mountain big sagebrush/Idaho fescue, with areas of mountain big sagebrush/bluebunch wheatgrass. Lower elevation areas contain Wyoming big sagebrush/bluebunch wheatgrass and low sagebrush/bluebunch wheatgrass. Less than one-third of the total 5th field HUC is forested but approximately 58% of the 5th field HUC above National Forest System lands is forested. Most forested lands contain Douglas fir, Lodgepole pine, Engelmann spruce, whitebark pine, subalpine fir and mixtures of these. Smaller portions of the forested lands contain deciduous trees, primarily aspen.

Negro Green Creek drainage: Major plant communities are made up of mountain big sagebrush/Idaho fescue, with areas of mountain big sagebrush/bluebunch wheatgrass. Lower elevation areas contain Wyoming big sagebrush/bluebunch wheatgrass and low sagebrush/bluebunch wheatgrass. Less than one-third of the total 5th field HUC is forested but approximately 58% of the 5th field HUC above National Forest System lands is forested. Most forested lands contain Douglas fir, Lodgepole pine, Engelmann spruce, whitebark pine, subalpine fir and mixtures of these. Smaller portions of the forested lands contain deciduous trees, primarily aspen.

Nez Perce Creek drainage: Major plant communities are made up of mountain big sagebrush/Idaho fescue, with areas of mountain big sagebrush/bluebunch wheatgrass. Lower elevation areas contain Wyoming big sagebrush/bluebunch wheatgrass and low sagebrush/bluebunch wheatgrass. Less than one-third of the total 5th field HUC is forested but approximately 58% of the 5th field HUC above National Forest System lands is forested. Most forested lands contain Douglas fir, Lodgepole pine, Engelmann spruce, whitebark pine, subalpine fir and mixtures of these. Smaller portions of the forested lands contain deciduous trees, primarily aspen.

Meadow Lake Creek drainage: Major plant communities are made up of mountain big sagebrush/Idaho fescue, with areas of mountain big sagebrush/bluebunch wheatgrass. Lower elevation areas contain Wyoming big sagebrush/bluebunch wheatgrass and low sagebrush/bluebunch wheatgrass. Less than one-third of the total 5th field HUC is forested but approximately 58% of the 5th field HUC above National Forest System lands is forested. Most forested lands contain Douglas fir, Lodgepole pine, Engelmann spruce, whitebark pine, subalpine fir and mixtures of these. Smaller portions of the forested lands contain deciduous trees, primarily aspen.

Human Uses

Deer Creek drainage: The human influences within this drainage are associated with existing roads, past mining activities, private land, logging, firewood gathering and recreation. The existing roads only access approximately the lower 1/3 of the drainage. Recreation within the Deer Creek drainage is generally dispersed and associated primarily with guided and unguided big game hunting and some sport fishing. There are no developed recreation sites in the Deer Creek drainage within and above the Nez Perce Allotment. There are no stream diversions on Deer Creek within and above the Nez Perce Allotment.

Negro Green Creek drainage: The human influences within this drainage are associated with existing roads, past mining activities, logging, firewood gathering and recreation. The existing roads only access approximately the lower 1/3 of the drainage. Recreation within the Negro Green Creek drainage is generally dispersed and associated primarily with guided and unguided big game hunting and some sport fishing. There are no developed recreation sites in the Negro Green Creek drainage within and above the Nez Perce Allotment. There are no stream diversions on Negro Green Creek within and above the Nez Perce Allotment.

Nez Perce Creek drainage: The human influences within this drainage are associated with existing roads, past mining activities, logging, firewood gathering and recreation. The existing roads only access approximately the lower 1/3 of the drainage. Recreation within the Nez Perce Creek drainage is generally dispersed and associated primarily with guided and unguided big game hunting and some sport fishing. There are no developed recreation sites in the Nez Perce Creek drainage within and above the Nez

Perce Allotment. There are no stream diversions on Nez Perce Creek within and above the Nez Perce Allotment.

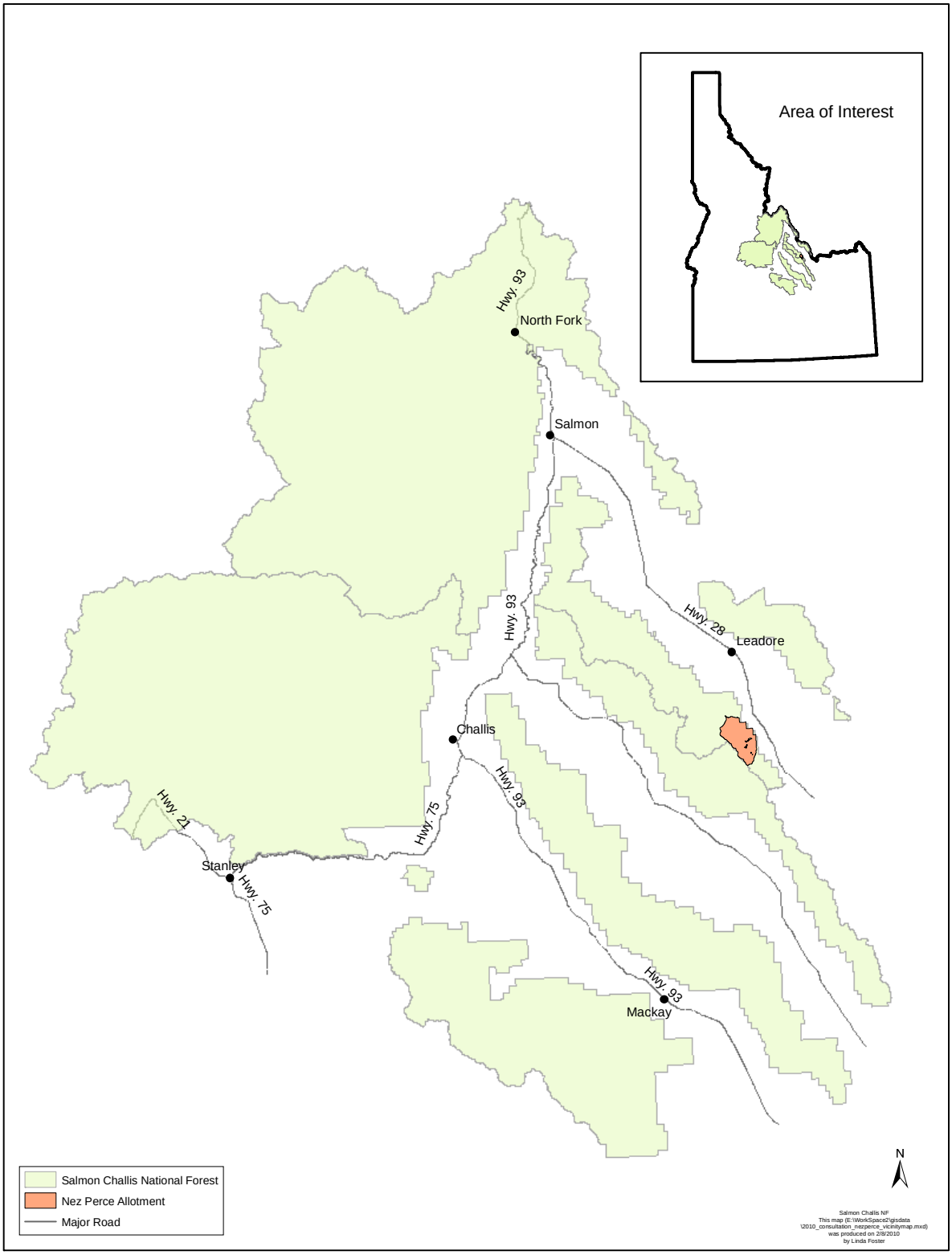
Meadow Lake Creek drainage: The human influences within this drainage are associated with existing roads, past mining activities, logging, firewood gathering and recreation. The existing roads provide access all the way to Meadow Lake and the Meadow Lake developed recreation site. Recreation within the Meadow Lake Creek drainage is generally dispersed and associated primarily with guided and unguided big game hunting and sport fishing at Meadow Lake. There are no stream diversions on Meadow Lake Creek within and above the Nez Perce Allotment.

3 PROPOSED ACTION

3.1 PROJECT AREA

The Nez Perce Allotment is located on the Leadore Ranger District approximately 10 air miles south of Leadore, Idaho on National Forest System lands within the Deer Creek, Negro Green Creek, Nez Perce Creek and Meadow Lake Creek drainages (Figure 1). This allotment contains 15,412 acres of National Forest System lands. The proposed project area is located within the Texas Creek (HUC 1706020401) 5th field HUCs of the Lemhi River 4th field HUC (17060204). The Nez Perce Allotment is allotment is divided into 4 units: the Mountain Boy, Dry Gulch, Deer Creek, and Nez Perce Creek. The allotment contains ESA fish (bull trout) and Proposed bull trout Critical Habitat in: Deer Creek (Deer Creek and Mountain Boy Units) (see Tables 11 - 12).

Figure 1 - Nez Perce Allotment Vicinity Map



3.2 PROPOSED ACTION

3.2.1 CURRENT PERMIT

The Nez Perce C&H Allotment is currently permitted for 200 cow/calf pair (539 Head Months) from 7/1 to 9/20. Permits are held by two permittees as follows:

Permit Number	Expiration Date
80102	12/31/2017
80106	12/31/2017

3.2.2 GRAZING SYSTEM

The Nez Perce C&H Allotment's grazing rotation system will continue to use a rest rotation system.

Range readiness (Bluebunch wheatgrass in the first boot stage) will be monitored to determine if the on-date is appropriate and adjusted as necessary. Forest staff and permittee will do the monitoring to determine the on-date.

Annual use indicators (see section 3.2.6) will dictate when unit moves or the off date occurs with unit move dates being approximate. Permittees are responsible for moving livestock to meet annual use indicators. Annual use indicators will be monitored by Forest Service personnel.

Table 1 - Unit Rotations (see figure 2 for Unit locations)

Year 1	Year 2	Year 3	Year 4
Deer Creek Unit	Nez Perce Unit	Mountain Boy Unit	Dry Gulch Unit
Dry Gulch Unit	Deer Creek Unit	Nez Perce Unit	Mountain Boy Unit
Mountain Boy Unit	Dry Gulch Unit	Deer Creek Unit	Nez Perce Unit
Nez Perce Unit (Rest)	Mountain Boy Unit (Rest)	Dry Gulch Unit (Rest)	Deer Creek Unit (Rest)

Deer Creek Unit:

- Bull Trout: Livestock will be in the unit after August 15th between 2 and 4 weeks two out of four years.
- Trailing: There is one supervised trailing crossing site on lower Deer Creek. This crossing is at a ford crossing on FS road #60211. Livestock will be crossing Deer Creek at this one supervised trailing crossing site in Year 1 and Year 4 (see Table 1) after August 15th.

Dry Gulch Unit:

- This Unit has no ESA fish streams.

Mountain Boy Unit:

- Bull Trout: Livestock will be in the unit after August 15th between 3 and 4 weeks two out of four years.
- Trailing: There are no known supervised trailing crossing sites on Deer Creek.

Nez Perce Unit:

- This Unit has no ESA fish streams.

Entry:

Livestock are trailed from the home ranch along Highway 28 to private property near the allotment. The livestock are then trailed through the permittee's BLM allotment to enter the Forest Service allotment via a pre-established livestock trail.

Unit Movements:

Year 1: Livestock are moved from the Deer Creek Unit to the adjoining Dry Gulch Unit via a pre-established livestock trail. After leaving the Dry Gulch Unit, livestock are moved into the Mountain Boy Unit by trailing back through the Deer Creek Unit via a pre-established livestock trail. The Nez Perce Unit is rested in this year of the rotation. Duration of moves is approximately one day per move (see Table 1).

Year 2: Livestock are moved from the Nez Perce Unit to the adjoining Deer Creek Unit via a pre-established livestock trail. After leaving the Deer Creek Unit, livestock are moved into the adjoining Dry Gulch Unit via pre-established livestock trail. The Mountain Boy Unit is rested in this year of the rotation. Duration of moves is approximately one day per move (see Table 1).

Year 3: Livestock are moved from the Mountain Boy Unit to the Nez Perce Unit by trailing through the Deer Creek Unit via a pre-established livestock trail. After leaving the Nez Perce Unit, livestock are moved into the adjoining Deer Creek Unit via pre-established livestock trail. In this year of the rotation the Dry Gulch Unit is rested. Duration of moves is approximately one day per move (see Table 1).

Year 4: Livestock are moved from the Dry Gulch Unit to the Mountain Boy Unit by trailing through the Deer Creek Unit via a pre-established livestock trail. After leaving the Mountain Boy Unit, livestock are moved into the Nez Perce Unit by trailing through the Deer Creek Unit via pre-established livestock trail. The Deer Creek Unit is rested in this year of the rotation. Duration of moves is approximately one day per move (see Table 1).

Exit:

Livestock are trailed from the Forest Service allotment directly onto a BLM allotment and then trailed to private land.

Total Removal from NFS Lands:

All livestock will be removed from the allotment by 9/20.

3.2.3 CONSERVATION MEASURES

The following measures will be implemented as part of the Nez Perce Allotment's annual operating instructions (AOI) to avoid and reduce potential impacts to ESA listed fish:

1. A rest rotation grazing system will continue to be used. Resting a unit each year provides benefits to riparian vegetation. This will help meet our long term riparian resource objective for greenline successional status.
2. The on date will be varied so that livestock will be placed on the allotment at range readiness. This will reduce potential for bank alteration. This will help meet our long term riparian resource objective for bank stability.
3. Annual use indicators will dictate when livestock are moved between units or off the allotment within the terms of the term grazing permit including moves in response to fish spawning. This will help us meet our long term riparian resource objectives. Annual use indicators will be monitored by Forest Service personnel.
4. Permittees will continue to salt at least ¼ mile away from streams. This will continue to reduce potential impacts on riparian areas, spawning areas and designated and proposed critical habitat.
5. Permittees will continue to distribute livestock away from streams and associated riparian areas (ride) at least five days a week, reducing potential impacts on riparian areas, spawning areas and designated and proposed critical habitat.
6. Fences and water developments have been placed to reduce livestock use on streams and their associated riparian areas. This will continue to reduce impacts on riparian areas, spawning areas and designated and proposed critical habitat.

3.2.4 CHANGES FROM EXISTING MANAGEMENT

- The monitoring attribute of browse use will be added to the site which is dominated by woody browse species. Greenline stubble will continue to be monitored at this site.
- The monitoring attribute of bank alteration will be added to the monitoring site.

3.2.5 RESOURCE OBJECTIVES AND STANDARDS

Resource Objectives and Effectiveness Monitoring: The allotment is being managed to achieve the following resource conditions in riparian areas. Resource objectives are the Forest's description of the desired land, plant, and water resources condition within riparian areas in the allotment. Some resource objectives are Riparian Management Objectives (RMOs) from PACFISH and its corresponding Biological Opinions (U.S Department of Commerce, National Marine Fisheries Service, 1998). PACFISH is an interim strategy for managing anadromous fish-producing watersheds that was amended into the Salmon and Challis Forest Plans in 1995.

Effectiveness monitoring for resource objectives will be monitored every 3-5 years at Designated Monitoring Areas (DMAs) using the Multiple Indicator Monitoring (MIM) technical reference or other best available science as it becomes available. DMAs are areas representative of grazing use specific to the riparian area being accessed and reflect what is happening in the overall riparian area as a result of on-the-ground management actions. They

should reflect typical livestock use where they enter and use vegetation in riparian areas immediately adjacent to the stream (MIM, Technical Manual). Results from monitoring will be available at (http://www.fs.fed.us/r4/sc/projects/range/index.shtml).

Resource Objectives:

- Greenline Successional Status: A greenline successional status value of at least 61 (late seral) or the current value, whichever is greatest (Winward 2000, Burton et al. 2008).
- Woody Species Regeneration: A stable trend at sites with desired condition and an upward trend at sites not at desired condition (Winward 2000, Burton et al. 2008).
- Bank Stability RMO: A bank stability of at least 80% or the current value, whichever is greatest outside of priority watersheds. Within priority watersheds a bank stability of at least 90% or the current value, whichever is greatest (U.S Department of Commerce, National Marine Fisheries Service, 1998).
- Water Temperature RMO: No measureable increase in maximum temperature; <64^{o}F in (Chinook, steelhead) migration and rearing areas and <60^{o}F in spawning areas except in steelhead priority watersheds with a <45^{o}F in spawning area (PACFISH BO; - U.S Department of Commerce, National Marine Fisheries Service, 1998). No measureable increase in maximum water temperature (7 day moving average of daily maximum temperature measured as the average of the maximum daily temperature of the warmest consecutive 7-day period) Maximum water temperatures below 59^{o} F within (bull trout) adult holding habitat and below 48^{o} F within spawning and rearing habitats. (INFISH BO; - U.S. Department of the Interior, U.S. Fish and Wildlife Service, 1998).
- Width:depth ratio RMO: <10 mean wetted width divided by mean depth by channel type (PACFISH BO; - U.S Department of Commerce, National Marine Fisheries Service, 1998). Identification of width:depth ratio objective values will also consider values and ranges identified within the document Descriptions that Represent Natural Conditions in the Salmon River Basin, Idaho (Overton et al, 1995)
- Sediment RMO: <20% surface fine sediment which is substrate <0.25 in (6.4 mm) in diameter in spawning habitat or <30% cobble embeddedness in rearing habitat.

Resource Standards (PACFISH):

- GM-1 - Modify grazing practices (e.g., accessibility of riparian area to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of Riparian Management Objectives or are likely to adversely affect listed anadromous fish. Suspend grazing if adjusting practices is not effective in meeting Riparian Management Objectives and avoiding adverse effects on listed anadromous fish (PACFISH).
- GM-2 – Locate new livestock handling and/or management facilities outside of Riparian Habitat Conservation Areas. For existing livestock handling facilities inside the Riparian Habitat Conservation Areas assure that facilities do not prevent attainment of Riparian Management Objectives or adversely affect listed anadromous fish. Relocate or close facilities where these objectives cannot be met.
- GM-3 – Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that will not retard or prevent attainment of Riparian Management Objectives or adversely affect listed anadromous fish.

3.2.6 ANNUAL GRAZING USE INDICATORS

Annual Use Indicators and Implementation Monitoring: Annual use indicators are used to ensure that grazing does not prevent the attainment of the riparian resource objectives. Riparian annual use indicators used on the Salmon-Challis National Forest generally include greenline stubble height, bank alteration, and woody browse. In general, greenline stubble height is used to regulate grazing impacts on greenline ecological status, bank alteration is used to regulate grazing impacts on bank stability, and woody browse is used to regulate impacts on woody recruitment. The specific indicators selected for a specific unit should be those that correspond with the riparian resources that are most sensitive to the impacts of livestock grazing. For example, if bank stability was the riparian feature most likely to be impacted by livestock grazing in a unit, then bank alteration would be selected as the annual use indicator for that unit.

The annual use indicators and triggers for grazing use in Table 2 below will be used until the next trend reading is completed to determine which annual use indicators address attaining the resource objectives.

Annual Indicator will be adjusted if resource objectives are not being met.

Table 2 - Annual Use Indicators

Key Area Locations	Unit – Creek	Monitoring Attribute	Annual Use Indicator	Key Species	Trigger
MIM M 228	Deer Creek Unit – Deer Cr.	Browse use	50% 30%	Willow Alder	45% 25%
		Greenline Stubble	4 in.	Hydric spp.	5 in.
		Bank Alteration	20%	N/A	15%
Upland Sites	All Units	Utilization	50%	Upland grass species	45%
Riparian Areas	All Units	Utilization by Key Species	50%	Riparian grass species	45%

Annual use indicators will be measured at key areas by key species (on uplands) and at DMA greenlines annually. Key areas are monitoring sites chosen to reflect the effects of grazing over a larger area (Burton et al 2008). Key species are preferred by livestock and an important component of a plant community, serving as an indicator of change (Utilization Studies and Residual Measurements, Interagency Technical Reference 1734-3). The Interagency Technical Reference or other best available science would be used to monitor grazing use. The MIM Interagency Technical Bulletin (Burton et al 2008) or other best available science would be used to monitor grazing use at DMAs. Annual use indicators will be monitored by the Forest Service. Triggers will be used by permittees as a tool to help ensure annual use indicators are met. Results from monitoring will be available at (http://www.fs.fed.us/r4/sc/projects/range/index.shtml).

3.2.7 IMPROVEMENTS

New Improvements: There are no new improvements proposed at this time.

Existing improvements: Existing improvements, as displayed in Figure 2, will be maintained in accordance with the term grazing permit. For example; 1) fences will be maintained to function as designed (ie. to keep livestock in or out of an area, 2) water troughs will be maintained to keep water within the trough (ie. no holes in the trough) and to have a functioning float system so water does not continuously over flow the trough.

Potential Future Improvements: The following is a list of potential future improvement projects that would benefit ESA listed fish by providing water for livestock on the uplands to pull them away from ESA fish streams or reduce potential livestock impacts on stream channels that drain into an ESA fish stream. These projects were identified on field reviews and in office meetings in coordination with NMFS, USFWS and the permittees. Implementation of these potential future improvements will require NEPA analyses, Biological Assessments/Biological Evaluations and are dependent upon available funding.

- Deer Creek Trough: Will help pull livestock away from Deer Creek reducing impacts to ESA fish, fish habitat and proposed critical habitat.

3.3 GRAZING MONITORING

Two types of monitoring will be used, implementation and effectiveness monitoring. Both qualitative and quantitative monitoring methods will be used in accordance with the following:

1. Implementation Monitoring: The designated indicators (e.g. - stubble height, bank alteration, and woody browse) will be periodically monitored while livestock are in each grazing unit to evaluate the status of the standards and to determine when livestock need to be moved from the unit. The specific triggers for moving livestock from the unit will be based on the time needed to move the livestock from the unit and may vary between units and years. The designated indicators (e.g. - stubble height, bank alteration, and woody browse) will be monitored utilizing MIM protocols or other best available science at DMAs within each unit at the end of the grazing season to ensure that the standards have been met.
2. Effectiveness Monitoring: The condition of resource objectives will be evaluated in the following manner. Greenline successional status, bank stability, width:depth ratio, water temperature, and woody recruitment will be monitored every three to five years to evaluate resource conditions. Monitoring results will be available at (http://www.fs.fed.us/r4/sc/projects/range/index.shtml).

