

**Forest Aquatic Restoration Project  
NEPA Compliance and Implementation Checklist**

**Range Spring & Enclosure Projects**

**Project Number:** 0411-2019 **Date:** 05/15/2019 **Location:** See attached implementation plan  
**Category:** Category 9 – Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering Facilities  
**Project Description:** Various spring protection enclosures and upland water developments (see attached implementation plan)

**Heritage** (to be completed by heritage specialist)

Y  N  Initial ASD Specific PDC for Heritage addressed (Heritage Surveys; Avoidance areas).

**Botany** (to be completed by botany specialist)

Y  N  Initial JS Specific PDC for Botany addressed (Sensitive Plant Surveys).  
  AV Specific PDC for Nox. Weeds addressed.

**Land Management Consistency** (is the proposed project within the management area? Check yes or no. If yes, comments should indicate whether proposed actions are consistent with the standards for the management area.)

Y	N	Initial		Y	N	Initial	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	4A Big Game Winter range	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>AS</u>	9 Research Natural Areas
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	6A & 6B Wilderness	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	10 Semi-Primitive Non-Motorized Recreation Areas
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>JS</u>	7 Scenic Area	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	22/22A Wild and Scenic River
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	8 Special Interest Areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>JS</u>	Inventoried Roadless Areas

**Comments:**

Table 1. Projects Design Criteria and Forest Plan compliance checklist.

I have reviewed this project and have determined it is compliant with the Forest Plan and Aquatic EA Project Design Criteria identified for my resource.

Resource	Signature	Date	Comments (additional PDCs may be noted if necessary)
Heritage	<i>[Signature]</i>	6/6/2019	Heritage PDCs addressed. Avoidance areas defined. All PDCs to be followed.
Botany	<i>[Signature]</i>	6/4/2019	
Invasive Plants	<i>[Signature]</i>	6/4/2019	
Wildlife	<i>[Signature]</i>	6/7/2019	Consult with biologist if brown bear use occurs in riparian season.
Fish*	<i>[Signature]</i>	5/31/2019	Consult with applicable PDCs.
Hydrology*	<i>[Signature]</i>	6/2/2019	Follow all PDCs described in EA. Use 100' buffer hydro to document.
Range	<i>[Signature]</i>	6/6/19	Design for livestock movement & access to water where needed.
Soils	<i>[Signature]</i>	6/4/19	SEE ATTACHED PDC & RATIONALS.
Recreation	<i>[Signature]</i>	6/6/19	Proposed with some historic buildings within a riparian corridor.
Special Uses			
Lands			
Mining	<i>[Signature]</i>	6/4/19	OK
Engineering	<i>[Signature]</i>	6/4/19	OK
Fuels / Fire	<i>[Signature]</i>	6/2/19	OK
Silviculture	<i>[Signature]</i>	6/5/19	Consider Additional enclosure in Bennett south of Spring in Bull Unit 7.

\* Ensure that an experienced fish biologist or hydrologist is involved in the design of all projects covered by Aquatic Restoration Biological Opinion II. The experience should be commensurate with technical requirements of a project.

District Environmental Coordinator: \_\_\_\_\_ Date: \_\_\_\_\_

Line Officer Signature: *[Signature]* Date: 6/25/19

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      \_\_\_\_\_ Specific PDC for Heritage addressed (Heritage Surveys; Avoidance areas).

**Botany (to be completed by botany specialist)**

Y    N    Initial  
      \_\_\_\_\_ Specific PDC for Botany addressed (Sensitive Plant Surveys).  
      \_\_\_\_\_ Specific PDC for Nox. Weeds addressed.

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Y	N	Initial		Y	N	Initial
<input type="checkbox"/>	<input type="checkbox"/>	_____	4A Big Game Winter range	<input type="checkbox"/>	<input type="checkbox"/>	_____ 9 Research Natural Areas
<input type="checkbox"/>	<input type="checkbox"/>	_____	6A & 6B Wilderness	<input type="checkbox"/>	<input type="checkbox"/>	_____ 10 Semi-Primitive Non-Motorized Recreation Areas
<input type="checkbox"/>	<input type="checkbox"/>	_____	7 Scenic Area	<input type="checkbox"/>	<input type="checkbox"/>	_____ 22/22A Wild and Scenic River
<input type="checkbox"/>	<input type="checkbox"/>	_____	8 Special Interest Areas	<input type="checkbox"/>	<input type="checkbox"/>	_____ Inventoried Roadless Areas

**Comments:** \_\_\_\_\_

Table 1. Projects Design Criteria and Forest Plan compliance checklist.

I have reviewed this project and have determined it is compliant with the Forest Plan and Aquatic EA Project Design Criteria identified for my resource.			
Resource	Signature	Date	Comments (additional PDCs may be noted if necessary)
Heritage			
Botany			
Invasive Plants			
Wildlife			
Fish*			
Hydrology*			
Range			
Soils			
Recreation			
Special Uses	SHAWBEE	5/30/19	See attached
Lands	SHAWBEE	6/13/19	See attached.
Mining			
Engineering			
Fuels / Fire			
Silviculture			

\* Ensure that an experienced fisheries biologist or hydrologist is involved in the design of all projects covered by Aquatic Restoration Biological Option II. The experience should be commensurate with technical requirements of a project.

District Environmental Coordinator: \_\_\_\_\_ Date: \_\_\_\_\_

Line Officer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Reviewers and Decision Maker**

Reviewed by: _____	/s/ Renee Hollowell	Renee Hollowell	7/8/2019
	NEPA Coordinator Signature	Printed Name	Date



**Implementation Description:**

**Range Spring & Exclosure Projects  
0411-2019**

Category 9 – Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering Facilities	Lead Preparer: Spence/ Bass
Applicant: Prairie City Range Department	NEPA Reference: Decision notice for Aquatic Restoration Project
Location: See below for detailed location information	Lease/ /Case File/ Serial #: Special Use Permit #:
Begin Date: July 1, 2019	Due Date: May 29, 2019

**Purpose/Need:**

Please refer to the Aquatic Restoration EA<sup>1</sup> for the Purpose and Need of these actions.

**Location:**

See Figures below for map within the Malheur National Forest. These projects are located in the Crane Creek (HUC 170501161103), Cliff Creek-Malheur River (HUC 170501160105), Bluebucket Creek (HUC 170501160106) and Tamarack Creek (HUC 170501160601) subwatersheds in the Headwaters Malheur River watershed (1705011601), the Upper North Fork Malheur River watershed (1705011611), and the Otis Creek watershed (1705011606). See Figure 1 for subwatershed location within the Malheur National Forest.

<sup>1</sup> The Aquatic Restoration EA is available online at <http://www.fs.usda.gov/detailfull/malheur/landmanagement/?cid=STELPRD3817723&width=full>