3.4 INTERDEPENDENT ACTIONS

Interdependent actions are actions that have “no independent utility apart from the action under consideration” (50 CFR§402.02). The Forest has not identified any interdependent actions associated with the proposed action.

3.5 INTERRELATED ACTIONS

Interrelated actions are actions that “are part of a larger action and depend on the larger action for their justification” (50 CFR§402.02). The Forest has not identified any interrelated actions associated with the proposed action.

3.6 ADAPTIVE MANAGEMENT

The adaptive management strategy described below and depicted in Appendix F diagrams 1.0 (Long-term) and 2.0 (Annual) is intended for allotments requiring consultation. It will be used to ensure: 1) sites at desired condition remain in desired condition; 2) sites not in desired condition have an upward trend or an acceptable static trend to be agreed upon with the Services and the Forest Service; and 3) direction from consultation with the Services is met. The overall strategy consists of a long-term adaptive management strategy and an annual adaptive management strategy. The long-term strategy describes how adaptive management will be used to ensure the three objectives previously stated are achieved and to maintain consistency with Forest Plan level direction. The annual adaptive management strategy describes how adjustments will be made within the grazing season to ensure annual use indicators and other direction from consultation is met. Both strategies describe when and how regulatory agencies will be contacted in the event direction from consultation is not going to be met.

Ideally, the value associated with the annual use indicator is customized to the specific circumstances in each unit. However, customizing this value generally requires a significant amount of data and/or experience with a particular unit. When sufficient data and/or experience are not available to establish the annual use indicators values, the forest has provided general guidelines for establishing the values. These guidelines will be used until such time as sufficient data and/or experience are available to customize the annual indicator values. The general guidelines are:

- Livestock grazing in the uplands and riparian areas will be limited to 50% use on key herbaceous species within key areas of the allotment during the grazing season.
- When the relevant resource objectives are being met (section 3.2.5) annual use indicators, within riparian areas will be 50% browse on multi-stemmed species, 30% browse on single-stemmed species, and 4” residual stubble height.
- When the relevant resource objectives (see section 3.2.5) are not being met annual endpoint indicators, allowable use, will be 30% browse on multi-stemmed species, 20% browse on single-stemmed species, and 6” residual stubble height.
- In priority watersheds, when bank stability is 90% or greater the bank alteration **annual use indicator** will be 20%
- In priority watersheds, when bank stability is 70-89% the bank alteration **annual use indicator** will be 10-20%
- In priority watersheds, when bank stability is less than 70% the bank alteration **annual use indicator** will be 10%

4 ESA ACTION AREA DESCRIPTION

The ESA action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR§402.02). In other words, this is the area where the action and any interdependent and interrelated actions will result in direct or indirect effects to listed species or designated critical habitat. This project’s ESA Action Area is defined as the entire Nez Perce Allotment (see Figure 2).

Priority Watersheds are those watersheds that have been identified per direction in the 1995 PACFISH Biological Opinion, that require a different management strategy because of their importance to listed fish. Priority Watersheds within the action area are identified in Figure 3.

The entire Nez Perce Allotment is within a Chinook salmon and steelhead priority watershed. Management direction for priority watersheds is identified in section 3.2.5.

The one ESA fish bearing stream within the ESA Action Area is Deer Creek (see Tables 11 - 12). The one stream within the ESA Action Area that has proposed critical habitat is Deer Creek (see Tables 11 - 12).

Figure 2 - Nez Perce Allotment ESA Action Area Map

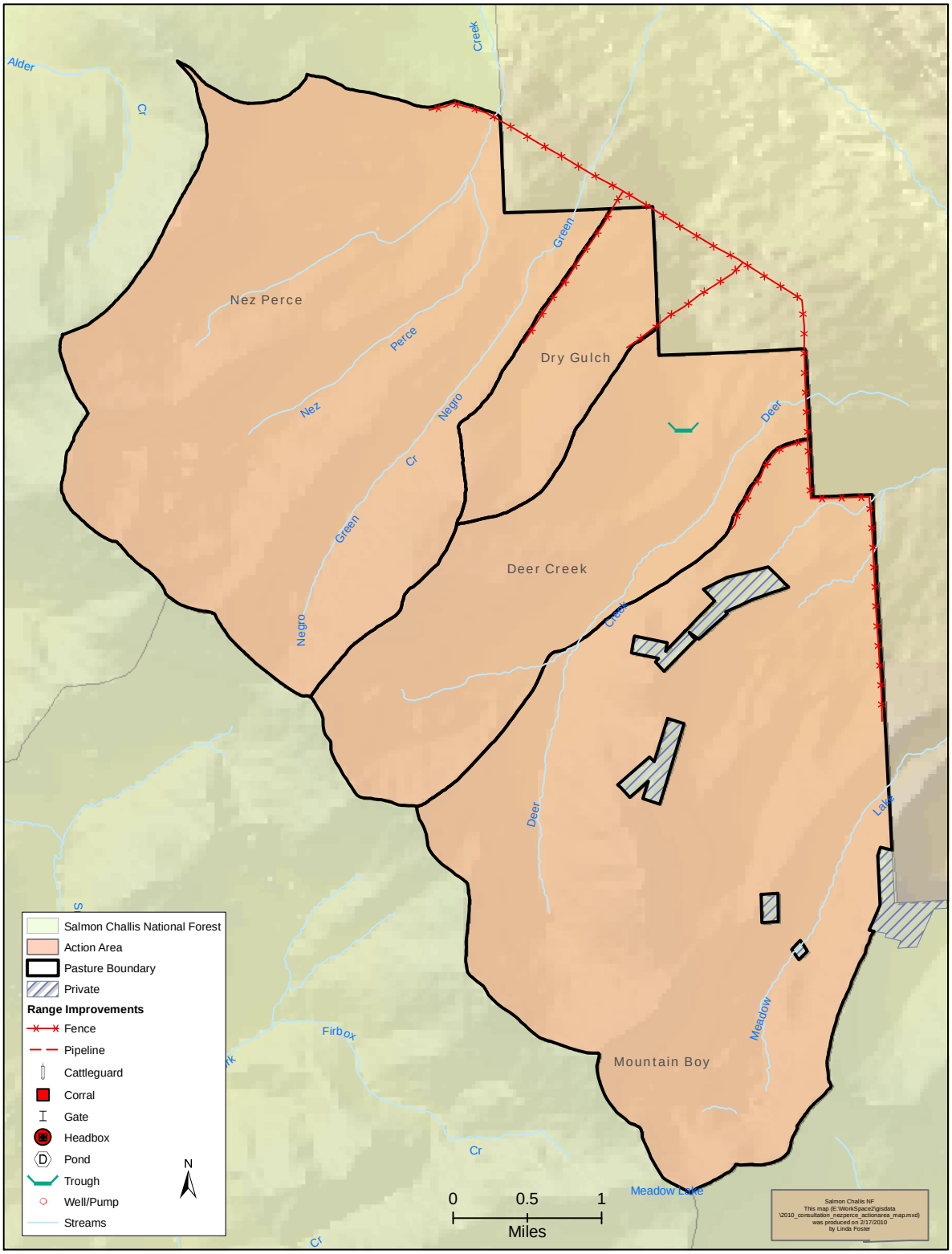
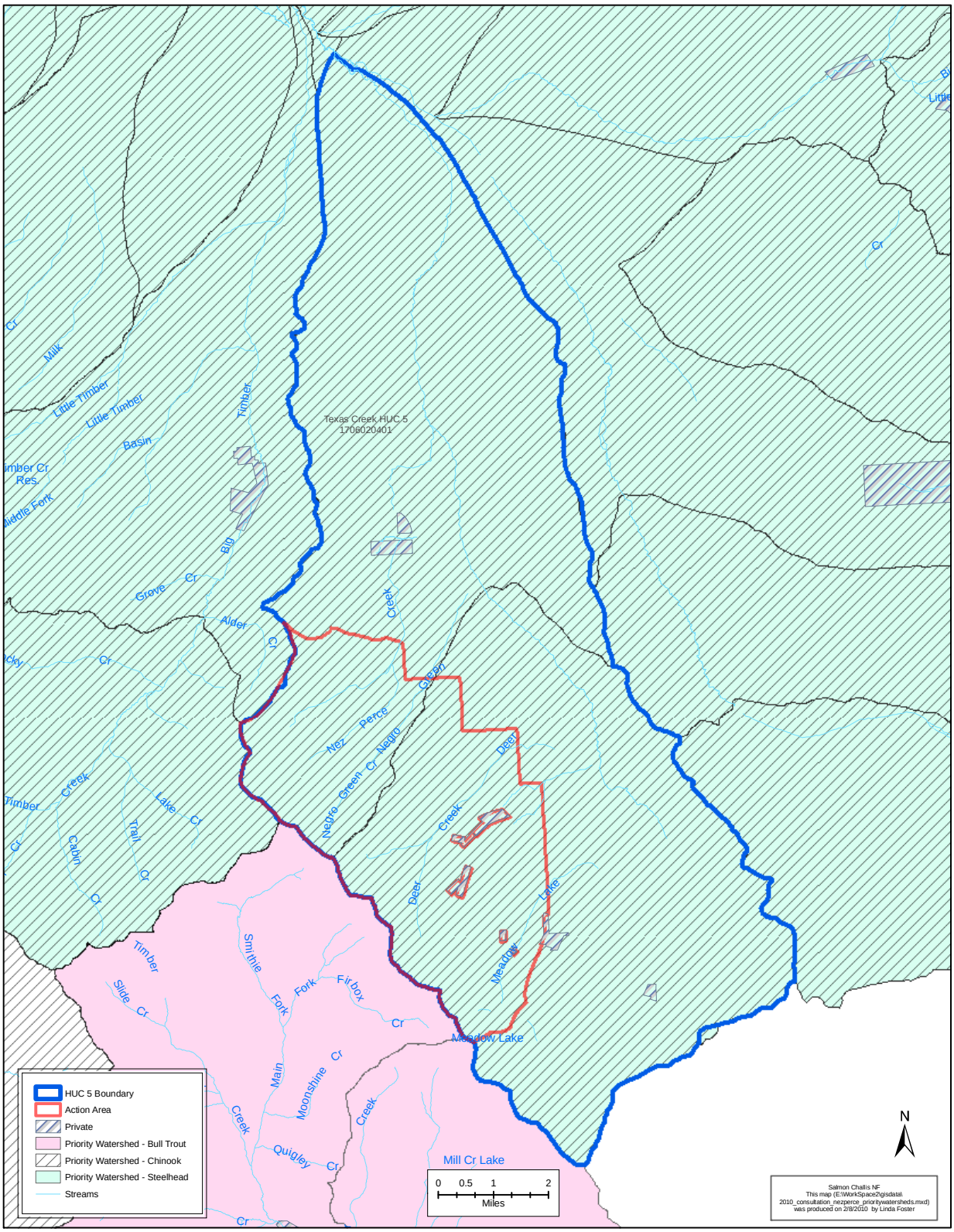


Figure 3 – Texas Creek HUC 5 Map with Priority Watersheds



5 LISTED SPECIES REVIEW

5.1 SPECIES OCCURRENCE

According to the U.S. Fish and Wildlife Service's (USFWS's) Semi-annual Species List Update Letter, 14420-2010-SL-0089 received December 30, 2009 to Harv Forsgren, R4 - Regional Forester, the federally listed or proposed listed fish species occurring within the Salmon-Challis NF administered boundaries include;

- Snake River sockeye salmon (Oncorhynchus nerka) (Endangered) (Federal Register 56FR58619)
- Snake River spring/summer Chinook salmon (Oncorhynchus tshawytscha) (Threatened) (Federal Register 57FR14653)
- Snake River steelhead (Oncorhynchus mykiss) (Threatened) (Federal Register 62FR43937)
- Columbia River bull trout (Salvelinus confluentus) (Threatened) (Federal Register 63FR31647)

Salmon-Challis National Forest and Idaho Department of Fish and Game fish surveys indicate that only one ESA fish species occurs within the ESA Action Area. This species is the bull trout (Figure 4). Salmon-Challis National Forest and Idaho Department of Fish and Game surveys indicate that bull trout are spawning and rearing within the ESA Action Area in one stream, Deer Creek. There are no streams within the ESA Action Area that have the presence of Chinook salmon or steelhead. Sockeye salmon use the mainstem Salmon River as a migration corridor to and from spawning and juvenile rearing habitat within lakes of the Salmon River headwaters, but do not occupy or use waters within the Lemhi River 4th field HUC (Federal Register 56FR58619).

5.2 CRITICAL HABITAT

5.2.1 SNAKE RIVER SPRING/SUMMER CHINOOK SALMON

Critical habitat has been designated for Snake River spring/summer Chinook salmon and includes "river reaches presently or historically accessible…to Snake River spring/summer Chinook salmon" (Federal Register 58FR68543). The Salmon-Challis National Forest has mapped Chinook salmon critical habitat designations within Forest streams following the process as identified in Appendix D. Using this process, the Forest has not identified Chinook salmon designated critical habitat within the ESA Action Area.

5.2.2 SOCKEYE SALMON

Critical habitat has been designated for Snake River sockeye salmon (Federal Register 58FR68543). This designation does not include any waters within the ESA Action Area.

5.2.3 SNAKE RIVER BASIN STEELHEAD

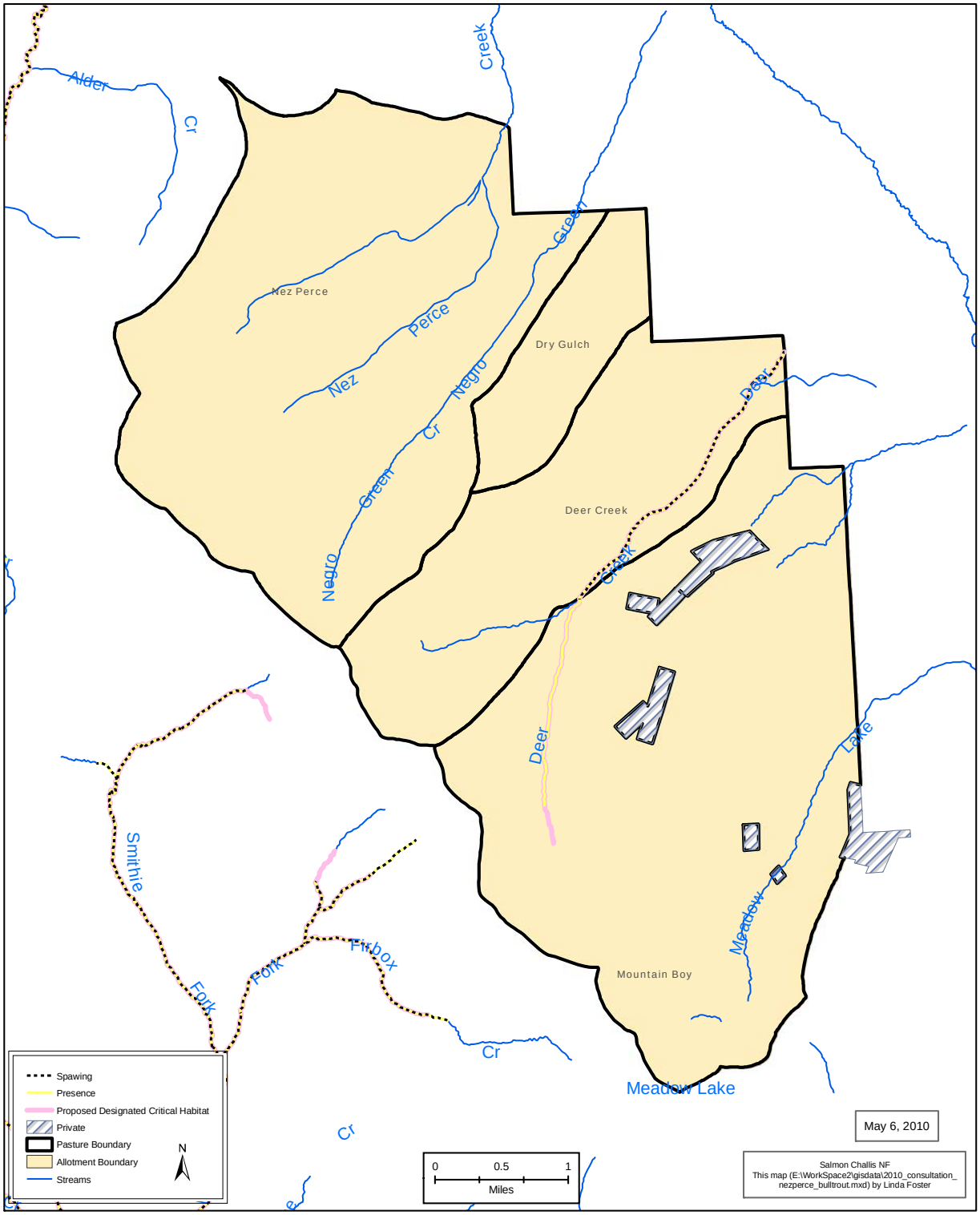
Critical habitat has been designated for Snake River Basin steelhead (Federal Register 70FR52630). Steelhead designated critical habitat is not present within the ESA Action Area.

5.2.4 COLUMBIA RIVER BULL TROUT

Critical habitat was designated for bull trout on September 26, 2005. This designation did not include any areas encompassed by the proposed action. Currently, however, the U.S. Fish and Wildlife Service has published public notice (January13, 2010, Federal Register 75FR2270) that it is proposing to revise the 2005 designated critical habitat. While the Nez Perce Allotment ESA Action Area does not contain any currently designated critical habitat for bull trout, it does contain proposed critical habitat. Proposed bull trout critical habitat is present within the ESA Action Area and includes 4.5 miles of Deer Creek (Figure 4).

The Forest desires to assess the potential impact to the Primary Constituent Elements (PCEs) of proposed bull trout critical habitat. These are defined on page 2360 of the referenced Federal register notice. Because these elements are important to areas on the Forest where bull trout are present, the Forest would like to demonstrate that potential impacts to the PCEs have been assessed and considered in the proposed action (Appendix E).

Figure 4 - Nez Perce Allotment bull trout Map



6 ENVIRONMENTAL BASELINE DESCRIPTION

The ESA Action Area is within one 5th field hydrologic unit code, Texas Creek (HUC 1706020401). Baseline Matrices of Diagnostic Pathways and Indicators for this 5th field HUC is provided in Appendix B.

Below is a general summary of baseline conditions within the ESA Action Area. While the baseline matrix included in Appendix B reflects aquatic/riparian condition and trend at the 5th field HUC scale, the baseline descriptions provided below focus only on baseline conditions within the ESA Action Area. This is done to focus analysis emphasis on those habitat parameters most likely to be influenced by grazing activities and set the context for analyzing the effects of the proposed action on these conditions. As these characterizations reflect the more localized site-specific conditions of the action area, identified condition and/or functionality assessments may vary from those identified for the larger 5th field HUC scale's baseline (Appendix B).

6.1 GENERAL DESCRIPTION OF LISTED FISH POPULATIONS

This section provides a general description of the distribution, status and trend of listed fish populations within the ESA Action Area.

The Salmon-Challis National Forest completed electrofishing monitoring in 2007 on Nez Perce Creek and Negro Green Creek and found no fish present. The Forest completed electrofishing on Deer Creek in 2009 and found the presence of bull trout and eastern brook trout. Therefore, there is one stream, Deer Creek, within the ESA Action Area that currently supports one ESA listed fish population, bull trout. This is consistent with the 2003 BA for ongoing activities Lemhi River Section 7 Watershed where it shows in a table on page 193 Deer Creek is the only ESA Action Area stream to support an ESA listed fish (USDI, Bureau of Land Management, 2003). Deer Creek within the ESA Action Area also has proposed critical habitat for bull trout.

6.1.1 CHINOOK SALMON

Within the ESA Action Area there is no documentation of the presence of Chinook salmon, juvenile or adult. None of the four drainages within the ESA Action Area are connected to Texas Creek and the Lemhi River.

There is no Chinook salmon Designated Critical Habitat within the ESA Action Area.

6.1.2 STEELHEAD

Within the ESA Action Area there is no documentation of the presence of steelhead, juvenile or adult, at this time. None of the four drainages within the ESA Action Area are connected to Texas Creek and the Lemhi River.

There is no steelhead Designated Critical Habitat within the ESA Action Area.

6.1.3 BULL TROUT

Within the ESA Action Area, bull trout are currently present in Deer Creek. There is an estimated 4.22 miles of bull trout presence habitat, 2.58 miles of bull trout spawning habitat and 4.50 miles of Proposed Critical Habitat within the ESA Action Area (see Table 11 - 12). No other

streams within the ESA Action Area have been found to have the presence of bull trout. In 2009 the Salmon-Challis National Forest electrofished a 100 meter transect of Deer Creek. In that 100 meters there were bull trout and brook trout present. There were 28 bull trout caught ranging in size 85mm to 255mm. There were no fish less than 70mm caught. There were 6 brook trout caught ranging in size 125mm to 150mm. It is my professional judgment that bull trout populations within the ESA Action Area are depressed in part because Deer Creek does not have connectivity to the Lemhi River and there is the presence of brook trout.

6.2 GENERAL DESCRIPTION OF HABITAT CONDITIONS

This section provides a general description of the status and trend of listed species habitat within the ESA Action Area. More specific information on habitat conditions, including specific habitat data, is provided later in the document and in Appendices B and C.

The Nez Perce Allotment encompasses one stream which support populations of, and/or habitat for, ESA listed fish species. That stream is Deer Creek.

Table 3 - Mean Annual Monthly Flows

Snake River Adjudication Sites

Station	DA (sq. mi.) (drainage area)	QA (cfs) Yearly Average Discharge	QB (cfs) Bankfull Discharge (flood stage)	Mean Monthly Flows JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	Bankfull Channel Slope	Bankfull Width	X-Sectional Area	Bankfull Depth	Width/Depth Ratio
Deer Creek	5.66	6.56	27	2.1	2.1	2.3	4.7	19.1	26.3	8.2	3.5	2.8	2.7	2.5	2.3	0.002	7.5	10.47	1.40	5.4

Stream Stats Calculations

Station	DA (sq. mi.) (drainage area)	QA (cfs) Yearly Average Discharge	QB (cfs) Bankfull Discharge (flood stage)	Mean Monthly Flows JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	Bankfull Channel Slope	Bankfull Width	X-Sectional Area	Bankfull Depth	Width/Depth Ratio
Meadow Lake Creek	2.69	1.94	19.1	0.43	0.41	0.49	0.97	5.87	9.05	4.25	2.12	1.33	0.65	0.54	0.47	unknown	unknown	unknown	unknown	unknown
Negro Green Creek	2.45	1.59	13.9	0.32	0.31	0.38	0.88	5.24	9.29	2.26	1.14	0.76	0.47	0.41	0.36	unknown	unknown	unknown	unknown	unknown
Nez Perce Creek	6.39	3.81	30.3	0.86	0.85	1.02	2.26	14.2	23.6	5.75	2.83	1.95	1.24	1.1	0.95	unknown	unknown	unknown	unknown	unknown

6.2.1 DEER CREEK

All life stages of bull trout are considered to be present in Deer Creek. Fish habitat conditions of Deer Creek, within the ESA Action Area, are generally in good condition. Overall physical habitat quality, including the elements of water quality, flow/hydrology, channel conditions and structural habitat elements is considered good. There is no connectivity between Deer Creek and the Lemhi River.

6.3 MAJOR LIMITING FACTORS

Factors most likely to be limiting ESA listed fisheries resources, within the ESA Action Area, from achieving full carrying capacity are:

- There are eastern brook trout present along with bull trout in Deer Creek. There is no connectivity between Deer Creek and the Lemhi River. The probability of hybridization and declining bull trout populations is high
- Year to year stream flow conditions associated with good or bad snowpack levels.

More specific details on status and trends of habitat within the ESA Action Area are provided below.

6.4 GRAZING FOCUS INDICATORS

One tool developed to assist in describing the condition of watersheds and streams which listed Chinook salmon, steelhead and bull trout depend on is; *A Framework to assist in Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Subpopulation Watershed Scale* (Appendix 9 in Lee et al., 1997). It is commonly referred to as the Matrix of Pathways and Indicators, and at its most basic level is a table which identifies the important elements or indicators of a listed salmonid habitat. Using this table assists in consistent organization an assessment of current condition and judging how those indicators may be impacted by a proposed action (Lee et al. 1997). The Forest has included a matrix for this allotment as Appendix B of this Biological Assessment. Because the Matrix of Pathways and Indicators was developed to operate at several spatial scales (Lee et al. 1997) the Forest has selected six indicators from the matrix table as their “Focus Indicators”, on which analysis of livestock impacts to fish and designated habitat will be based. These are 1) spawning and incubation, 2) temperature, 3) sediment, 4) width: depth ratio, 5) streambank condition, and 6) riparian conservation areas. These are the indicators that the Forest can easily monitor, have the most specificity with a long running data set, and most closely reflect the aquatic/riparian baseline pathway and indicator elements considered most likely to be impacted by grazing activities within a watershed.

The Forest has used this “Focus Indicator” set to characterize the condition of the habitat for listed fish species in the occupied streams in this allotment. If stream specific information is not available, then observational information or information from similar streams was used. If one (or several) of the focus indicators showed a habitat condition was potentially limiting the ability of listed fish species to thrive; the Forest presented an opinion of the most likely causal factor for that limiting condition. By identifying those potentially limiting factors, the Forest and the Service can focus their analysis of the proposed action’s effects on that habitat component.

These indicators encompass the recently published draft PCEs for Chinook salmon, steelhead and proposed bull trout critical habitat, and therefore our analysis of these elements will serve as an analysis of impacts to designated and proposed critical habitat.

A description of the condition of the Focus Indicators within the action area is provided below.

6.4.1 SPAWNING AND INCUBATION:

6.4.1.1 CHINOOK SALMON SPAWNING AND INCUBATION

There is NO Chinook salmon spawning and incubation within the ESA Action Area.

6.4.1.2 STEELHEAD SPAWNING AND INCUBATION

There is NO steelhead spawning and incubation within the ESA Action Area.

6.4.1.3 BULL TROUT SPAWNING AND INCUBATION

Data developed by the Upper Salmon Basin Watershed Project Technical Team (Upper Salmon Basin Watershed Project Technical Team, 2005) does not identify a general spawning periodicity for bull trout in the Deer Creek drainage, within the ESA Action Area. For the purpose of this analysis the periodicity identified for Hayden Creek will be used for the Texas Creek 5th field HUC. This would identify a general spawning periodicity ranging from the second week of August through the second week of October, with egg incubation through the third week of April. For the purpose of this analysis August 15th will be used for the start of bull trout spawning.

Table 4 - Bull Trout Spawning Streams and Miles

Deer Creek	**2.58 miles**

In 2009 the Forest caught 28 bull trout, in 100 meters of electrofishing in Deer Creek, ranging in size 85mm to 255mm. There were no fish less than 70mm caught within this 100 meter transect. Therefore we mapped that one stream as having bull trout presence and potential spawning habitat. These potential spawning habitat lengths reflect continuous mapping reaches and are likely a significant overestimate of actual spawnable area within the allotment's streams.

Information on bull trout spawning within the ESA Action Area is limited. This analysis basis potential bull trout spawning streams on known or suspected presence of bull trout through electrofishing surveys. No streams within the ESA Action Area support fluvial bull trout spawning because the Deer Creek streamflows are not currently connected to the Lemhi River.

The SCNF has mapped stream lengths that could contain bull trout spawning habitat, within the ESA Action Area, based on electrofishing surveys and professional judgment. We considered a stream to support or have the potential to support spawning habitat when a stream has been documented to have at least one bull trout (see Figure 4). At this time we consider there is one stream within the ESA Action Area that has known or potential bull trout spawning and incubation habitat. That one stream is Deer Creek.

It is my professional judgment that bull trout are currently spawning within the ESA Action Area and Deer Creek because there is suitable spawning habitat, adult bull trout are present, Deer Creek has not been connected to the Lemhi River for over 100 years and there is still a bull trout population present. Therefore for this analysis we will assume bull trout are spawning within the ESA Action Area.

6.4.2 WATER TEMPERATURE

Water temperature influences many aspects of salmonid fish life history, including reproduction, growth, and migration (Bjornn and Reiser, 1991). PACFISH identifies water temperature criteria for salmon and steelhead species of less than 64 degrees F (17.8 degrees C) for rearing, and less than 60 degrees F (15.6 degrees C) for spawning and incubation. In identified steelhead priority watersheds, PACFISH identifies an additional water temperature criterion of less than 45 degrees F (7.2 degrees C) during steelhead spawning periods (U.S Department of Commerce, National Marine Fisheries Service, 1998). PACFISH and INFISH additionally identify a bull trout water temperature criterion of maximum temperatures below 59 degrees F (15 .0 degrees C) within adult holding habitats, and less than 48 degrees F (8.9 degrees C) within spawning and rearing habitats (ibid; U.S. Department of the Interior, U.S. Fish and Wildlife Service, 1998). Overall, water temperature regimes across the Texas Creek 5th field HUC are considered to be Functioning at Risk relative to these criteria due to elevated water temperatures in lower most reaches of the watershed on BLM and private land.

The Forest attempted to acquire stream temperature data in Deer Creek in 2009 but had a data logger failure that prevented the acquisition of stream temperature data. The only stream temperature data the Forest currently has for Deer Creek, within the ESA Action Area, is the instantaneous temperature data collected on the day of the electrofishing survey. On August 10, 2009 in the afternoon the water temperature was 11^{o}C. The Forest will be monitoring stream temperatures using a continuous monitoring data logger in Deer Creek within the Nez Perce Allotment in 2010. Research on Salmon-Challis National Forest streams by Gamett (2002) found that bull trout were not present in study streams at mean temperatures above 12 degrees.

Deer Creek, within the ESA Action Area, is a heavily vegetated conifer and willow dominated riparian area with a stream flowing to the northeast. Based on similar nearby bull trout streams on the Forest, like the Middle Fork Little Timber Creek and Big Timber Creek, with similar aspects, annual precipitation and riparian vegetation it is my professional judgment that Deer Creek stream temperatures are not considered a major limiting factor to fish production within the ESA Action Area.

Data from those two similar streams, however, suggest that water temperature criteria are generally being met in stream reaches within the allotment, but annual variations in seasonal maxima may periodically exceed criteria maximums. It is believed that these exceedences are reflective of yearly variations in seasonal air temperature regimes rather than due to any identifiable land management-related influences.

There are no streams within the ESA Action Area that are listed as an IDEQ 303(d) streams with a pollutant, which includes water temperature (IDEQ, 2009). Therefore water temperature is not considered a major limiting factor to fish production within the ESA Action Area. Water temperature conditions within the ESA Action Area are considered to be Functioning Appropriately for rearing, spawning and incubation relative to these criteria.

6.4.3 SEDIMENT

Stream sediment conditions can influence fish incubation success as well as rearing habitat quantity and quality and fish food base productivity (Bjornn and Reiser, 1991). The Salmon-Challis National Forest's Watershed Program has collected stream sediment data, using the core sampling methodology, since 1993.

Analysis of core sampling data correlates measured levels of depth fines in spawning habitats to predicted egg incubation success values determined by Stowell, et al (1983). Results of all

assessments are expressed as percent fines less than ¼ inch in diameter. Analysis of depth fines additionally considers drainage geology. The soils within the Nez Perce Allotment are derived mainly from sedimentary parent materials. As used by the Salmon-Challis National Forest, during ESA informal consultation on steelhead and bull trout Watershed Biological Assessments for Ongoing Activities (1998-2000), the following are the evaluation criteria for stream sediment based wholly or primarily in sedimentary geology:

<25% depth fines (<1/4" diameter) = Properly Functioning

26-29% depth fines (<1/4" diameter) = Functioning at Risk

>30 depth fines (<1/4" diameter) = Not Properly Functioning

Stream sediment levels have not been monitored in Deer Creek within the Nez Perce Allotment. The Forest will be monitoring stream sediment levels in Deer Creek within the Nez Perce Allotment in 2010.

Core sampling is used in trend monitoring to determine the amount of percent fines within the stream's substrate. Anadromous streams receive a 6-inch dig and resident fish streams receive a 4-inch dig. The amount of percent fines is used in determining the stream's biotic potential (Stowell, et al. 1983). Biotic potential is the condition of spawning substrate quality, which maximizes survival and emergence of fish embryos.

Forest wide analysis of data collected since 1993 shows a wide range of variability for stream sediment. Stream sediment data is highly influenced by natural processes such as geology, stream gradient, winter snow pack, springtime runoff, summer time high intensity storms and human impacts associated with roads. The variability in Forest-wide stream sediment data shows in some years at some stations streams may naturally fluctuate between Properly Functioning, Functioning at Risk, and Not Properly Functioning.

There are no streams within the ESA Action Area that are listed as an IDEQ 303(d) streams with a pollutant, which includes sediment (IDEQ, 2009). The only bank stability reading on Deer Creek was taken in 2002 at the range monitoring site near the 2009 electrofishing site. The 2002 bank stability reading was 90% stable. Deer Creek is a very high gradient mountain stream. Using GIS to map stream gradient, at approximately 200 meter reaches, there are no stream gradient reaches on Deer Creek with less than 5% stream gradient. Deer Creek stream reaches within the allotment would be considered more of a transport reach than a depositional reach for stream sediment. Therefore it is my professional judgment that overall stream sediment conditions in Deer Creek are not considered a major limiting factor to fish production and that Deer Creek sediment levels are "Functioning Appropriately" within the ESA Action Area.

6.4.4 WIDTH: DEPTH RATIO

Stream width:depth ratios influence available living space within stream habitats. Stream channel widening results in shallower depths which reduces habitat suitability (Platts and Nelson, 1989).

PACFISH identifies a stream channel width:depth ratio RMO of 10, while natural ranges of width:depth ratios over a variety of geologic and morphological conditions have been identified in a Natural Condition database, by Overton et al, (1995). The Salmon-Challis National Forest has used both criteria to assess morphologic condition of Forest stream channels.

Data is limited for average wetted width/maximum depth ratios on streams within the ESA Action Area. Channel geometry has not had trend monitoring in Deer Creek within the Nez Perce Allotment. The Salmon-Challis National Forest has, however, taken one mean wetted width:depth ratio measurement at the 2009 Deer Creek electrofishing site. Monitoring at this site indicates that stream channel width:depth ratios are in excess of the PACFISH RMO of <10, at 19.6. Values measured at this site are within the range of variability for "B" channel streams (Rosgen, 1994) within sedimentary geology and the 2009 width:depth ratios is less than the mean value of 20 identified in the Natural Condition Database for this channel type and geology. The observed value is also reflective of Rosgen's general identified characterization of B type channels as displaying width:depth metrics greater than 12 (Rosgen, 1996). The Forest will be monitoring width:depth ratios in Deer Creek at this electrofishing site in 2010.

PACFISH and Range MIM width:depth ratio is measured using the mean wetted width divided by depth. When measuring using mean wetted width there can be a great variance in your calculated width:depth ratio because of different stream flows from year to year and from the beginning of your summer field monitoring season to the end of your summer field monitoring season.

A more accurate monitoring methodology for calculating width:depth ratios would be using bankfull widths divide by bankfull depths where your monitoring site's bankfull width is determined by an experienced hydrologist who permanently marks the location of bankfull using a permanent monument marker like rebar. This will ensure the year to year measurements recorded are more reflective of the width:depth ratio change or lack of change that is taking place at the monitoring site. This will not only give you a more accurate description of the current stream's width:depth ratio at your monitoring site it will also make a more accurate comparison of the change and trend taking place with width:depth ratios at the monitoring site over the years.

There are no current width:depth ratios, using bankfull width, on streams within the ESA Action Area, but there is historic stream habitat data collected, within the ESA Action Area, for the Snake River Adjudication process that includes one site that has been permanently marked on one stream within the ESA Acton Area (see Table 5). This stream habitat data was collected between 1988 and 1990 and measured and located bankfull width and bankfull depths. The *User's Guide to Fish Habitat: Descriptions that Represent Natural Conditions in the Salmon River Basin, Idaho* (Overton, 1995) shows a mean width to depth ratio of 20 for "B" channel types (Rosgen, 1994).

Table 5 - Width:Depth Ratio (1988-1990 Snake River Adjudication Site)

Station	BF Channel Slope	Bankfull Width	X-Sectional Area	Bankfull Depth	Width/Depth Ratio	Rosgen Channel Type	Natural Condition Database Width:Depth Ratio
Deer Creek	0.002	7.5	10.47	1.40	5.4	"B"	20

Table 6 - Width:Depth Ratio (SCNF Electrofishing Site)

Unit	Station	Site Number	Year	Width/Depth Ratio	PACFISH RMO Width/Depth Ratio
Deer Creek Unit	Deer Creek	E67	2009	19.6	< 10

The past and current effects of the proposed project can play a role in decreasing or increasing average wetted width/maximum depth ratio within the ESA Action Area. The direct correlation between the proposed project's past and current activities and a negative increase in average wetted width/maximum depth ratio would be if livestock grazing activities were allowed to break down streambanks and significantly decrease the stability of streambanks. Range improvements such as fences and water developments that help to minimize and keep livestock grazing activities away from riparian areas and streambanks can also help to restore degraded stream reaches where the average wetted width/maximum depth ratio is greater than 10. Recent past and current livestock grazing activities were and are being managed so as not to degrade riparian areas and bank stability which could have increased average wetted width/maximum depth ratio.

Stream width:depth ratios are not considered a major limiting factor to fish production within the ESA Action Area because overall streambanks on the one ESA fish stream within the ESA Action Area show high streambank stability and the 2009 measured width:depth ratios in Table 6 above shows a 19.6 measurements that falls within the Natural Condition Database's width:depth ratios. The bankfull width:depth ratios measured in the late 1980 during the Snake River Adjudication process shows a measured width:depth ratio of 5.4. Based on local knowledge of the one ESA fish bearing stream within the ESA Action Area, the bankfull width:depth ratio measured in the late 1980 was 5.4, and the most recent wetted width:depth ratio taken in 2009 at the E67 monitoring site was 19.6 it is my professional judgment that stream width:depth ratios are considered to be "Functioning Appropriately" and are not a major limiting factor to fish production.

6.4.5 STREAMBANK CONDITION

Streambank condition can influence the overall stability and resilience of stream channels. Reduced streambank stability can result in reduced structural stability of the stream channel resulting in negative impacts on fish productivity (Platts,1991).

The Deer Creek drainage is considered to be a PACFISH Priority Watershed for both Chinook salmon and steelhead (Figure 3). The PACFISH Biological Opinion (USDA, National Marine Fisheries Service, 1998) identifies a Riparian Management Objective of 90 percent or greater bank stability for streams within PACFISH Priority Watersheds. Streambank stability was monitored by the Range Program in 2007 at their MIM monitoring site near the 2009 electrofishing monitoring site (E67). Based upon the Matrix of Pathway and Indicator functionality criteria of 90 percent or greater streambank stability and the 2002 measurement of 90% bank stability, streambank conditions are currently considered to be "Functioning Appropriately".

Based on local knowledge of the one ESA fish bearing stream within the ESA Action Area and the limited MIM bank stability data from the Range program it is my professional judgment that the overall streambank stability conditions are considered to be “Functioning Appropriately” and are not considered a major limiting factor to fish production on the one ESA fish stream within the ESA Action Area.

6.4.6 RIPARIAN CONSERVATION AREAS

Condition of riparian vegetation can strongly influence aquatic habitat quality and fish productivity. Removal of riparian vegetation can result in negative impacts to fish populations (Platts and Nelson, 1989).

There is one MIM monitoring site in lower Deer Creek, within the Deer Creek Unit, near the 2009 electrofishing monitoring site (E67). This monitoring site was established in 1994 and one subsequent monitoring reading has occurred at this site in 2002. This MIM monitoring site will be used in this analysis as a representation of livestock impacts to the riparian conservation areas in the Nez Perce Allotment. Since that time, grazing management has evolved based upon management in reference to ESA listed fish species, specifically bull trout, which occur within the allotment. Greenline Ecological Status (GES) typically is the element in which interpretations of ecological status and trend will be discussed in the following:

There has been one site monitored in 1994 and 2006. This one site has had a GES reading of Late Seral (LS) in 1994 and Potential Natural Community (PNC) in 2002.

Deer Creek: Greenline Ecological Status (GES) is in an upward trend at PNC although two site visits does not give a good trend. The site has been photo monitored since 2002. Photo monitoring shows little change to the greenline since the 2002 reading. Due to woody dominance, the best monitoring attribute to manage this site is browse use with an annual use indicator not to exceed 50% on Willows and 30% on Alder. The monitoring attribute of greenline stubble with an annual use indicator of 4 inches will also be used. The monitoring attribute of bank alteration with an annual use indicator of 20% will also be used.

Deer Creek has a GES of PNC therefore riparian areas are considered to be Functioning Appropriately within the ESA Action Area. Because Deer Creek has a GES of PNC it is my professional judgment that Stream Riparian Conservation Areas are not considered a major limiting factor to fish production within the ESA Action Area.

6.4.7 ANNUAL USE INDICATORS AND OBJECTIVES AND THEIR RELATIONSHIP TO FOCUS INDICATORS

Annual use indicators were selected because of their documented ability to maintain and/or achieve riparian objectives described in section 3.2.5. There is considerable overlap; the riparian system effectively integrates vegetation cover, flow regimes, sediment and nutrients (DeBano 1989). The goal is to manage livestock grazing so as not to prevent the attainment and maintenance of healthy aquatic and riparian communities (Gamett et al 2008).

Table 7 - Relationship Matrix

Focus Indicator	Riparian Resource Objective	Related Element Affected by Livestock Grazing	Related Annual Use Indicator
Streambank Condition	Greenline Successional Status	Greenline Status	Greenline Stubble
	Woody Species Regeneration	Woody Species Regeneration	Browse Use
	Bank Stability	Greenline Status, Woody Species Regeneration, Current Year Alteration	Stubble Height, Browse Use, Bank Alteration
Temperature	Water Temperature	Greenline Status, Woody Species Regeneration, Vegetation Overhang	Greenline Stubble, Browse Use, Bank Alteration
Width:Depth	Width:Depth Ratio	Greenline Status, Current Year Alteration	Greenline Stubble, Browse Use, Bank Alteration
Sediment	Sediment	Greenline Status, Bank Stability, Current Year Alteration	Greenline Stubble, Browse Use, Bank Alteration
Riparian Conservation Areas	Greenline Successional Status	Greenline Status	Greenline Stubble
	Woody Species Regeneration	Woody Species Regeneration	Browse Use
	Bank Stability	Greenline Status, Woody Species Regeneration, Current Year Alteration	Stubble Height, Browse Use, Bank Alteration
Spawning and Incubation	N/A	N/A	N/A

Livestock will affect riparian vegetation and physical conditions differently depending on many factors, including the site's physical characteristics and conditions, the stage of plant development, the nature of the plant communities in both the riparian zone and the uplands, and current weather. There are tradeoffs in potential impacts with regard to time of grazing (Erhart and Hansen 1997). These are grazing and livestock management considerations, and while important to implementing sound riparian grazing management, are generally excluded from the following discussion.

The focus of this section is on the annual use indicators and how managing by them will help maintain or achieve the riparian resource objectives and grazing focus indicators.

Annual Use Indicators and Vegetation in Riparian Areas: How much and what type of vegetation exists in a riparian plant community, particularly on the greenline, determines how well the riparian system performs its function of reducing flow velocity, trapping sediment, building banks and protecting against erosion. The susceptibility of streambanks to damage is influenced by vegetation. Woody vegetation has an essential role in maintaining riparian function; reducing browsing pressure on riparian trees and shrubs is a significant benefit. Roots and rhizomes of herbaceous vegetation provide much of the compressive strength and soil

stability for streambanks in meadow situations such as on the Challis National Forest (Clary and Kinney 2000).

Streamside vegetation strongly includes the quality of habitat for anadromous and resident coldwater fishes including shade to prevent adverse water temperatures fluctuations, roots that lend stability to overhanging banks, and the capability to filter sediment and debris (Kauffman and Krueger 1984).

Stubble height on the greenline is directly related to the health of herbaceous plants (Burton et al 2008). Dense vegetation on the floodplain during spring flooding events to trap sediment plus vigorous plant growth to stabilize sediment deposits is critical for bank building and maintenance. Residual herbaceous vegetation of six inches in a 20 year comparison study in southwestern Montana resulted in dense vigorous riparian vegetation as well as a diversity of age classes of vigorous woody riparian species (Myers 1989). In Idaho, maintaining stubble heights of 4 to 5.5 inches allowed streambank recovery (Clary 1999). Shorter stubble heights (up to six inches) are most effective in improving sediment entrapment during the deposition phase while even longer lengths retain a larger portion of deposited sediment (Clary and Leininger 2000). Four inch stubble in either late June or early July resulted in no difference in bank angle or stream width compared to no grazing in the Sawtooth Valley (Clary and Kinney 2000).

Most measurements of streamside variables moved closer to those beneficial for salmonid fisheries when pastures were grazed to four inches of graminoid stubble height; virtually all measurements improved when pastures were grazed to six inches stubble height, or when pastures were not grazed (Clary 1999). The residual stubble or regrowth should be at least four to six inches in height to provide sufficient herbaceous forage biomass to meet the requirements of plant vigor maintenance, bank and sediment entrapment (Clary and Webster 1989). This is a recommended grazing practice for “B” channel types with medium to fine easily eroded soil materials and most “C” channel types, in mid seral conditions. Special situations may require stubble heights of greater than six inches (Clary and Webster 1989, Myers 1989).

Cattle are destructive to willow stands when they congregate in them (Kovalchik and Elmore 1991, Schulz and Leininger 1990). When herbaceous forage quality diminishes, by either utilization or curing, cattle switch from grazing to browsing (Hall and Bryant 1995, Clary and Leininger 2000). The degree to which browsing of willows is compatible with maintaining willow stands depends on the relative number of willows present. Where willow browsing is light and seedling survival is high the vigor of willows is high. (Kovalchik and Elmore 1991). There is a loop between vigorous willow [and sedge] regrowth, excellent streambank protection and soil and water relationships favorable to continued willow [and sedge] production (Kovalchik and Elmore 1991).

Resistance of common riparian woody plants to defoliation has not been investigated. However, genera commonly represented in riparian areas such as dogwood, maple, cottonwood, willow and birch appear to be more resistant to foliage and twig removal than genera common to xeric uplands (Clary and Webster 1989). Many upland species can tolerate 50 – 60% use, including desirable browse species such as antelope bitterbrush, rose and aspen (Ehrhart and Hansen 1997). Less than half of heavily clipped or browsed willow stems survive into the following year (Smith 1980 and Kindschy 1989 as cited in Kovalchik and Elmore). Willow use is most critical (most likely to occur) when grazing extends into the hot summer season or fall (Myers 1989, Clary and Webster, 1989, Kovalchik and Elmore 1991). Removing cattle before 45 - 50% forage use improves the response of willows (Edwards 2009, Kovalchik and Elmore 1991). The Bureau of Land Management has concluded that exceeding 50% use of current year browse leaders would likely reduce woody vegetation vigor, modify normal growth

form, and in the longer-term diminish the age class structure, all of which could affect riparian habitat conditions. Where there is current upward trend of ecological condition it is expected to continue by managing for no more than 50% browse use (USDI BLM 2009).

A study on Stanley Creek in central Idaho (Clary and Kinney 2000) applied three levels of forage use - moderate (50%), light (25%) and no grazing - on mountain meadows in the last half of June. Results were an increase in willow height and cover. Other studies cited in Clary and Kinney show that by maintaining an adequate herbaceous forage supply, and controlling the period of grazing, impacts on the willow community are reduced.

Annual Use Indicators and Streambank Alteration: Grazing along streambanks does as much or more damage to stream-riparian habitats through bank alteration as through changes in vegetation biomass. Overuse by cattle can easily destabilize and break down streambanks as vegetation is weakened and hoofs shear bank segments (Clary and Kinney 2000). A major resource management need is to consider the maintenance of streambank structure and channel form as key factors in fisheries habitat and hydrologic function.

It is widely known that bank alteration by trampling, shearing, and exposure of bare soil can be an important source of stream channel and riparian area degradation (Clary and Webster, 1989, Belsky et al., 1997). Impacts of bank alteration may include channel widening (and loss access to floodplains by peak flows), loss of riparian vegetation (which then makes banks more vulnerable to further erosion), localized lowering of water tables in riparian areas (and loss of water storage in floodplains and stream channels), and changes in sediment transport capacity of stream channels (Clary and Webster 1989).

Literature such as Clary and Webster (1989) often refers to the indirect effect on streambank trampling. A number of other authors who reviewed the literature summarized that careful control of grazing duration and season results in maintenance of the streambank vegetation and limitation of trampling, hoof slide, and accelerated streambank cave-in (Erhart and Hansen 1997, Clary and Leininger 2000).

Some researchers have concluded that bank alteration, taking natural channel stability into account, is the most important factor to consider in evaluating physical stream channel conditions and impacts from land use. Streambank alterations of 20% or less are expected to allow for upward trend of streams with stream widths narrowing and depths increasing (Bengeyfield, 2006).

In southwestern Montana, stream channels narrowed and deepened when streambank disturbance from cattle did not exceed 30 feet per 100 feet of stream reach (Dallas 1997 cited in Mosley et al., 1997). Based on Cowley's literature review, "it appears that 70 percent unaltered streambanks (i.e., 30 percent altered streambanks) is the minimum level that would maintain stable conditions. All of [the] authors consider both natural and accelerated alteration in the totals". Cowley suggested that 80% unaltered streambanks should allow for "making significant progress" toward stream channel improvement, and that this value should be the maximum allowable streambank alteration (Cowley 2002 cited in Simon 2008).

7 ANALYSIS OF EFFECTS

This section contains the effects analysis. The effects of the proposed action are described below and summarized in Table 8. Analysis emphasizes effects to the six focus indicators previously identified as being susceptible to impacts of grazing activities.

7.1 DIRECT AND INDIRECT EFFECTS

Direct effects are those effects that are a direct result of the action. Indirect effects are "caused by the proposed action and are later in time, but still are reasonably certain to occur" (50 CFR§402.02).

Direct effects of livestock grazing may occur when livestock enter streams occupied by listed salmonids to loaf, drink, or cross the stream. Livestock entering fish-spawning areas can trample redds, and destroy or dislodge embryos and alevins (Belsky et al,1997). During the early phases of their life cycle, juvenile salmonids have little or no capacity for mobility, and large numbers of embryos or young are concentrated in small areas.

Improperly managed grazing can additionally have adverse indirect effects to streams and riparian areas (Menke 1977; Clary and Webster 1989; Belsky et al. 1997). These effects can include streambank damage, removal of shade-providing vegetation, widening of stream channels, introduction of fine sediment and channel incision.

A variety of conservation measures can be implemented to minimize or eliminate potential grazing related effects to listed fish and their aquatic and riparian habitats. These include:

- Strategic Rotation: Unit rotation strategies designed to move livestock off streams during critical spawning periods can avoid direct impact to spawning fish or their incubating redds.

- Fencing: Fencing sensitive riparian areas can be an effective way of protecting riparian resources, fish habitat and fish populations. Platts (1991) found that, in 20 of 21 studies, stream and riparian habitats improved when grazing was prohibited in fenced riparian zones.

- Salting: Placing salt or mineral supplements in upland areas can decrease the amount of time livestock spend in riparian areas. Ehrhart and Hansen (1997) provide evidence that salt, when used in conjunction with alternate water sources, can help distribute livestock over open range.

- Off-Stream Water Development: McInnis and McIver (2001) found that off-stream water and salt can attract livestock to the uplands enough to significantly reduce uncovered and unstable streambanks.

- Herding: Using riders to keep livestock away from riparian areas can avoid direct impacts to spawning fish and incubating redds.

- Utilization Standards: Establishing utilization standards for forage utilization and moving livestock when these standards are approached or reached, can help avoid many of the adverse effects that livestock grazing can have on fish and their habitat.

The Forest has integrated each of these measures into its grazing strategy for the Nez Perce Allotment to reduce the potential for adverse effects to listed fish and aquatic and riparian habitats within the ESA Action Area. Rotation schedules have been refined to best avoid direct impact to spawning fish and incubating redds. All of the existing fences and range improvements, displayed in Figure 2, will help keep livestock in areas where they are suppose to be and keep livestock out of areas they are not suppose to be grazing as directed by the signed Annual Operating Instructions. All of the existing water developments improvements,

displayed in Figure 2, will help distribute livestock throughout a given unit to minimize the time livestock need to spend down in a given stream's riparian area.

Information on the effectiveness of the proposed conservation measures is limited. Erhart and Hansen (1997) found mixed success when only one technique was applied. However, when applied collectively, this suite of measures has been shown to be effective in minimizing direct livestock impact to spawning habitats and avoiding indirect impacts to aquatic and associated riparian habitats.

The likely impacts of the proposed action on the six grazing focus indicators are discussed below.

7.1.1 SPAWNING AND INCUBATION

Livestock can trample salmonid redds when grazing occurs at times and places where redds are present (Gregory and Gamett, 2009). Factors which can lessen the degree of effects from grazing include active measures to keep livestock off stream channels such as fencing, off channel salting or employment of riders, or natural inaccessibility of streams channels due to topography or dense riparian vegetation.

The only ESA fish species that spawn in stream reaches within the ESA Action Area is bull trout (see Figure 4). It is possible that livestock could trample redds in streams if grazing occurs when fish are spawning or eggs are incubating within stream substrates during a time when livestock have accessibility to the stream. Effects to ESA listed fish species spawning and incubation within the Nez Perce Allotment are discussed individually below.

7.1.1.1 CHINOOK SALMON

Conclusion:

Within the ESA Action Area there is no documentation of the presence of Chinook salmon, juvenile or adult. None of the four drainages within the ESA Action Area are connected to Texas Creek and the Lemhi River.

Therefore it is my professional judgment that the Nez Perce Allotment's livestock grazing activities have No Effect on Chinook salmon spawning and incubation in streams within the ESA Action Area because there no Chinook salmon present within the ESA Action Area.

7.1.1.2 STEELHEAD

Conclusion:

Within the ESA Action Area there is no documentation of the presence of steelhead, juvenile or adult. None of the four drainages within the ESA Action Area are connected to Texas Creek and the Lemhi River.

Therefore it is my professional judgment that the Nez Perce Allotment's livestock grazing activities have No Effect on steelhead spawning and incubation in streams within the ESA Action Area because there no steelhead present within the ESA Action Area.

7.1.1.3 BULL TROUT

Bull trout have the potential to spawn in one stream within the ESA Action Area (see Table 4). These lengths reflect continuous mapping reaches and are likely a significant overestimate of actual spawnable area within the allotment's streams.

Information on bull trout spawning within the ESA Action Area is limited. This analysis basis potential bull trout spawning streams on known or suspected presence of bull trout through electrofishing surveys. No streams within the ESA Action Area currently support fluvial bull trout spawning because the four drainages within the ESA Action Area are disconnected to the Lemhi River in part from natural stream flow limitations and in part because Texas Creek, which is not on National Forest System lands, is not connected to the Lemhi River during irrigation season.

The SCNF has mapped stream lengths that could contain bull trout spawning habitat, within the ESA Action Area, based on electrofishing surveys and professional judgment. We considered a stream to support or have the potential to support spawning habitat when a stream has been documented to have at least one bull trout (see Figure 4). At this time we consider there is one stream within the ESA Action Area that has known or potential bull trout spawning and incubation habitat. That one stream is Deer Creek. There are an estimated 4.22 miles of bull trout presence habitat and 2.58 miles of bull trout spawning habitat.

The SCNF has electrofished Deer Creek (E67) in 2009. In that 100 meter electrofishing transect there were bull trout and brook trout present. There were 28 bull trout caught ranging in size 85mm to 255mm. There were no fish less than 70mm caught. There were 6 brook trout caught ranging in size 125mm to 150mm.

It is my professional judgment that bull trout are currently spawning within the ESA Action because there is suitable spawning habitat and adult bull trout are present. Therefore for this analysis we will assume bull trout are spawning within the ESA Action Area.

Analysis Assumptions:

- Bull trout begin spawning within the allotment on August 15th.
- A bull trout stream does not have 100% available spawning habitat.
- Bull trout redds are below 8000 feet in elevation in the Lemhi River Watershed, based on Idaho Fish and Game (IDFG) bull trout redd surveys conducted in the Lemhi River Watershed.
- In the Lemhi River Watershed it can be estimated that 80% of the bull trout redds are constructed by 9/15 and 95% of the bull trout redds are constructed by 9/30. (personal communication with Tom Curet, Idaho Fish and Game 5/29/09).
- If livestock are grazing in a unit past August 15th that has a bull trout stream there is the potential for livestock to step on bull trout redds and/or disturb/harass spawning adults unless there is a natural physical barrier or a human constructed physical barrier, like a fence, between the stream and where the livestock can graze.
- When livestock step on a bull trout redd not every egg within the redd will be destroyed. There may be some eggs within a trampled redd that can survive and become juvenile and adult bull trout.

Deer Creek Unit: The Deer Creek Unit has bull trout spawning occurring in 2.55 miles of Deer Creek. Livestock will be in the Deer Creek Unit after August 15th between 2 and 4 weeks two out of four years. There are some fences and some limited natural physical barriers (thick riparian willows, conifer downfall and other dense overstory vegetation like lodgepole pine and Douglas fir) to keep livestock out of some stream reaches of Deer Creek while in this Unit. But there is still an estimated 1.82 miles of Deer Creek where livestock would have access to walk in the stream during the time bull trout will be spawning. There is also an active (riders herding the livestock) trailing crossing at a ford crossing on FS road #60211. Livestock will be crossing Deer

Creek at this active trailing crossing site in Year 1 and Year 4 (see Table 1) after August 15th. There is the possibility a bull trout redd could be constructed at this ford crossing. Therefore it is my professional judgment that livestock will have an opportunity to trample bull trout redds and/or disturb or harass spawning adults every year while in the Deer Creek Unit and two out of four years at an active trailing crossing site.

Conclusion:

There is the potential for livestock to trample bull trout redds and/or disturb or harass spawning adult bull trout within the ESA Action Area and the Deer Creek Unit because of the time bull trout are suspected to begin spawning in Deer Creek and the time when livestock are grazing within the Deer Creek Unit or are being actively trailed across Deer Creek at a ford crossing. Spawning adult bull trout and their redds will be at risk between August 15th through September 20th every year. Spawning adult bull trout and their redds will also be at risk two out of four years during active trailing after August 15th at a ford crossing in lower Deer Creek. Therefore it is my professional judgment that there is some potential, but it is difficult to quantify, for livestock to step on bull trout redd(s) and/or disturb/harass spawning adults every year in Deer Creek within the ESA Action Area.

Mountain Boy Unit: In the analysis assumptions it states “Bull trout redds are below 8000 feet in elevation in the Lemhi River Watershed, based on Idaho Fish and Game (IDFG) bull trout redd surveys conducted in the Lemhi River Watershed”. Using that analysis assumption GIS mapping has determined there is an estimated 0.03 miles, or 48 meters, of Deer Creek within this Unit that has bull trout spawning habitat. GIS mapping also shows this reach of Deer Creek in this Unit has a stream gradient of approximately 9.5%. Considering the high stream gradient and the dense vegetation in this 0.03 mile reach of Deer Creek it is my professional judgment that livestock will have very limited opportunity to trample bull trout redds and/or disturb or harass spawning adults while in the Mountain Boy Unit after August 15th two out of four years.

Conclusion:

There is the potential for livestock to trample bull trout redds and/or disturb or harass spawning adult bull trout within the ESA Action Area and the Mountain Boy Unit because of the time bull trout are suspected to begin spawning in Deer Creek and the time when livestock are grazing within the Mountain Boy Unit. But because of the high stream gradient and the dense vegetation in this 0.03 mile reach of Deer Creek it is my professional judgment there will be very few if any bull trout redds constructed within this Unit and that because of dense riparian vegetation livestock will have very limited opportunity to trample any bull trout redd that was constructed within this 0.03 miles or 48 meters of Deer Creek.

7.1.2 WATER TEMPERATURE

Stream temperatures can have important effects on fish distribution and abundance. Livestock grazing can impact aquatic and riparian habitats by reducing streamside vegetation or reducing stability of streambanks, both of which can result in channel widening and increased solar exposure, leading to elevated stream temperatures (Platts, 1991). Livestock grazing can impact stream temperatures both in areas that are grazed by livestock and in areas downstream from where grazing occurs (see section 6.4.7).

The Forest attempted to acquire stream temperature data in Deer Creek in 2009 but had a data logger failure that prevented the acquisition of stream temperature data. The only stream temperature data the Forest currently has for Deer Creek, within the ESA Action Area, is the instantaneous temperature data collected on the day of the electrofishing survey. On August 10,

2009 in the afternoon the water temperature was 11^{o}C. The Forest will be monitoring stream temperatures using a continuous monitoring data logger in Deer Creek within the Nez Perce Allotment in 2010.

Deer Creek, within the ESA Action Area, is a heavily vegetated conifer and willow dominated riparian area with a stream flowing to the northeast. Based on similar nearby bull trout streams on the Forest, like the Middle Fork Little Timber Creek and Big Timber Creek, with similar aspects, annual precipitation and riparian vegetation it is my professional judgment that Deer Creek stream temperatures are not considered a major limiting factor to fish production within the ESA Action Area.

Data from those two similar streams, however, suggest that water temperature criteria are generally being met in stream reaches within the allotment, but annual variations in seasonal maxima may periodically exceed criteria maximums. It is believed that these exceedences are reflective of yearly variations in seasonal air temperature regimes rather than due to any identifiable land management-related influences.

There are no streams within the ESA Action Area that are listed as an IDEQ 303(d) streams with a pollutant, which includes water temperature (IDEQ, 2009).

Sediment, width:depth ratios, streambank conditions, and riparian conservation areas are four focus indicators that can affect stream temperatures. Monitoring data and professional judgment indicates that these four focus indicators are overall functioning appropriately within the ESA Action Area and are not major limiting factors to fish production within the ESA Action Area.

Supplemental monitoring data collected within the allotment indicate that riparian conditions are at PNC, and width:depth ratios at measured sites are all within the natural range of variability and below mean values for their geologic and geomorphic classifications. Healthy riparian conditions in Deer Creek would logically mean stream temperatures are not a major limiting factor to fish production.

Since Deer Creek has healthy riparian areas and good width:depth ratios, it is unlikely that livestock grazing has produced measureable impacts to water temperatures in this stream.

Water temperature conditions within the ESA Action Area are considered to be Functioning Appropriately for rearing, spawning and incubation relative to these criteria.

In the absence of observed impacts to stream temperature influencing habitat parameters, it is concluded that recent and future livestock grazing within the Nez Perce Allotment has not and will not result in detectable effects to water temperatures or water temperature regimes within Deer Creek and the ESA Action Area. Conservation measures of the proposed action, including the use of riders to keep livestock away from critical stream reaches, fencing and salting will further serve to reduce potential livestock impacts on water temperatures by minimizing riparian vegetation use and livestock impacts to Deer Creek streambanks within the ESA Action Area. Because of the expected effectiveness of the project design and associated Conservation Measures in reducing near-stream livestock activity, grazing along these streams is not expected to generate any measurable increases in water temperatures which could be meaningfully measured, detected or evaluated. We, therefore, expect the impact of livestock grazing on stream temperatures within the Nez Perce Allotment's ESA Action Area to be insignificant, and expect that the proposed action will maintain the condition of the Water Temperature focus indicator.

Proposed ongoing MIM monitoring will be effective in identifying future trends of riparian vegetative status and trend within the ESA Action Area. In combination with additional periodic water temperature monitoring within Deer Creek, these monitoring operations will be effective in

identifying both the occurrence and causal mechanisms of any changed conditions which would initiate responsive modification of grazing management strategies for the allotment under the adaptive management strategy.

The proposed action includes conservation measures that will help minimize or eliminate livestock grazing away from some stream reaches. This will result in livestock grazing activities having minimal potential impact on stream temperatures (see Section 3.2.3). Those conservation measures designed in part to avoid livestock exposure to spawning areas will additionally serve to reduce potential livestock impact on water temperatures by minimizing riparian vegetation use and livestock impact to streambanks within the ESA fish bearing streams. Maintaining existing fences and water developments are an important conservation measure that will continue to help distribute livestock use across a larger area to minimize or eliminate livestock grazing impacts on riparian vegetation that directly or indirectly help keep stream temperatures cooler.

Conclusion:

While short periodic exceedences of salmonid spawning temperature criteria may exist along some stream reaches on some streams in some years, contributing impacts on water temperature related to grazing activities are considered to be insignificant, and are not expected to be, in and of themselves, generating any additional measureable increases in water temperatures. We recognize there could be localized impacts to stream temperatures when livestock graze riparian shrubs that provide localized streamside shading. However, because of the expected effectiveness of the project design and associated conservation measures in reducing livestock presence near streams, it is my professional judgment those impacts will be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Water Temperature Focus Indicator both within the ESA Action Area and at the 5th field HUC scale.

In the absence of observed impacts to stream temperature influencing habitat parameters, it is concluded that current and future livestock grazing within the Nez Perce Allotment is not and will not result in detectable effects to water temperatures or water temperature regimes within the streams of the ESA Action Area.

7.1.3 SEDIMENT

Elevated levels of stream sediment can affect the survival of salmonid eggs and alevins (Bjornn, et al, 1998). Livestock grazing can increase sediment levels by altering bank stability, riparian vegetation, and upland vegetation (see section 6.4.7). Livestock grazing and unmanaged trailing activities can impact sediment levels in areas that are grazed by livestock and in areas downstream from where grazing occurs.

Stream sediment levels have not been monitored in Deer Creek within the Nez Perce Allotment. The Forest will be monitoring stream sediment levels in Deer Creek within the Nez Perce Allotment in 2010.

Forest wide analysis of data collected since 1993 shows a wide range of variability for stream sediment. Stream sediment data is highly influenced by natural processes such as geology, stream gradient, winter snow pack, springtime runoff, summer time high intensity storms and human impacts associated with roads. The variability in Forest-wide stream sediment data shows in some years at some stations streams may naturally fluctuate between Properly Functioning, Functioning at Risk, and Not Properly Functioning.

There are no streams within the ESA Action Area that are listed as an IDEQ 303(d) streams with a pollutant, which includes sediment (IDEQ, 2009). The only bank stability reading on Deer Creek was taken in 2002 at the range monitoring site near the 2009 electrofishing site. The 2002 bank stability reading was 90% stable. Deer Creek is a very high gradient mountain stream. Using GIS to map stream gradient, at approximately 200 meter reaches, there are no stream gradient reaches on Deer Creek with less than 5% stream gradient. Deer Creek stream reaches within the allotment would be considered more of a transport reach than a depositional reach for stream sediment. Therefore it is my professional judgment that overall stream sediment conditions in Deer Creek are not considered a major limiting factor to fish production and that Deer Creek sediment levels are “Functioning Appropriately” within the ESA Action Area.

Livestock activity within the Nez Perce Allotment is not considered to be a significant factor influencing sediment levels.

Supplemental monitoring data, including streambank stability and width:depth data, do not indicate or suggest any exacerbation of sediment levels due to cattle grazing within the drainage. The one MIM monitoring site immediately above the ESA Action Area has a GES of PNC.

Conservation Measures associated with the proposed grazing action are considered to be effective in minimizing potential generation of sediment to stream channels within the ESA Action Area. Stream sediment conditions are expected to be maintained under the proposed grazing action. Measures including salting, fencing, and use of range riders to keep livestock in upland areas all contribute to minimizing near stream livestock activity which could result in sediment generation to action area streams through direct streambank impact or reduction of stabilizing riparian vegetation. Livestock are also naturally precluded from most areas of Deer Creek by a continuous extensive riparian corridor vegetated with thick willows and dense conifers along with significant conifer downfall in the riparian areas.

There will likely be some generation of turbidity in association with one active trailing crossing of Deer Creek and incidental passive (not supervised) livestock crossing of stream channels within the allotment. Turbidities associated with the one active trailing crossing and incidental passive livestock crossing of these sites are expected to be limited to areas immediately below the crossing locations and short-term in nature. Direct and indirect effects of livestock disturbances associated with stream crossings is not expected to be of a magnitude or duration which could produce meaningfully measured, detected or evaluated effects to surface or at-depth substrate sediment levels in areas of existing or future salmonid redds.

Livestock grazing activities within the ESA Action Area are not expected to generate any measurable increases to sediment levels in streams containing listed fish or supporting designated or proposed critical habitat. Overall, it is believed that the impact of livestock grazing on sediment levels within the ESA Action Area stream cannot be meaningfully measured, detected, or evaluated. Therefore, we expect the impact of livestock grazing on sediment levels to be insignificant. Because of the expected effectiveness of the project design and associated conservation measures in reducing livestock presence near streams, we believe any livestock related impacts to sediment would be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Sediment Focus Indicator.

The Forest will begin to monitor sediment in Deer Creek, in 2010 within the ESA Action Area, to identify trends of stream substrate conditions within the Nez Perce Allotment. These monitoring operations, supplemented by ongoing MIM monitoring, will be effective in identifying both the occurrence and causal mechanisms of any significant change in substrate conditions which

would initiate responsive modification of grazing management strategies for the allotment under the adaptive management strategy.

Livestock activity within the Nez Perce Allotment is not currently considered to be a significant factor influencing sediment levels.

Conclusion:

The Conservation Measures associated with the proposed grazing action are considered to be effective in minimizing potential generation of sediment to stream channels within the ESA Action Area. Contributing impacts on stream sediment from grazing activities under the proposed action are considered to be insignificant, and are not expected to be, in and of themselves, generating any additional measureable increases in sediment levels. We recognize there could be localized impacts to streambanks when livestock occasionally step on streambanks and introduce minor quantities of sediment to the stream. However, because of the expected effectiveness of the project design and associated conservation measures in reducing livestock presence near streams, it is my professional judgment those impacts will be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Sediment Focus Indicator both within the ESA Action Area and at the 5th field HUC scale.

7.1.4 WIDTH: DEPTH RATIO

Width: depth ratios can have important effects on fish populations and livestock grazing can impact width:depth ratios. Livestock impact width: depth ratios by altering bank stability (see section 6.4.7). Livestock reduce bank stability through direct bank trampling or by modifying the amount or type of riparian vegetation. As bank stability declines, the banks are more susceptible to lateral erosion which can lead to a wider, shallower stream (Platts and Nelson, 1989). Livestock grazing primarily impacts width: depth ratios in the areas that are grazed by livestock. If localized disturbances are severe, however, effects can additionally occur further downstream, as stream channels respond to upstream impact.

Data is limited for average wetted width/maximum depth ratios on streams within the ESA Action Area. Channel geometry has not had trend monitoring in Deer Creek within the Nez Perce Allotment. The Salmon-Challis National Forest has, however, taken one mean wetted width:depth ratio measurement at the 2009 Deer Creek electrofishing site. Monitoring at this site indicates that stream channel width:depth ratios are in excess of the PACFISH RMO of <10, at 19.6. Values measured at this site are within the range of variability for “B” channel streams (Rosgen, 1994) within sedimentary geology. The 2009 width:depth ratios is less than the mean value of 20 identified in the Natural Condition Database for this channel type and geology. The observed value is also reflective of Rosgen’s general identified characterization of B type channels as displaying width:depth metrics greater than 12 (Rosgen, 1996). The Forest will be monitoring width:depth ratios in Deer Creek at this electrofishing site in 2010.

There are no current width:depth ratios, using bankfull width, on streams within the ESA Action Area, but there is historic stream habitat data collected, within the ESA Action Area, for the Snake River Adjudication process that includes one site that has been permanently marked on one stream within the ESA Acton Area (see Table 5).

The past and current effects of the proposed project can play a role in decreasing or increasing average wetted width/maximum depth ratio within the ESA Action Area. The direct correlation between the proposed project’s past and current activities and a negative increase in average wetted width/maximum depth ratio would be if livestock grazing activities were allowed to break

down streambanks and significantly decrease the stability of streambanks. Range improvements such as fences and water developments that help to minimize and keep livestock grazing activities away from riparian areas and streambanks can also help to restore degraded stream reaches where the average wetted width/maximum depth ratio is greater than 10. Recent past and current livestock grazing activities were and are being managed so as not to degrade riparian areas and bank stability which could have increased average wetted width/maximum depth ratio.

Stream width:depth ratios are not considered a major limiting factor to fish production within the ESA Action Area because overall streambanks on the one ESA fish stream within the ESA Action Area shows high streambank stability and the 2009 measured width:depth ratios in Table 6 shows a 19.6 measurements that falls within the Natural Condition Database's width:depth ratios. The bankfull width:depth ratios measured in the late 1980 during the Snake River Adjudication process shows a measured width:depth ratio of 5.4. Based on local knowledge of the one ESA fish bearing stream within the ESA Action Area, the bankfull width:depth ratio measured in the late 1980 was 5.4, and the most recent wetted width:depth ratio taken in 2009 at the E67 monitoring site was 19.6 it is my professional judgment that stream width:depth ratios are considered to be "Functioning Appropriately" and are not a major limiting factor to fish production.

Considering both observed width:depth ratios and supplemental streambank stability data and trend, it is concluded that livestock grazing activities have not directly produced or contributed to any significant impacts on width:depth ratios in Deer Creek, within the ESA Action Area, which can be meaningfully measured, detected or evaluated. The grazing strategies and Conservation Measures of the proposed action serve to minimize potential livestock impacts to channel morphology of ESA Action Area streams. Use of range riders to keep livestock in upland areas, salting and fencing all contribute to minimizing near stream livestock activity and the potential for direct streambank impacts which could negatively affect channel morphology.

Proposed ongoing MIM monitoring will be effective in identifying both the occurrence and causal mechanisms of any significant changes in width:depth ratios of ESA Action Area streams which would initiate responsive modification of grazing management strategies for the allotment under the Adaptive Management Strategy.

Conclusion:

The direct and indirect effects of the proposed livestock grazing action on channel morphology of allotment area streams are insignificant, and are not expected to have any meaningfully measureable or discernable influence on stream channel width:depth ratios within the ESA Action Area. Considering width:depth ratios and streambank stability data, it is concluded that livestock grazing activities are not expected to produce or contribute to any significant impacts on width:depth ratios of streams within the Nez Perce Allotment which can be meaningfully measured, detected or evaluated.

Low streambank stability and high stream sediment levels can have a negative impact in a stream's width:depth ratio. The Grazing Strategies and Conservation Measures associated with the proposed grazing action are considered to be effective in minimizing potential streambank impacts and in reducing sediment impacts to stream channels within the ESA Action Area. We recognize there could be localized impacts to both streambanks and stream sediment levels, which could negatively affect width:depth ratios, when livestock occasionally step on streambanks and introduce minor quantities of sediment to the stream. However, because of the expected effectiveness of the project design and associated conservation measures in

reducing livestock presence near streams, it is my professional judgment those impacts will be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Width:Depth Focus Indicator both within the ESA Action Area and at the 5th field HUC scale.

7.1.5 STREAMBANK CONDITION

Streambank conditions can have important effects on fish populations and livestock grazing can impact streambank conditions (see section 6.4.7) by direct alteration of the bank or by modifying riparian vegetation (Platts and Nelson, 1989).

Livestock activity within the ESA Action Area is not currently considered to be a significant factor influencing streambank stability. Supplemental monitoring data from within the ESA Action Area, width:depth data, do not indicate or suggest impact to stream stabilities due to cattle grazing within the drainage.

The thick willow, dense conifers and thick conifer downfall with the Deer Creek riparian area is additionally effective in limiting livestock access and avoiding streambank impacts on this stream.

Streambank stability monitoring at the one Range MIM monitoring site on Deer Creek, within the ESA Action Area, indicate streambanks are stable at these long term trend monitoring sites.

There has been one bank stability reading at the Range Program's MIM monitoring in 2002 that measured 90% stable banks.

Future field data collections will continue to identify trends of streambank conditions for the Nez Perce Allotment. Monitoring operations will additionally employ assessments of streambank alteration to identify effectiveness of livestock movement triggers. These monitoring operations will be effective in identifying both the occurrence and causal mechanisms of any significant change in streambank conditions which would initiate responsive modification of grazing management strategies for the allotment under the Adaptive Management Strategy.

Conclusion:

Considering Deer Creek water temperature conditions, width:depth ratios and streambank stability conditions and the effectiveness of the identified conservation measures in preventing or minimizing livestock access to allotment stream channels, it is concluded that direct and indirect effects of the proposed livestock grazing activities on streambank conditions within the ESA Action Area are insignificant, and not expected to have any meaningfully measureable or discernable influence on streambank stability levels within the ESA Action Area.

The Grazing Strategies and Conservation Measures of the proposed action, designed in part to avoid livestock presence within stream channels during critical spawning periods, additionally serve to minimize potential livestock impacts to streambanks of ESA Action Area streams. Measures including rapid movement of livestock through trailing areas, salting, use of range improvements such as fencing and water developments all contribute to minimizing near stream livestock activity and the potential for direct streambank impacts on ESA Action Area streams. The Grazing Strategies and Conservation Measures associated with the proposed grazing action are considered to be effective in minimizing potential degradation of streambank stability on stream channels within the ESA Action Area.

The direct and indirect effects of the proposed livestock grazing actions on streambank

conditions within the Nez Perce Allotment streams are insignificant, and not expected to have any meaningfully measureable or discernable influence on streambank stability levels within the ESA Action Area. We recognize there could be localized impacts to streambanks when livestock occasionally step on streambanks. However, because of the expected effectiveness of the project design and associated conservation measures in reducing livestock presence near streams, it is my professional judgment those impacts will be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Streambank Focus Indicator both within the ESA Action Area and at the 5th field HUC scale.

7.1.6 RIPARIAN CONSERVATION AREAS

The condition of riparian areas can have important affects on fish populations. Livestock grazing can impact riparian areas (see section 6.4.7) by direct reduction or altering of riparian vegetation and/or by impacting protective streambank cover (Platts and Nelson, 1989). Livestock grazing primarily impacts the riparian conditions in the areas that are grazed by livestock.

Current livestock grazing activities are not considered to be negatively impacting riparian conditions within the ESA Action Area. Overall riparian conditions within the allotment are good. Data for other associated focus indicators, including streambank stability, width:depth ratios and water temperature suggest healthy condition of riparian areas in the Deer Creek drainage within the ESA Action Area.

There is one MIM monitoring site in lower Deer Creek, within the Deer Creek Unit, near the 2009 electrofishing monitoring site (E67). This monitoring site was established in 1994 and one subsequent monitoring reading has occurred at this site in 2002. This MIM monitoring site will be used in this analysis as a representation of livestock impacts to the riparian conservation areas in the Nez Perce Allotment. Since that time, grazing management has evolved based upon management in reference to ESA listed fish species, specifically bull trout, which occur within the allotment. Greenline Ecological Status (GES) typically is the element in which interpretations of ecological status and trend will be discussed in the following:

There has been one site monitored in 1994 and 2006. This one site has had a GES reading of Late Seral (LS) in 1994 and Potential Natural Community (PNC) in 2002.

Historic grazing activities did not have the same Resource Objectives and Standards as described in section 3.2.5. Those historic resource objectives and standards would have allowed grazing activities to have more negative impacts to riparian areas and fish habitat which would have contributed to past habitat capability limitations within the Nez Perce Allotment and the ESA Action Area. It is my professional judgment that improvements in grazing management strategies implemented on this allotment within recent years, since the mid 1990's, have greatly reduced any livestock impacts to riparian areas, fish and fish habitat parameters within the ESA Action Area.

Future MIM monitoring will continue to identify trends of riparian vegetation conditions within the Nez Perce Allotment. These monitoring operations will be effective in identifying any significant change in riparian conditions which would initiate responsive modification of grazing management strategies for the allotment under the Adaptive Management Strategy.

Conclusion:

Stream Riparian Conservation Areas are not considered a major limiting factor to fish production within the ESA Action Area because livestock have limited access to the stream riparian conservation area and the 2002 MIM reading has a greenline ecological status of PNC .

The Grazing Strategies and Conservation Measures of the proposed action, designed in part to avoid livestock presence within stream channels during critical spawning periods, additionally serve to minimize potential livestock impacts to riparian conservation areas of ESA Action Area stream. Measures including rapid movement of livestock through trailing areas, riding to distribute livestock away from riparian areas, salting, use of range improvements such as fencing and water developments all contribute to minimizing near stream livestock activity and the potential for direct streambank impacts on the one ESA Action Area stream. The Grazing Strategies and Conservation Measures associated with the proposed grazing action are considered to be effective in minimizing potential degradation of riparian conservation areas on stream channels within the ESA Action Area.

The direct and indirect effects of the proposed livestock grazing actions on riparian conservation areas within the Nez Perce Allotment's one ESA stream is insignificant, and not expected to have any meaningfully measureable or discernable influence on riparian conservation areas within the ESA Action Area. We recognize there could be localized impacts to riparian conservation areas when are grazing near a stream. However, because of the expected effectiveness of the project design and associated conservation measures in reducing livestock presence near streams, it is my professional judgment those impacts will be widely distributed across the landscape, individually minor in nature, and cumulatively immeasurable at the watershed scale. The proposed action is expected to maintain the condition of the Riparian Conservation Area Focus Indicator both within the ESA Action Area and at the 5th field HUC scale.

7.2 CUMULATIVE EFFECTS

The definition of cumulative effects as used for Section 7 consultation under the Endangered Species Act are "those effects of *future State or private activities*, not involving Federal activities, that are *reasonably certain to occur* within the ESA Action Area" (50 CFR§402.02, emphasis added). This definition should not be confused with the definition that is used for the National Environmental Policy Act and other environmental laws. In this context, cumulative effects apply only to future state and private activities that are reasonably certain to occur. Furthermore, if an activity is currently occurring and will likely continue to occur in the future with similar effects, it is not considered under cumulative effects because it has already been considered in the description of baseline conditions.

There is no State land within the ESA Action Area. There are four private land parcels within the ESA Action Area. There are no known private land activities within the ESA Action Area that along with the Nez Perce Allotment activities, will pose a risk of adverse cumulative effects to the fisheries resource.

7.3 SUMMARY OF EFFECTS

The effects analysis identifies a non-discountable potential for direct impact of livestock on spawning bull trout and their incubating eggs. These potential impacts could directly affect the Growth and Survival Indicator of the Subpopulation Characteristics Pathway, which could produce related indirect effects to the Subpopulation Size and Persistence and Genetic Integrity Indicators. There is no Chinook salmon or steelhead present within the ESA Action Area**.** There is no Chinook salmon and steelhead Designated Critical Habitat within the ESA Action Area. There is bull trout Proposed Critical Habitat within the ESA Action Area. Impacts of proposed grazing activities to aquatic and riparian habitat focus indicators, including water temperature, sediment, width;depth ratio, streambank condition and riparian habitat conservation areas are

all identified as insignificant or discountable. The proposed action would maintain these focus indicators at their current levels of functionality.

Table 8 summarizes the effects of the proposed Nez Perce Allotment's grazing operations on aquatic/riparian Pathways and Indicators, including the six identified Focus Indicators (highlighted) addressed in the Effects section of this document.

The Matrix of Diagnostic Pathways and Indicators (Appendix B) and Table 8 below are completed following two documents, the NMFS August 1996 *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS, 1996) and the USFWS February 1998 *A Framework to Assist in Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Bull Trout Subpopulation Watershed Scale (USFWS, 1998).*

Table 8 - Effects Summary for the Nez Perce Allotment's Grazing Activities

Pathway	Indicators	Functionality Of Baseline	Response Column A: Will the proposed action or any interrelated or interdependent actions likely generate any direct or indirect effects to this indicator?			Response Column B: Are these effects expected to exceed beneficial, insignificant, or discountable?		
			CH	SH	BT	CH	SH	BT
Subpopulation Characteristics (bull trout only)	Subpopulation Size	FR	NA	NA	YES	NA	NA	YES
	Growth and Survival (including incubation survival)	FUR	NA	NA	YES	NA	NA	YES
	Life History Diversity and Isolation	FUR	NA	NA	NO	NA	NA	NO
	Persistence and Genetic Integrity	FUR	NA	NA	NO	NA	NA	NO
Water Quality	Temperature	FA	NO	NO	YES	NO	NO	NO
	Sediment	FA	NO	NO	YES	NO	NO	NO
	Chemical Characteristics	FA	NO	NO	NO	NO	NO	NO
Habitat Access	Physical Barriers	FUR	NO	NO	NO	NO	NO	NO
Habitat Elements	Substrate Embed.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	LWD	FA	NO	NO	NO	NO	NO	NO
	Pool Frequency and Quality	FA	NO	NO	NO	NO	NO	NO
	Off-channel Habitat	FA	NO	NO	NO	NO	NO	NO
	Refugia	FA	NO	NO	NO	NO	NO	NO

Pathway	Indicators	Functionality Of Baseline	Response Column A Will the proposed action or any interrelated or interdependent actions likely generate any direct or indirect effects to this indicator?			Response Column B Are these effects expected to exceed beneficial, insignificant, or discountable?		
			CH	SH	BT	CH	SH	BT
Channel Condition and Dynamics	Width:Depth Ratio	FR	NO	NO	YES	NO	NO	NO
	Streambank Condition	FA	NO	NO	YES	NO	NO	NO
	Floodplain Connectivity	FA	NO	NO	NO	NO	NO	NO
Flow/Hydrology	Change in Peak/Base Flows	FUR	NO	NO	NO	NO	NO	NO
	Increase in Drainage Networks	FA	NO	NO	NO	NO	NO	NO
Watershed Conditions	Road Density and Location	FR	NO	NO	NO	NO	NO	NO
	Disturbance History	FA	NO	NO	NO	NO	NO	NO
	Riparian Conservation Areas	FA	NO	NO	YES	NO	NO	NO
	Disturbance Regime (bull trout only)	FA	NA	NA	Yes	NA	NA	NO
Integration of Species and Habitat Conditions	Habitat Quality and Connectivity (bull trout only)	FR	NA	NA	Yes	NA	NA	NO

Non-highlighted elements refer to overall conditions within the Texas Creek 5th field HUC as identified in Matrix Table (Appendix B)

Highlighted elements refer to functionality conditions of Nez Perce Allotment ESA Action Area Focus Indicators

Texas Creek - Salmon River 5th field HUC

Status of Baseline: Functioning Appropriately – **FA** Functioning at Risk – **FR** Functioning at Unacceptable Risk – **FUR**

8 EFFECTS DETERMINATION

The effects determination for each species was made using the above analysis and the effects determination key (Table 8). The specific effects determinations are identified below and summarized in Table 9.

8.1 SNAKE RIVER SPRING/SUMMER CHINOOK SALMON

The effects analysis concluded that the proposed action will have no direct, indirect or cumulative effects on Chinook salmon or Chinook salmon habitat because the species and occupied habitat are not found within the ESA Action Area. Therefore, it is my determination the proposed action results in a “NO EFFECT” determination for Chinook salmon.

The effects analysis concluded that the proposed action will have no effect on Chinook salmon designated critical habitat because there is no designated critical habitat within the ESA Action Area. Therefore, it is my determination the proposed action results in a “NO EFFECT” determination for steelhead designated critical habitat.

8.2 SNAKE RIVER STEELHEAD

The effects analysis concluded that the proposed action will have no direct, indirect or cumulative effects on steelhead or steelhead habitat because the species and the habitat are not found within the ESA Action Area. Therefore, it is my determination the proposed action results in a “NO EFFECT” determination for steelhead.

The effects analysis concluded that the proposed action will have no effect on steelhead designated critical habitat because there is no designated critical habitat within the ESA Action Area. Therefore, it is my determination the proposed action results in a “NO EFFECT” determination for steelhead designated critical habitat.

8.3 COLUMBIA RIVER BULL TROUT

The effects analysis concluded that the proposed action may have direct effects to bull trout or bull trout redds which are not considered insignificant or discountable. Although proposed conservation measures limit the adverse effects of grazing activities, there exists a remaining potential for direct trampling of bull trout redds and/or the potential for livestock to disturb or harass potential spawning adult bull trout within one ESA Action Area stream, Deer Creek. Therefore, it is my determination the proposed action results in a “MAY AFFECT, LIKELY TO ADVERSELY AFFECT” determination for bull trout.

The effects analysis concluded that the proposed action may have some effects on bull trout proposed critical habitat. However, these effects are expected to be insignificant or discountable. Therefore, it is my determination the proposed action results in a “MAY AFFECT, NOT LIKELY TO ADVERSELY AFFECT” determination for bull trout proposed critical habitat.

8.4 SNAKE RIVER SOCKEYE SALMON

The effects analysis concluded that the proposed action will have no direct, indirect or cumulative effects on sockeye salmon or sockeye salmon habitat because the species and the habitat are not found within the ESA Action Area. Therefore, it is my determination the proposed action results in a “NO EFFECT” determination for sockeye salmon.

The effects analysis concluded that the proposed action will have no effect on sockeye salmon designated critical habitat because there is no designated critical habitat within the ESA Action Area. Therefore, it is my determination the proposed action results in a "NO EFFECT" determination for sockeye salmon designated critical habitat.

8.5 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act requires federal agencies to evaluate the impact of actions authorized, funded, or undertaken by the agency that may adversely affect the essential fish habitat of commercially harvested species. Within the scope of this action this includes Chinook salmon. There is no Chinook salmon occupied habitat and no Chinook salmon designated critical habitat within the ESA Action Area. Therefore, it is my determination the proposed action results in a "NO EFFECT" determination on Chinook salmon Essential Fish Habitat.

Table 9 - Effects Determination Summary for the Nez Perce Allotment's Grazing Activities

	Chinook Salmon			Steelhead		Bull Trout		Sockeye Salmon	
	Species	Designated Critical Habitat	Essential Fish Habitat	Species	Designated Critical Habitat	Species	Proposed Critical Habitat	Species	Designated Critical Habitat
Determination [1]	No Effect	No Effect	No Effect	No Effect	No Effect	Likely to Adversely Affect	Not Likely to Adversely Affect	No Effect	No Effect

[1] The 'Species' column is for determining effects to the species. The 'Habitat' column is for determining effects to designated critical habitat, proposed critical habitat or essential fish habitat.

All of the above effects determinations in Table 8 consider the Analysis of Effects in Section 7 of this BA. The species determinations are made as follows: No Effect (NE) if the species is not present in the ESA Action Area or the proposed action or any interrelated or interdependent actions will not effect on any individuals, May Affect- Not Likely to Adversely Affect (MA-NLAA) if the proposed action or any interrelated or interdependent actions may affect but will likely not adversely affect any individuals, and May Affect- Likely to Adversely Affect (MA-LAA) if the proposed action or any interrelated or interdependent actions will result in take of individuals or when the action's effects cannot meet the criteria for a MA-NLAA determination.

The habitat determinations are made as follows: NE if the ESA Action Area does not contain designated critical habitat or all of the responses associated with habitat in 'Response Column A' are 'NO', NLAA if all of the responses associated with habitat in 'Response Column B' are 'NO', LAA if any of the responses associated with habitat in 'Response Column B' are 'YES'.

APPENDIX A - REFERENCES

References

Belsky, J., A. Matzke, and S. Uselman. 1997. Survey of livestock influences on stream and riparian ecosystems in the western United States. Oregon Natural Desert Association. 38 p.

Bengeyfield, P. 2006. Managing cows with streams in mind. Rangelands, 28(1). pp. 3-6.

Bjornn, T.C. and Reiser, D.W. 1991. Habitat Requirements of Salmonids in Streams IN Meehan, W.R. ed Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats, American Fisheries Society. Bethesda, Maryland

Bjornn, T.C., C.A. Perry and L.M. Garmann, 1998 Deposition of fine sediments in substrates and their effects on survival of trout embryos. Idaho Cooperative Fish and Wildlife Research Unit Technical Report 98-1. University of Idaho. February 1998

Burton, T.A., S.J. Smith and E.R. Crowley. 2008. Monitoring Stream Channels and Riparian Vegetation Multiple Indicators. Interagency Technical Bulletin Version 5.0. USDA Forest Service, USDI Bureau of Land Management. April,2008.

Clary, W. P. and B. F. Webster. 1989. Managing grazing of riparian areas in the Intermountain Region. General Technical Report INT-263, U.S. Dept.of Agriculture, USFS, Intermountain Research Station, Ogden, Utah. 11 p.

Clary, Warren P. 1999. Stream channel and vegetation responses to late spring cattle grazing. Journal of Range Management, Vol. 52, No. 3 (May, 1999), pp. 218-227.

Clary, Warren P. and John W Kinney. 2000. Streambank Response to Simulated Grazing. USDA Forest Service Proceedings RMRS –P-13, USDA, Forest Service, Rocky Mountain Research Station, Fort Collins, CO

Edwards, Joshua. 2009. Upper Big Lost Grazing Effectiveness of Annual Indicators. Draft powerpoint available at the Lost River Ranger Station, Salmon-Challis NF, Mackay, ID.

Ehrhart, R.C. and P.L. Hansen. 1997. Effective cattle management in riparian zones: a field survey and literature review. USDI, Bureau of Land Management, Montana State Office. November

Gamett, B, L. 2002. The relationship between water temperature and bull trout distribution and abundance. Utah State University. Logan, Utah. 2002.

Gamett, Bart L., Bill Diage, Jennifer B. Purvine, Betsy Rieffenberger, and Glenn Seaberg. 2008. A strategy for managing livestock grazing within stream riparian communities on the Salmon-Challis National Forest. Unpublished paper on file at any Salmon-Challis Ranger District Office and the Forest Supervisor's Office, Salmon, ID. 41 pp.

Gregory, J.S. and B.L. Gamett. 2009. Cattle trampling of simulated bull trout redds. North American Journal of Fisheries Management 29:361.

Idaho Department of Environmental Quality. 2009. Department of Environmental Quality Working Principles and Policies for the 2008 Integrated (303[d]/305[b]) Report. State of Idaho Department of Environmental Quality. May 22, 2009

Hall, Frederick C., and Larry Bryant. 1995. Herbaceous stubble height as a warning of impending cattle grazing damage to riparian areas. Gen. Tech. Rep. PNW-GTR-362. Portland, OR. U.S. Department of agriculture, Forest Service, Pacific Northwest Research Station. 9 p.

Kauffman, J. B. and W. C. Krueger. 1984. Livestock impacts on riparian ecosystems and streamside management implications - a review. Journal of Range Management 37(5):430-438.

Kovalchik, Bernard L., and Wayne Elmore. 1991. Effects of cattle grazing systems on willow dominated plant associations in central Oregon. In: Proceedings-Symposium on ecology and management of riparian shrub communities. Compiled by Warren P Clary, E. Durant McArthur, Don Bedunah, and Carl L.Wambolt. May 29-31 1991, Sun Valley, ID. USDA Forest Service General Technical Report INT-289, Intermountain Research Station, Ogden, UT. pp. 111-119.

Lee, D. C., J. R. Sedell, B. R. Rieman, R. F. Thurow, J. E. Williams, [and others]. 1997. In: Quigley, T.M.; S.J. Arbelbide, An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great Basins: vol. 3, ch. 4. Gen. Tech. Rep. PNW-GTR-405. Portland, Oregon: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station: 1058–1496

McInnis, M.L. and J. McIver. 2001. Influence of off-stream supplements on streambanks of riparian pastures. Journal of Range Management 54(4). 4p**.**

Menke, J. (ed.). 1977. Symposium on livestock interactions with wildlife, fish and the environment. Sparks, Nevada. USDA Forest Service Pacific Southwest Forest and Range Experiment Station. Berkeley, California.

Mosley, J.C., P.S. Cook, A.J. Griffis, and J. O'Laughlin. 1997. Guidelines for managing cattle grazing in riparian areas to protect water quality: review of research and best management practices policy. Idaho Forest, Wildlife and Range Policy Analysis Group, Report No. 15. Idaho Forest, Wildlife and Range Experiment Station, University of Idaho. 67pp. Available at http://www.cnrhome.uidaho.edu/pag/.

Myers, Lewis H. 1989. Grazing and riparian management in southwestern Montana. In: Practical approaches to riparian resource management: An educational workshop. Edited by Robert E. Gresswell, Bruce A. Barton, and Jeffrey L. Kershner, Editors). May 8-11, Billings, MT BLM-MT-PT-89-00l-4351. Bureau of Land Management, Washington, DC. pp. 117-120.

Overton, K. et.al, 1995. User's Guide to Fish Habitat: Descriptions that Represent Natural Conditions in the Salmon River Basin, Idaho USDA Forest Service, Intermountain Research Station, General Technical Report INT-GTR-322, August 1995 page 68

Platts, W.S and R.L. Nelson, 1989. Stream Canopy and its relation to salmonid biomass in the Intermountain West. North American Journal of Fisheries Management 9:446-457

Platts, W.S. 1991. Livestock Grazing. IN Meehan, W.R. ed Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats, American Fisheries Society. Bethesda, Maryland

Rosgen, D.L., 1994. A classification of natural rivers. In: Catena. An interdisciplinary journal of soil science, hydrology, geomorphology focusing on geoecology and landscape evolution. Vol 22. No 3. June 1994.

Rosgen, D.L., 1996. Applied River Morphology. Wildland Hydrology Press

Schulz, T. T. and W. C. Leininger. 1990. Differences in riparian vegetation structure between grazed areas and exclosures. Joumal of Range Management 43: 295-299.

Simon, Ronna. 2008. Streambank Alteration Measurement and Implementation, Final, Bridger-Teton National Forest. Unpublished paper on file at the Bridger-Teton NF Supervisor's Office, Jackson, WY. 19 pp.

Stowell, R. et.al. 1983. Guide for Predicting Salmonid Response to Sediment Yields in Idaho Batholith Watersheds. August 1983

Upper Salmon Basin Watershed Project Technical Team, 2005. Upper Salmon River Recommended Instream Work Windows and Fish Periodicity. For River Reaches and Tributaries Above the Middle Fork Salmon River Including the Middle Fork Salmon River Drainage. Revised November 30, 2005.

USDA, Forest Service, 1995. Goals, objectives, and standard/guidelines as described in the EA and subsequent FONSI and DN/DR for the Interim Strategies for Managing Anadromous Fish Producing Watersheds on Federal Lands in eastern Oregon, Washington, Idaho, and Portions of California, PACFISH (February 24, 1995).

USDC, National Marine Fisheries Service 1995. Endangered Species Act Section 7 Consultation Biological Opinion for Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California (PACFISH). January 23, 1995

USDC, NMFS, 1996. Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale - Attachment 3

USDI, Bureau of Land Management, 2003. Biological Assessment for Ongoing Activities Lemhi River Section 7 Watershed Bull Trout Snake River Steelhead Trout Snake River Spring/Summer Chinook Salmon Snake River Sockeye Salmon. March 2003

USDI, Bureau of Land Management, 2009. Challis Field Office Biological Assessment and Consultation Request on Rock Creek. Cited in NOAA/NFMS January 26, 2010 letter of concurrence on file at Public Lands Office, Salmon, ID.

USDI, USFWS, 1998. A Framework to Assist in Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Bull Trout Subpopulation Watershed Scale (February 1998)

USDI, USFWS, 2009. US Fish and Wildlife Service Semi Annual Species List Update 14420-2010-SL-0089, issued December 30, 2009.

U.S. Office of the Federal Register. 1991. 56FR58619 - Endangered and Threatened Species; Endangered status for Snake River sockeye salmon. [See Fed Reg. November 20, 1991 (Vol.56, Number 225)]. Effective December 20, 1991.

U.S. Office of the Federal Register. 1992. 57FR14653 - Endangered and Threatened Species; Threatened status for Snake River spring and summer Chinook salmon. [See Fed Reg. April 22, 1992 (Vol.57, Number 78)]. Effective May 22, 1992.

U.S. Office of the Federal Register. 1993. 58FR68543 –Sockeye Salmon and Chinook Salmon Critical Habitat designation) [See Fed Reg. December 28, 1993 (Vol.58, Number 247)]. Effective January 27, 1994.

U.S. Office of the Federal Register. 1997. 62FR43937 - Endangered and Threatened Species; Threatened status for Snake River steelhead. [See 62 Fed Reg. August 18, 1997 (Vol.62, Number 159)]. Effective October 17, 1997.

U.S. Office of the Federal Register. 1998. 63FR31647 - Endangered and Threatened Species; Threatened status for bull trout. [See Fed Reg. June 10, 1998 (Vol.63, Number 111)]. Effective July 10, 1998.

U.S. Office of the Federal Register. 1999. 58FR68543 – Designated Critical Habitat: Revision of Critical Habitat for Snake River Spring/Summer Chinook Salmon) [See Fed Reg. October 25, 1999 (Vol.64, Number 205)]. Effective November 24, 1999.

U.S. Office of the Federal Register. 2002. 67FR2343 - Magnuson-Stevens Act Provisions; Essential Fish Habitat (EFH) [See Fed Reg. January 17, 2002 (Vol.67, Number 12)]. Effective February 19, 2002.

U.S. Office of the Federal Register. 2005. 70FR52630 – Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho [See Fed Reg. September 2, 2005 (Vol.70, Number 170)]. Effective January 2, 2006.

U.S. Office of the Federal Register. 2005. 70FR56212 –Bull Trout Critical Habitat designation [See Fed Reg. September 26, 2005 (Vol.70, Number 185)]. Effective October 26, 2005.

U.S. Office of the Federal Register. 2006. 71FR834 - Endangered and Threatened Species: Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead. [See Fed Reg. January 5, 2006 (Vol.71, Number 3)]. Effective February 6, 2006.

U.S. Office of the Federal Register. 2010. 75FR2270 Endangered and Threatened Wildlife and Plants; Revised designation of Critical Habitat for Bull Trout in the Coterminous United States. Proposed Rule. [See Fed Reg. January 14, 2010 (Vol.75, Number 9)]. Effective February 14, 2010.

Winward, A.H. 2000. Monitoring the Vegetation Resources in Riparian Areas. USDA Forest Service. Rocky Mountain Research Station. General Technical Report GTR-47 April, 2000.

APPENDIX B – WATERSHED BASELINES WITH MATRICES OF DIAGNOSTIC PATHWAYS AND INDICATORS

1 TEXAS CREEK (5TH FIELD HUC) WATERSHED BASELINE

1.1 MATRIX OF DIAGNOSTIC PATHWAYS AND INDICATORS

Agency: USDA Forest Service, Salmon-Challis National Forest	**Watershed 5th field HUC: Texas Creek - 1706020401**
Unit: Leadore Ranger District	**Spatial Scale of Matrix:** One 5th field HUC
Fish Species Present: Bull Trout	**Designated or Proposed Critical Habitat Present:** Bull Trout
Anadromous Species Population: Lemhi River	**Anadromous Species Subpopulation:** Lemhi River
Bull Trout Recovery Unit: Upper Snake	**Bull Trout Critical Habitat Unit:** Salmon River Basin
Bull Trout Core Area: Lemhi River	**Bull Trout Local Population:** Upper Lemhi River
Management Actions: Range (Ongoing) - Nez Perce Allotment	**Updated:** 5/19/2010

Pathway - Subpopulation Characteristics (Bull Trout Only)		
Pathways Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Subpopulation Size	**FR $_{BT}$**	**Bull Trout -Bull Trout have been found in one stream within the Texas Creek 5th field HUC and within in one stream within the ESA Action Area. All life stages are believed to be present in the one stream. Fluvial individuals are not present within the Texas Creek 5th field HUC. Bull trout is currently listed as "Threatened" under ESA.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is *Functioning at Risk*. The effects of the proposed project is likely to impact individuals but may not have a trend in decreasing or increasing the bull trout population in the 5th field HUC or the ESA Action Area because the project's activities will not restore nor degrade stream habitat elements within the next 5 to 10 years. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Growth and Survival	**FUR $_{BT}$**	**<u>Bull Trout</u> - The sub population, within the Texas Creek 5th field HUC, has the resilience to recover from short term disturbances or subpopulation declines within one to two generations (5 to 10 years). The subpopulation is characterized as increasing or stable. The one bull trout stream within the Texas Creek 5th field HUC and the one bull trout stream within the ESA Action Area currently have no connectivity to the Lemhi River and the Salmon River. All bull trout streams: 1) Conserve opportunity for diverse life-history expression, 2) Conserve opportunity for genetic diversity, 3) Ensure bull trout are distributed across representative habitats, 4) Ensure sufficient connectivity among populations, and 5) Ensure sufficient habitat to support population viability (e.g., abundance, trend indices).** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is <u>*Functioning at Unacceptable Risk*</u> because Texas Creek is disconnected to the Lemhi River. The effects of the proposed project is likely to impact individuals but may not have a trend in decreasing or increasing the bull trout growth and survival in the ESA Action Area because the project's activities will not measurably restore nor degrade stream habitat elements or population size within the next 5 to 10 years. Therefore the effects of this action will <u>*Maintain*</u> this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Life History Diversity and Isolation	**FUR $_{BT}$**	**<u>Bull Trout</u> - The migratory form of bull trout, within the Texas Creek 5th field HUC, is not present and local populations are not in close proximity to other spawning and rearing groups. Migratory corridors and rearing habitat are in fair to good condition for the species. The bull trout stream within the Texas Creek 5th field HUC and the ESA Action Area currently have no connectivity to the Lemhi River and the Salmon River.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is <u>*Functioning at Unacceptable Risk*</u>. The effects of the proposed project is likely to impact individuals but may not have a trend in decreasing or increasing the bull trout life history diversity and Isolation in the ESA Action Area because the project's activities will not measurably restore nor degrade stream habitat elements or population size within the next 5 to 10 years. Therefore the effects of this action will <u>*Maintain*</u> this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Persistence and Genetic Integrity	**FUR $_{BT}$**	**<u>Bull Trout</u> – There is only a single population of bull trout in this 5th field HUC. There is little or no connectivity for rebounding subpopulations in low numbers, in decline or nearing extinction. The probability of hybridization is high. The bull trout stream within the Nez Perce 5th field HUC and the ESA Action Area currently have no connectivity to the Lemhi River and the Salmon River.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is <u>*Functioning at Unacceptable Risk*</u>. The effects of the proposed project is likely to impact individuals but may not have a trend in decreasing or increasing the bull trout persistence and genetic integrity in the ESA Action Area because the project's activities will not measurably restore nor degrade stream habitat elements, population size or the probability of hybridization with eastern brook trout within the next 5 to 10 years. Therefore the effects of this action will <u>*Maintain*</u> this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Pathway - Water Quality		
Pathway Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Temperature (7day average. Maximum, ^{o}C)	**FA $_{BT}$**	**There is limited data for water temperature in the Texas Creek 5th field HUC. The Forest Service has water temperature data in Purcell Springs and the BLM has data in Texas Creek. Water temperatures meet standards in Texas Creek and Purcell Springs and professional judgment says it should meet standards in Deer Creek (BLM, 2003).** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is *Functioning Appropriately*. The effects of the proposed project will not play a role in decreasing or increasing steam temperatures within the ESA Action Area because the project's activities will not measurably restore nor degrade stream habitat elements that effect stream temperatures. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Sediment	**FR $_{BT}$**	**There is limited stream sediment data for the Texas Creek 5th field HUC. There are two streams on the 303(d) list which includes sedimentation/siltation. Those streams are Texas Creek and Eighteenmile Creek.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator within the Texas Creek 5th field HUC is *Functioning At Risk*. The effects of the proposed project will not play a role in decreasing or increasing steam sediment within the Texas Creek 5th field HUC and the ESA Action Area because the project's activities will not measurably restore nor degrade upland and riparian habitats that influence overland sediment flow into the stream. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Chemical Contaminants/Nutrients	**FR $_{BT}$**	**There is one 303d streams listed within the Texas Creek 5th field HUC for fecal coliform. That stream is Texas Creek.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is *Functioning at Risk* when considering the entire 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing chemical contaminants/nutrients within the Texas Creek 5th field HUC because the project's activities will not measurably add any chemical contaminants/nutrients into the stream. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Pathway - Habitat Access		
Pathway Indicator	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Physical Barriers	**FUR $_{BT}$**	**There are irrigation diversion structures which preclude access to Texas Creek and the Lemhi River. There are also water withdrawals that limit stream flows and create connectivity problems to Texas Creek and the Lemhi River.** **Therefore it is my professional judgment that the Environmental Baseline for this indicator is *Functioning at Unacceptable Risk* when considering the entire 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing human caused physical barriers within the Texas Creek 5th field HUC and the ESA Action Area because the project's activities will not remove nor create any human caused physical barriers within any ESA fish bearing streams. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Habitat Elements		
Pathway Indicators	**Baseline**	**Discussion of Baseline – Current Condition**
Substrate Embeddedness	**NA**	**The Salmon-Challis National Forest does not collect substrate embeddedness data. Refer to Sediment.**
Large Woody Debris	**FA $_{BT}$**	**Data is limited for large woody debris within the Texas Creek 5th field HUC. In the BLM 2003 Lemhi River Watershed BA it states professional judgment says there is high quality habitat that meets federal standards as inferred from observations.** **Therefore it is my professional judgment that large woody debris is ***Functioning Appropriately*** within the entire 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing large woody debris within the Texas Creek 5th field HUC and the ESA Action Area because the project's activities will not remove any overstory trees that could create large woody debris in any ESA fish bearing stream within the ESA Action Area. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Pool Frequency and Quality	**FA $_{BT}$**	**Data is limited for pool frequency and quality within the Texas Creek 5th field HUC. In the BLM 2003 Lemhi River Watershed BA it states professional judgment says there is high quality habitat that meets federal standards as inferred from observations.** **Therefore it is my professional judgment that pool frequency and quality is ***Functioning Appropriately*** within the entire 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing pool frequency and quality within the Texas Creek 5th field HUC and the ESA Action Area because the project's activities will not remove any overstory trees that could create quality pools in any ESA fish bearing stream within the ESA Action Area. Also, livestock grazing is being managed so as not to degrade bank stability which could degrade quality pool habitat. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Off-channel Habitat	**FA $_{BT}$**	**Data is limited for off-channel habitat within the Texas Creek 5th field HUC. On non confined stream channel reaches where there should be off-channel habitat there are backwaters with cover and low energy off channel areas.** **It is my professional judgment that off-channel habitats are ***Functioning Appropriately*** and naturally within the 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing off channel habitat within the Texas Creek 5th field HUC because the project's activities will not measurably restore nor degrade stream habitat elements that create and maintain off channel habitats. Also, livestock grazing is being managed so as not to degrade bank stability which could degrade off channel habitat. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Refugia	**FA $_{BT}$**	**Quantifiable data is limited for refugia habitat within the Texas Creek 5th field HUC. It is my professional judgment that Refugia Habitat (important remnant habitat for sensitive aquatic species) does exist and are adequately buffered with intact riparian areas. Existing refugia are sufficient in size, number and connectivity to maintain viable populations or sub-populations.** **It is my professional judgment that refugia habitat is ***Functioning Appropriately*** and naturally within the 5th field HUC. The effects of the proposed project will not play a role in decreasing or increasing Refugia Habitat within the Texas Creek 5th field HUC because the project's activities will not measurably restore nor degrade stream habitat elements or riparian areas that create and maintain Refugia Habitat. Also, livestock grazing is being managed so as not to degrade riparian areas and bank stability which could create and maintain Refugia Habitat. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Channel Condition & Dynamics		
Pathways Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Average Wetted Width/Maximum Depth Ratio	**FA $_{BT}$**	**Data is limited for average wetted width/maximum depth ratio within the Texas Creek 5th field HUC. In the BLM 2003 Lemhi River Watershed BA it states professional judgment says there is high quality habitat that meets federal standards as inferred from observations.** **It is my professional judgment that average wetted width/maximum depth ratio is *Functioning Appropriately within* the Texas Creek 5th field HUC. The effects of the proposed project could play a role in decreasing or increasing average wetted width/maximum depth ratio within the Texas Creek 5th field HUC. The direct correlation between the proposed project's activities and a negative increase in average wetted width/maximum depth ratio would be if livestock grazing activities are allowed to break down streambanks and significantly decrease the stability of streambanks. Range improvements such as fences and water developments that help to minimize and keep livestock grazing activities away from riparian areas and streambanks can help to restore degraded stream reaches where the average wetted width/maximum depth ratio is greater than 10. Current and future livestock grazing activities are being managed so as not to degrade riparian areas and bank stability which overtime could improve average wetted width/maximum depth ratio. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Streambank Condition	**FA $_{BT}$**	**Data is limited for streambank condition within the Texas Creek 5th field HUC. In the BLM 2003 Lemhi River Watershed BA it states professional judgment says there is high quality habitat that meets federal standards as inferred from observations.** **It is my professional judgment that streambank condition is *Functioning Appropriately* within the Texas Creek 5th field HUC. The effects of the proposed project's activities could play a role in decreasing streambank conditions within the Texas Creek 5th field HUC. The direct correlation between the proposed project's activities and a negative decrease in streambank conditions would be if livestock grazing activities are allowed to break down streambanks and significantly decrease the stability of streambanks. Range improvements such as fences and water developments that help to minimize and keep livestock grazing activities away from riparian areas and streambanks can help to maintain and restore degraded stream reaches where the percent stabile streambanks area higher than desired. Current and future livestock grazing activities are being managed so as not to degrade riparian areas and bank stability. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Floodplain Connectivity	**FA $_{BT}$**	**Most all stream reaches within the Texas Creek 5th field HUC can access their floodplains. Off channel areas are frequently hydrologically linked to main channels. Overbank flows occur and maintain wetland functions, riparian vegetation and succession.** **It is my professional judgment that floodplain connectivity is *Functioning Appropriately* within the Texas Creek 5th field HUC. The effects of the proposed project's activities could play a role in decreasing streambank conditions, within the Texas Creek 5th field HUC, which in turn could negatively affect floodplain connectivity. The direct correlation between the proposed project's activities and a negative decrease in streambank conditions would be if livestock grazing activities are allowed to break down streambanks and significantly decrease the stability of streambanks. Range improvements such as fences and water developments that help to minimize and keep livestock grazing activities away from riparian areas and streambanks can help to maintain and restore degraded stream reaches where the percent stabile streambanks area higher than desired. Current and future livestock grazing activities are being managed so as not to degrade riparian areas and bank stability. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Flow/Hydrology		
Pathways Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Change in Peak/Base Flows	**FUR $_{BT}$**	**Within the entire Texas Creek 5th field HUC, below National Forest System lands there are water diversions that take water out of the stream. This would show some evidence of altered peak flow, baseflow and/or flow timing relative to an undisturbed watershed of similar size, geology and geography. Within the ESA Action Area the watershed hydrograph would indicate peak flow, baseflow and/or flow timing characteristics comparable to an undisturbed watershed of similar size, geology and geography.** **It is my professional judgment that change in peak/base flows is *Functioning at Unacceptable Risk* for the Texas Creek 5th field HUC but would be *Functioning Appropriately* on ESA stream reaches within the ESA Action Area. The effects of the proposed project's activities will not play a role in changing peak flows and base flows in the Texas Creek 5th field HUC or within the ESA Action Area. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Increase in Drainage Network	**FA $_{BT}$**	**There has been a zero or minimum increase in active channel length correlated with human caused disturbance within the Texas Creek 5th field HUC.** **It is my professional judgment that increase in drainage network is ***Functioning Appropriately*** for the Texas Creek 5th field HUC. The effects of the proposed project's activities will not play a role in changing or increasing the drainage network in the Texas Creek 5th field HUC. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Watershed Condition		
Pathway Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
Road Density and Location	**FUR $_{BT}$**	**The Texas Creek 5th field HUC has 279.9 miles of roads, a road density of 2.9 (mi/mi^2) with some valley bottom roads (46.4 miles of road within a PACFISH RHCA and 16.6% of the roads are within a PACFISH RHCA).** **It is my professional judgment that road density and location is ***Functioning at Unacceptable Risk*** for the Texas Creek 5th field HUC. The effects of the proposed project's activities will not play a role in road density or location in the Texas Creek 5th field HUC. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Disturbance History	**FA $_{BT}$**	**The ECA for the Texas Creek 5th field HUC is 6.6 percent with an overall cumulative effects rating of Low. This rating is caused by Texas harvest and historic fires within the Texas Creek 5th field HUC. There are no concentrations of disturbance in unstable areas, and/or refugia, and or riparian areas. An ECA rating of greater than 15 percent is considered functioning at risk.** **It is my professional judgment that disturbance history is ***Functioning Appropriately*** for the Texas Creek 5th field HUC. The effects of the proposed project's activities will not play a role in disturbance history within the Texas Creek 5th field HUC. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Riparian Conservation Areas	**FA $_{BT}$**	**The riparian conservation areas provide adequate shade, large woody debris recruitment and habitat protection and connectivity within the Texas Creek 5th field HUC, buffers or includes known refugia for sensitive aquatic species (>80% intact) and adequately buffer impacts on rangelands. The percent similarity of riparian vegetation to the potential natural community/composition is >50%.** **It is my professional judgment that riparian conservation areas are ***Functioning Appropriately for*** the Texas Creek 5th field HUC. The effects of the proposed project's activities could play a role in negatively affecting riparian conservation areas. Range improvements such as fences and water developments help to minimize or eliminate livestock grazing activities within some riparian areas. Current and future livestock grazing activities are being managed so as not to degrade riparian conservation areas. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**
Disturbance Regime **(bull trout only)**	**FA $_{BT}$**	**The disturbance regime, within the Texas Creek 5th field HUC, has short lived environmental disturbances with a predictable hydrograph, high quality habitat and watershed complexity providing refuge and rearing space for all life stages or multiple life-history forms. Natural processes are stable.** **It is my professional judgment that disturbance regimes are ***Functioning Appropriately for*** the Texas Creek 5th field HUC. The effects of the proposed project's activities could play a role in negatively affecting disturbance regimes. Range improvements such as fences and water developments help to minimize or eliminate livestock grazing activities within some riparian areas. Current and future livestock grazing activities are being managed so as not to degrade riparian areas and stream habitat within the ESA Action Area. Therefore the effects of this action will ***Maintain*** this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Integration of Species and Habitat Conditions		
Pathway Indicators	**Status of Baseline**	**Discussion of Baseline – Current Condition**
(bull trout only)	**FR $_{BT}$**	**Within the Texas Creek 5th field HUC habitat quality and connectivity among subpopulations is low to moderate. Fine sediments, stream temperatures or the availability of suitable habitats have been altered and will not recover to pre-disturbance conditions within one generation (5 years). Survival or growth rates have been reduced from those in the best habitats. The subpopulation is reduced in size, but the reduction does not represent a long-term trend. The subpopulation is stable or fluctuating in a downward trend. Connectivity among subpopulations occurs but habitats are more fragmented.** **The Texas Creek drainage is disconnected from the Lemhi River with numerous diversions which alter flow regimes and have resulted in areas of decadent riparian vegetation.** **It is my professional judgment that integration of species and habitat conditions are *Functioning at Risk for* the Texas Creek 5th field HUC. The effects of the proposed project's activities could play a role in negatively affecting integration of species and habitat conditions. Range improvements such as fences and water developments help to minimize or eliminate livestock grazing activities within some riparian areas and stream reaches. Current and future livestock grazing activities are being managed so as not to degrade riparian areas and stream habitat within the Texas Creek 5th field HUC. Therefore the effects of this action will *Maintain* this environmental baseline condition because of the action's design criteria and following required standard and guidelines.**

Status of Baseline: Functioning Appropriately – **FA** Functioning at Risk – **FR** Functioning at Unacceptable Risk – **FUR**
$_{BT}$ Bull Trout, $_{CK}$ Chinook, $_{SH}$ Steelhead, $_{1}$ Rearing, $_{2}$ Spawning/Incubation, $_{TRIB}$ Tributaries,

Effects of the Action:
Restore – the action will result in a positive change in the indicator evaluated
Maintain – the action will have no effect on the status of the indicator evaluated
Degrade – the action will result in a negative change in the indicator evaluated
Professional Judgment – **PJ**

APPENDIX C – MONITORING DATA AND SUMMARIES

Figure 5 - Nez Perce Allotment Monitoring Sites Map

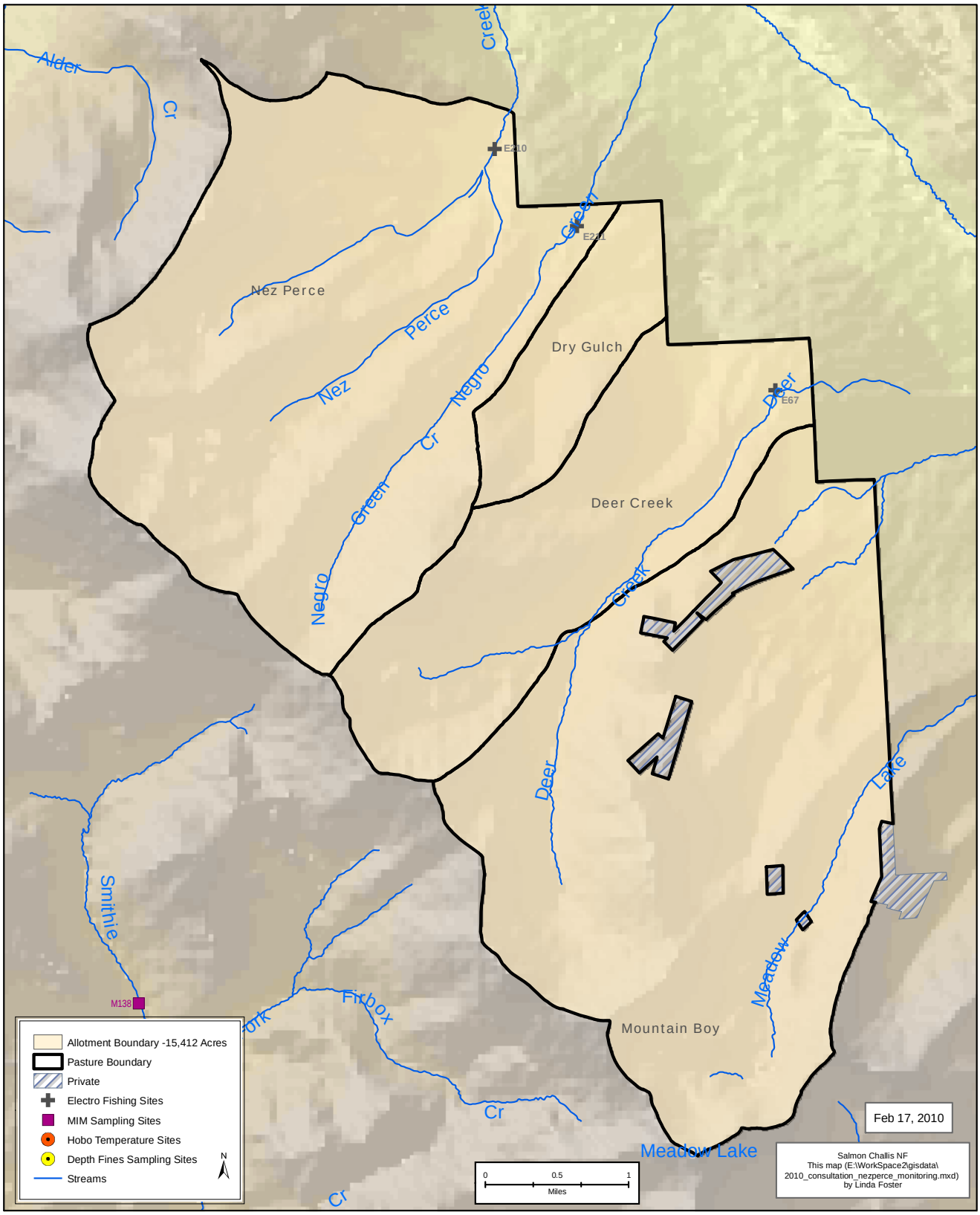


Figure 6 - Nez Perce Allotment Vegetation Map

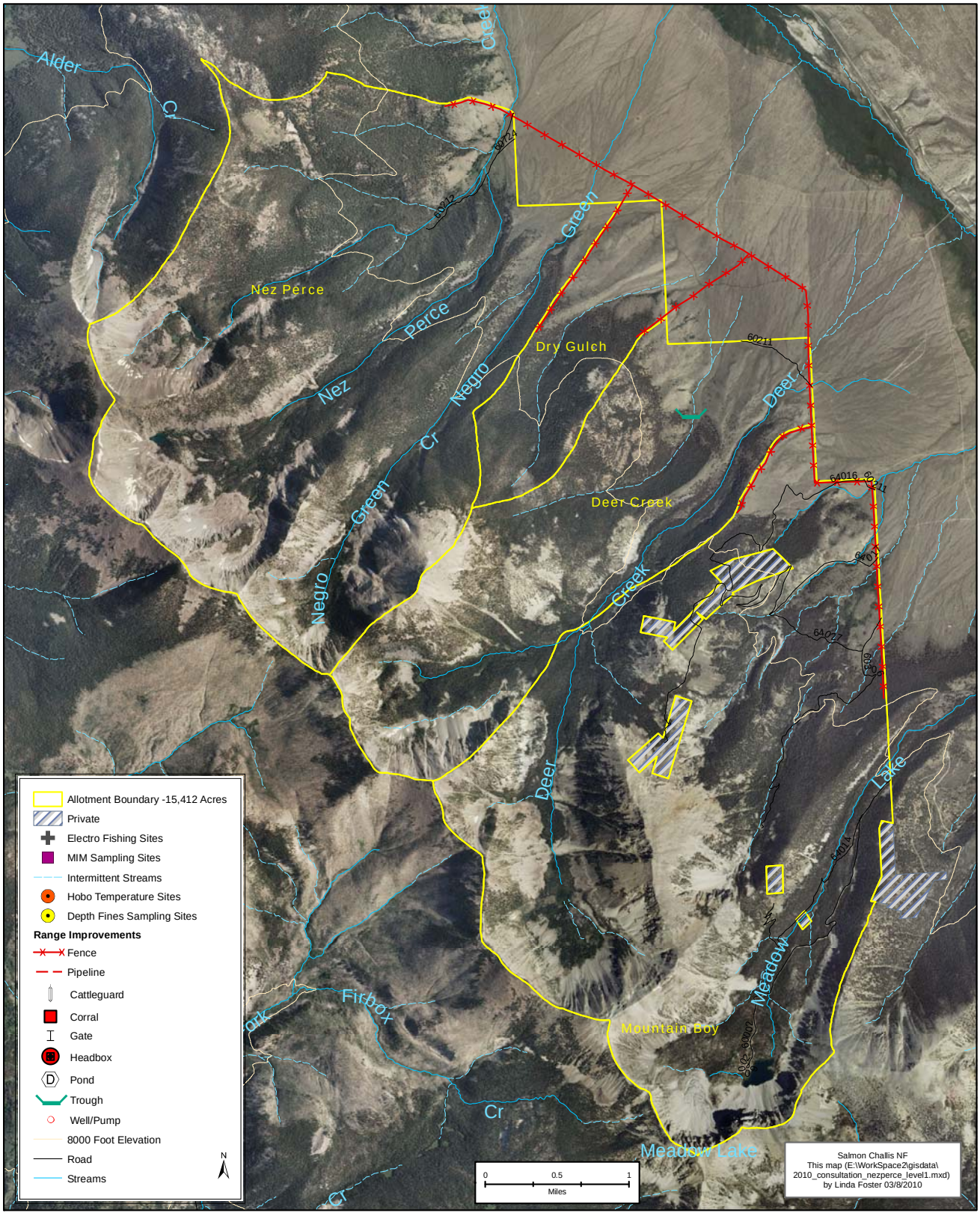


Table 10 - Nez Perce Allotment Summary of Monitoring Data Collected

Nez Perce Allotment - (4)	Chinook salmon	Chinook Salmon Presence Miles	Spawning Miles	Chinook salmon DCH	steelhead	Steelhead Presence Miles	Spawning Miles	steelhead DCH	bull trout	Bull Trout Presence Miles	Spawning Miles	bull trout DCH	Temperature	Sediment	Electrofishing	Width to Depth Ratio	Streambank Condition	Greenline Ecological Status
Deer Creek	No	0	0	No	No	0	0	No	Yes	4.22	2.58	4.5	No	No	09	90,09	02	94, 02
Meadow Lake Creek	No	0	0	No	No	0	0	No	No	0	0	0	No	No	No	No	No	No
Negro Green Creek	No	0	0	No	No	0	0	No	No	0	0	0	No	No	07	No	No	No
Nez Perce Creek	No	0	0	No	No	0	0	No	No	0	0	0	No	No	07	No	No	No

Table 11 - Nez Perce Allotment (bull trout)

Bull Trout Present		Bull Trout Spawning		Bull Trout Proposed CH	
Row Labels	Sum of LENGTH	Row Labels	Sum of LENGTH	Row Labels	Sum of LENGTH
⊞ Deer Creek	4.22	⊞ Deer Creek	2.58	⊞ Deer Creek	4.50
Grand Total	4.22	Grand Total	2.58	Grand Total	4.50

Table 12 - Nez Perce Allotment's Units (bull trout)

Bull Trout Present		Bull Trout Spawning		Bull Trout Proposed CH	
Row Labels	Sum of LENGTH	Row Labels	Sum of LENGTH	Row Labels	Sum of LENGTH
⊟ Deer Creek Unit	2.55	⊟ Deer Creek Unit	2.55	⊟ Deer Creek Unit	2.55
⊞ Deer Creek	2.55	⊞ Deer Creek	2.55	⊞ Deer Creek	2.55
⊟ Mountain Boy	1.67	⊟ Mountain Boy Unit	0.03	⊟ Mountain Boy Unit	1.96
⊞ Deer Creek	1.67	⊞ Deer Creek	0.03	⊞ Deer Creek	1.96
Grand Total	4.22	Grand Total	2.58	Grand Total	4.50

Table 13 - Multiple Indicators Monitoring (MIM) Summary

Nez Perce Greenline Summary										
Allotment	Pasture	Site #	Year	Width:Depth	Bank Stability	Woody Species Regeneration		Greenline Ecological Status	GES Trend	Summary of Trend
						Seedling/Young (#/%)	Mature/Dead (#/%)			
Nez Perce	Deer Creek	Deer Cr.	1994	N/A	N/A	N/A	N/A	79/LS	Base	GES is in a upward trend at PNC. Two site visits does not give good trend. The site has been photo monitored since 2002.
			2002	N/A	90	162/83%	33/17%	95/PNC	Up	

*0-15 Very Early Seral; 16-40 Early Seral; 41-60 Mid Seral; 61-85 Late Seral; 86+ PNC (Potential Natural Community)

Nez Perce Allotment Riparian Discussion :

The monitoring site was established and subsequent monitoring has occurred on the Nez Perce Allotment since the early 90's. Greenline Ecological Status (GES) typically is the element in which interpretations of ecological status and trend will be discussed in the following:

Deer Creek: GES is in an upward trend at PNC. Two site visits does not give a good trend. This site has been photo monitored since 2002. Photo monitoring shows little change to the greenline since the 2002 reading. Due to woody dominance, the best monitoring attribute to manage site is browse use with an annual use indicator not to exceed 50% on Willows and 30% on Alder. The monitoring attribute of greenline stubble with an annual use indicator of 4 inches will also be used. The monitoring attribute of bank alteration with an annual use indicator of 20% will also be used.

APPENDIX D – PROTOCOL FOR MAPPING CHINOOK SALMON CRITICAL HABITAT CURRENTLY DESIGNATED ON THE SALMON-CHALLIS NATIONAL FOREST

This document summarizes the process that will be used by the Salmon-Challis National Forest (SCNF) to map Chinook salmon critical habitat (CSCH) as currently designated by NOAA Fisheries on the SCNF. Critical habitat has been designated for Snake River spring/summer Chinook salmon and includes "river reaches presently or historically accessible…to Snake River spring/summer Chinook salmon" (Federal Register 58(247):68543-68554). However, this designation did not provide a detailed description of the specific areas included in the designation. Such a description is essential when completing site specific consultations to determine if CSCH is present within the action areas. The purpose of this project is to create a GIS layer that delineates the specific areas that are designated as CSCH in this rule. It should be emphasized that this process is not to "designate" CSCH but to portray the SCNFs interpretation, using the identified process, of those areas that have already been designated by the rule. For the purposes of the project, we assume CSCH to be all areas currently or historically occupied by Chinook salmon. This process includes only those areas within the administrative boundary of the SCNF.

The process will use the NHD stream layer as the base layer. By default, all streams will initially be considered to not be CSCH. The following steps will then be used to map designated CSCH.

Step 1: Add reaches identified by the Intrinsic Potential Model

An Intrinsic Potential Model (IPM) developed by the National Marine Fisheries Service (Cooney and Holzer 2006) has been used to model potential spawning and rearing habitat within the SCNF. All stream reaches identified by the IPM shall be mapped as CSCH.

Step 2: Remove reaches that were inappropriately identified by the IPM

The IPM has the potential to identify streams or portions of streams where Chinook salmon could not have occurred. This step involves identifying these reaches and removing them from the CSCH layer. Forest fish staff will review stream reaches selected by the IPM and identify those that were inappropriately included. This may include, but not be limited to, stream reaches that are a) ephemeral, b) above natural barriers, or c) too small to support Chinook salmon. Documentation supporting the removal of each stream reach must be provided.

Step 3: Add reaches where Chinook salmon have occurred based on redd data, but have not been identified in previous steps as CSCH

Chinook salmon redd surveys have been conducted by various organizations. These data will be reviewed by Forest fish staff and all sites where Chinook salmon redds have occurred that have not already been identified as CSCH shall be mapped. Documentation supporting the inclusion of each stream reach must be provided.

Step 4: Add reaches where Chinook salmon have been observed during SCNF fisheries assessments, but have not been identified in previous steps as CSCH

The SCNF has conducted various fisheries assessments and resulting data contain site-specific information regarding Chinook presence in streams. These data may include, but not be limited to, a) general fish population assessments, b) fish population monitoring, c) project specific monitoring, d) observation by Forest Service personnel, and e) R1/R4 surveys. These data will be reviewed by Forest fish staff and all sites where Chinook salmon have occurred that have not already been identified as CSCH shall be mapped. Documentation supporting the inclusion of each stream reach must be provided.

Step 5: Add reaches where Chinook salmon have been observed during fisheries assessments conducted by external organizations, but have not been identified in previous steps as CSCH

Various organizations other than the SCNF have conducted fisheries assessments and resulting data are valuable for identifying areas where Chinook salmon have occurred within the SCNF. Such organizations may include, but not be limited to a) the Idaho Department of Fish and Game, b) the Department of Environmental Quality, and c) Native American Tribes. These data will be reviewed by Forest fish staff and all sites where Chinook salmon have occurred that have not already been identified as CSCH shall be mapped. Documentation supporting the inclusion of each stream reach must be provided.

Step 6: Add reaches that may provide or may have provided tributary refugia to Chinook salmon, but have not been identified in previous steps as CSCH

Chinook salmon may occupy portions of tributary streams that are not directly associated with spawning areas. Chinook salmon can encounter water temperature or turbidity conditions that are temporarily less than optimal or are lethal (Torgersen et al. 1999; Scrivener et al. 1993). When this occurs, the fish may move to tributary streams that have more suitable conditions but that the fish would not otherwise occupy. We refer to these areas as tributary refugia.

It is important to know how far Chinook salmon may move up tributary refugia. However, most of the information that we found (e.g. – Scrivener et al. 1994, Malsin et al. 1996-1999, Murray and Rosenau 1989) was not directly applicable to the set of conditions present on the SCNF in central Idaho. Those studies with data most closely representing conditions found in central Idaho show that fish seeking refugia primarily use confluence areas (Strange 2007; Torgersen et al. 1999). Since we were not able to locate information on use-patterns in tributary refugia, we used professional judgment to estimate how far up these tributaries Chinook salmon might move. Based on our review of fish population and stream habitat data from the Salmon River basin, we concluded that Chinook salmon likely do not move more than 0.25 miles up a tributary if the only reason they are in the stream is to seek refugia.

Although the previous steps in this process have likely identified most stream reaches that are tributary refugia, it is possible that some of these areas have still not yet been included. This step allows the addition of tributary refugia using the following set of criteria as a guideline for mapping. Professional judgment shall be used and documentation supporting the addition of each stream reach must be provided.

a) **Proximity to CSCH:** The tributary must connect to a stream or river currently included as CSCH.

b) **Watershed Size:** An evaluation of the smallest tributaries where Chinook salmon presence was confirmed within the SCNF can be useful in estimating the lower limits to watershed size constraining use of streams by Chinook. The average lower limit to watershed size where Chinook were present or presumed likely to use as refuge on the South Zone of the SCNF was approximately seven square miles. This value or a value that is appropriate for a given geographic area may be used to identify tributaries where it is reasonable to assume that Chinook salmon can access and use as refuge.

c) **Fish-Bearing Streams:** Streams accessible to other salmonids can reasonably be assumed to be accessible to Chinook. Tributaries that contain other salmonids and are not smaller that the lower limit to watershed size shall be considered for inclusion as CSCH for 0.25 miles upstream from the confluence. Tributaries meeting this criterion, but exhibiting barriers to migration at the confluence shall be considered for exclusion from CSCH.

d) Non-Fish-Bearing Streams: Streams inaccessible to other salmonids can reasonably be assumed to be inaccessible to Chinook and shall generally be considered for exclusion from CSCH.

***** Streams lacking fish occurrence data shall be evaluated for inclusion in or exclusion from CSCH based upon the watershed size and professional judgment.

Step 7: Add reaches that, based on professional judgment, may be currently or may have been historically occupied by Chinook salmon, but have not been identified in previous steps as CSCH

It is possible that the previous steps have not identified all reaches that either currently contain or historically contained Chinook salmon. This step allows Forest fish staff to use professional judgment to identify any additional CSCH that may have been missed in the previous steps. Documentation supporting the addition of each stream reach must be provided.

Step 8: Add reaches that are downstream from CSCH identified in the previous steps

Since Chinook salmon migrate to the Pacific Ocean, they will occur at least seasonally in all areas downstream of the stream reaches identified as CSCH in the previous steps. Therefore, all reaches downstream of areas identified in the previous steps as CSCH shall also be mapped as CSCH.

Literature Cited

Cooney, T. and D. Holzer. 2006. Appendix C: Interior Columbia basin stream type Chinook salmon and steelhead populations: habitat intrinsic potential analysis. Preliminary Review Draft. NWFSC

Kahler, T. H. and T.P. Quinn. 1998. Juvenile and resident salmonid movement and passage through culverts. Washington State Department of Transportation Research Project T9903, Task 96. Transportation Building, Olympia, WA.

Maslin, P. E., W. R. McKinney and T. L. Moore. 1996a. Intermittent streams as rearing habitat for Sacramento River Chinook salmon. http://www.csuchico.edu/~pmaslin/rsrch/Salmon/Abstrt.html

Maslin, P. E., W. R. McKinney and T. L. Moore. 1996b. Intermittent streams as rearing habitat for Sacramento River Chinook salmon. 1996 Update. http://www.csuchico.edu/~pmaslin/rsrch/Salmon96/Abstrct.html

Maslin, P.E., J. Kindopp and M. Lennox. 1997. Intermittent streams as rearing habitat for Sacramento River Chinook salmon. 1997 Update. http://www.csuchico.edu/~pmaslin/rsrch/Salmon97/Abstrct.html

Maslin, P.E., J. Kindopp and M. Lennox. 1998. Intermittent streams as rearing habitat for Sacramento River Chinook salmon. 1998 Update. http://www.csuchico.edu/~pmaslin/rsrch/Salmon98/Abstrct.html

Maslin, P.E., J. Kindopp, M. Lennox, and C. Storm. 1997. Intermittent streams as rearing habitat for Sacramento River Chinook salmon. 1997 Update. http://www.csuchico.edu/~pmaslin/rsrch/Salmon99/Abstrct.html

Murray, C.B. and M.L. Rosenau. 1989. Rearing of juvenile chinook in nonnatal tributaries of the lower Fraser River, British Columbia. Trans. Amer. Fish. Soc. 118(3): 284-289.

Scrivener, J.C., T.G. Brown, and B.C. Andersen. 1994. Juvenile Chinook salmon (*Oncorhynchus tshawytscha*) utilization of Hawks Creek, a small nonnatal tributary of the upper Fraser River. Can. J. Fish. Aquat. Sci. 51: 1139-1146.

Torgersen, C.E., Price, D.M., Li, H.W. and McIntoch, B.A. 1999. Multiscale thermal refugia and stream habitat associations of Chinook salmon in northeastern Oregon. Ecological Applications 9: 301-319.

Yukon River Council. Chinook salmon (ONCORHYNCHUS TSHAWYTSCHA). http://yukonriverpanel.com/salmon/about/yukon-river-salmon/chinook/

APPENDIX E - BULL TROUT PRIMARY CONSTITUENT ELEMENTS OF CRITICAL HABITAT

Primary Constituent Elements of Critical Habitat

The Forest has utilized six "Focus Indicators" to characterize the condition of the habitat for listed fish species on streams within allotments on the Salmon-Challis National Forest. These are: 1) spawning and incubation, 2) temperature, 3) sediment, 4) width: depth ratio, 5) streambank condition, and 6) riparian conservation areas. These indicators also serve to form the basis for potential impacts to the Primary Constituent Elements (PCEs) for Chinook salmon, steelhead and proposed bull trout critical habitat.

The following are the specific PCEs for the proposed bull trout critical habitat (January13, 2010, Federal Register 75FR2270) and examples of habitat indicators that can be used to assess the condition of the PCEs. Many of the Forest "focus indicators" match the examples (highlighted in the Associated Habitat Indicators). They have been thoroughly addressed within the environmental baseline conditions and the site specific effects analysis. Therefore, they form the basis for the Forest's determination for effects to the species and potential critical habitat.

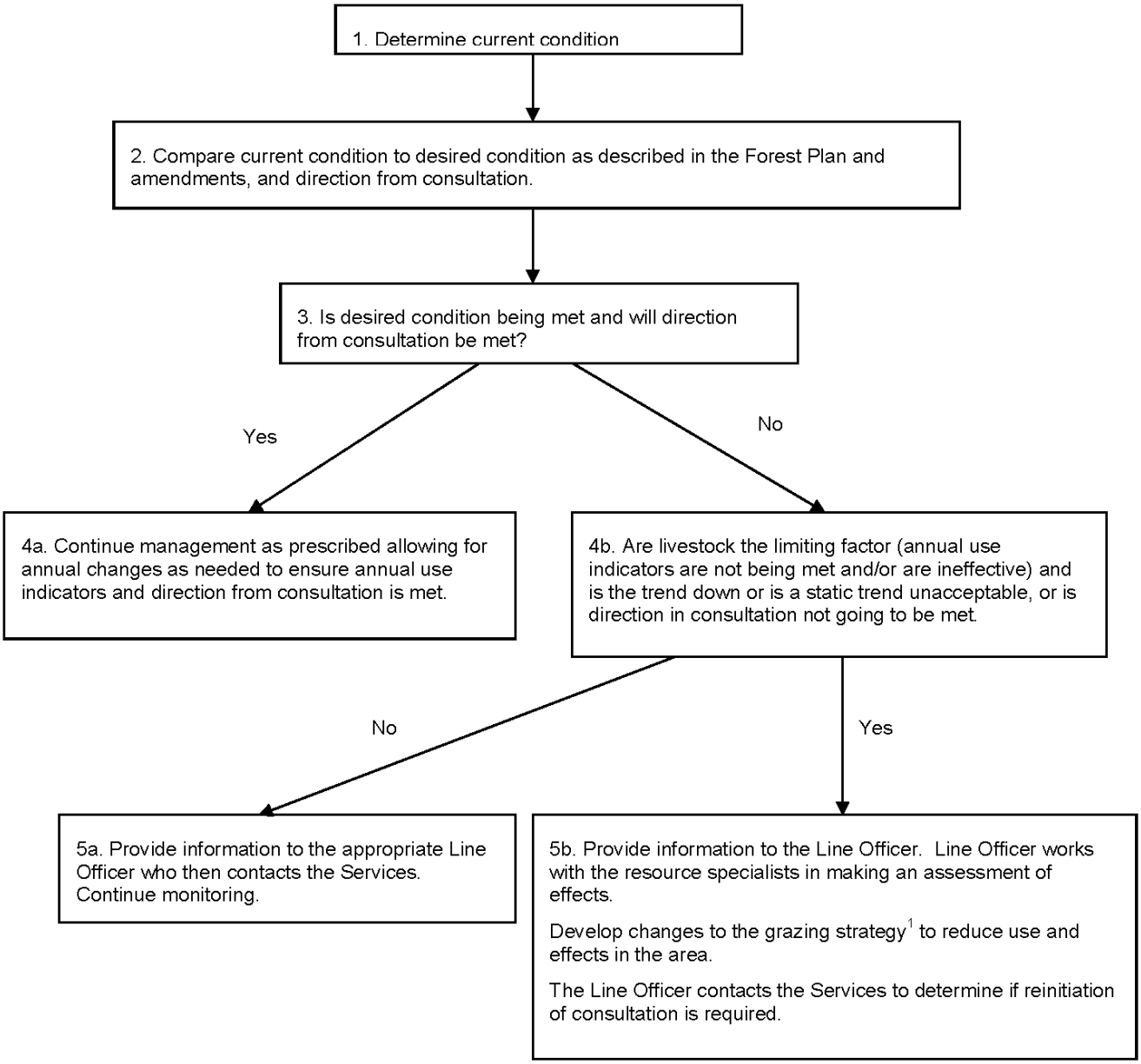
Primary Constituent Elements for Proposed Bull Trout Critical Habitat and Associated Habitat Indicators

PCE #	PCE Description	Associated Habitat Indicators
1.	Springs, seeps, groundwater sources, and subsurface water connectivity (hyporehic flows) to contribute to water quality and quantity and provide thermal refugia.	floodplain connectivity, change in peak/base flows, increase in drainage network, **riparian conservation areas**, chemical contamination/nutrients
2.	Migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.	life history diversity and isolation, persistence and genetic integrity, **temperature**, chemical contamination/nutrients, physical barriers, **average wetted width/maximum depth ratio in scour pools in a reach**, change in peak/base flows, refugia
3.	An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	growth and survival, life history diversity and isolation, **riparian conservation areas**, floodplain connectivity (importance of aquatic habitat condition indirectly covered by previous seven PCEs)
4.	Complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates, to provide a variety of depths, gradients, velocities, and structure.	large woody debris, pool frequency and quality, large pools, off channel habitat, refugia, **average wetted width/maximum depth ratio in scour pools in a reach**, **streambank condition**, floodplain connectivity, **riparian conservation areas**
5.	Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; and local groundwater influence.	**temperature**, refugia, **average wetted width/maximum depth ratio in scour pools in a reach**, streambank **condition**, change in peak/base flows, **riparian conservation areas**, floodplain connectivity

6.	Substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount (e.g., less than 12 percent) of fine substrate less than 0.85 mm (0.03 in.) in diameter and minimal embeddedness of these fines in larger substrates are characteristic of these conditions.	**sediment, substrate embeddedness**, large woody debris, pool frequency and quality
7.	A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.	change in pea k/base flows, increase in drainage network, disturbance history*, disturbance regime (* Information relative to disturbance history is often found in the baseline narrative)
8.	Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.	**sediment**, chemical contamination/nutrients, change in peak/base flows
9.	Few or no nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass; inbreeding (e.g., brook trout); or competitive (e.g., brown trout) species present.	persistence and genetic integrity, physical*barriers* (* Information relative to disturbance history is often found in the baseline narrative)

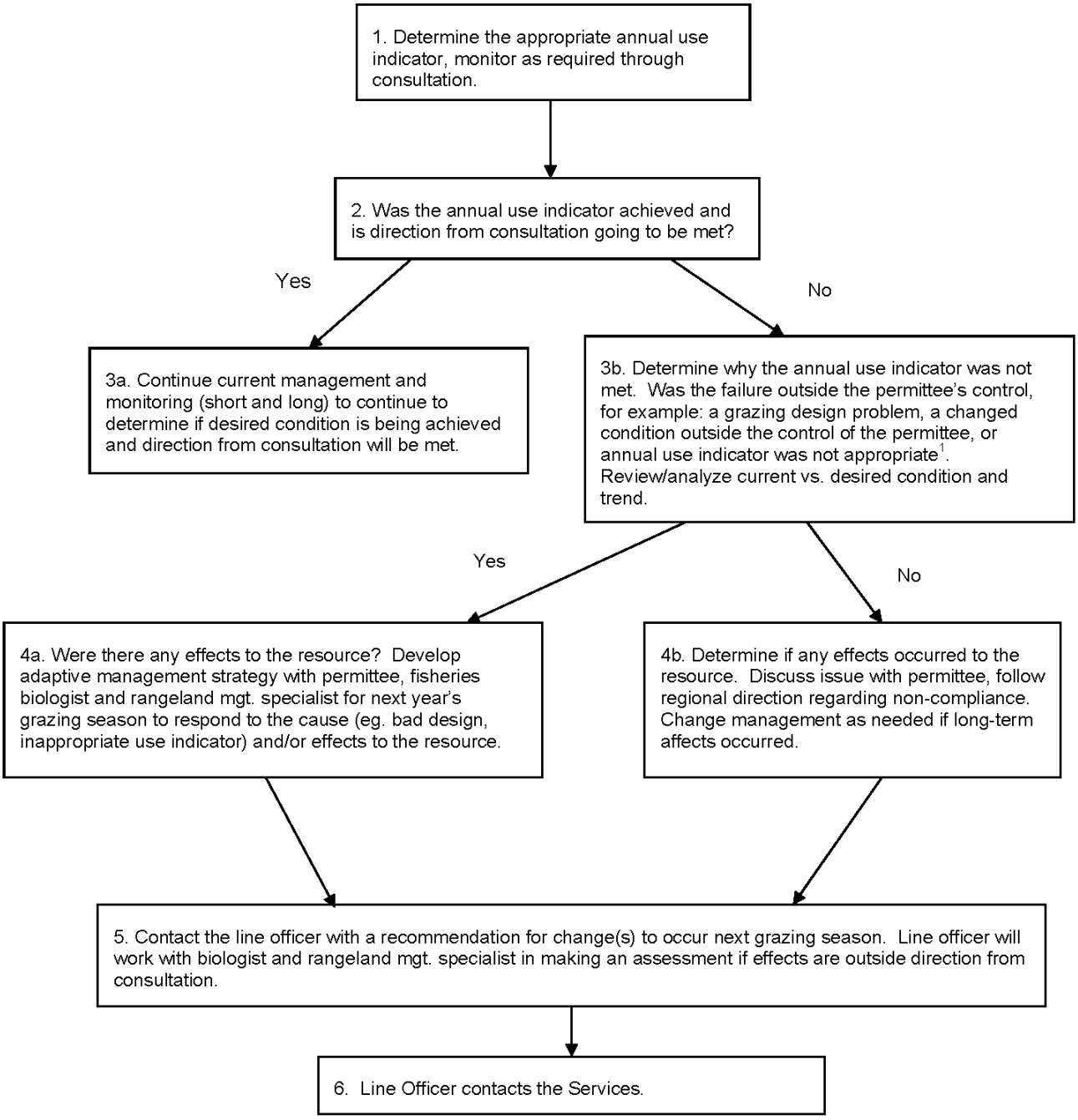
APPENDIX F – ADAPTIVE MANAGEMENT DIAGRAMS

Diagram 1.0 – Implementation of Long-Term Adaptive Management Strategy for Allotments Requiring Consultation.



[1]Management actions will initially reduce use in the area. It is expected this may occur in any number of ways including but not limited to changing the season of use, reducing numbers, changing amount of use on annual indicator, changing herding practices, changing salting practices and/or reconstructing/constructing range improvements. If use can't be reduced and livestock continue to be the limiting factor total removal of livestock from the area may be necessary. Effectiveness of changed management will be monitored through adjusted annual use indicators and effectiveness monitoring.

Diagram 2.0 - Implementation of Annual Adaptive Management Strategy for Allotments Requiring Consultation.



[1]An inappropriate annual use indicator is an indicator that does not most accurately identify the weak link or first attribute that would indicate excessive livestock impacts. In this situation, changing to a more appropriate indicator will help achieve or maintain desired conditions.

APPENDIX G – ELECTROFISHING STREAM SUMMARY WITHIN ESA ACTION AREA

Fish/100m^2 population density is calculated using fish 70mm or greater in length.

Stream Name	Year								
Deer Creek	2009			2009			2009		
	Chinook salmon			steelhead			bull trout		
	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2
	0	NA	0	0	NA	0	28	NA	NA
Negro Green Creek	2007			2007			2007		
	Chinook salmon			steelhead			bull trout		
	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2
	0	NA	0	0	NA	0	0	NA	0
Nez Perce Creek	2007			2007			2007		
	Chinook salmon			steelhead			bull trout		
	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2	1st pass	2nd/3rd pass	fish/100m^2
	0	NA	0	0	NA	0	0	NA	0

Additional fish species and population summary data and raw data used in this Biological Assessment analysis can be found in the Salmon-Challis National Forest north zone fisheries files located on the Salmon/Cobalt Ranger District.

APPENDIX H – STREAM PICTURES WITHIN THE ESA ACTION AREA

Deer Creek 8/10/2009

Deer Creek 8/10/2009

Deer Creek 8/10/2009

Deer Creek 6/8/2010

Deer Creek 6/8/2010

Deer Creek 6/8/2010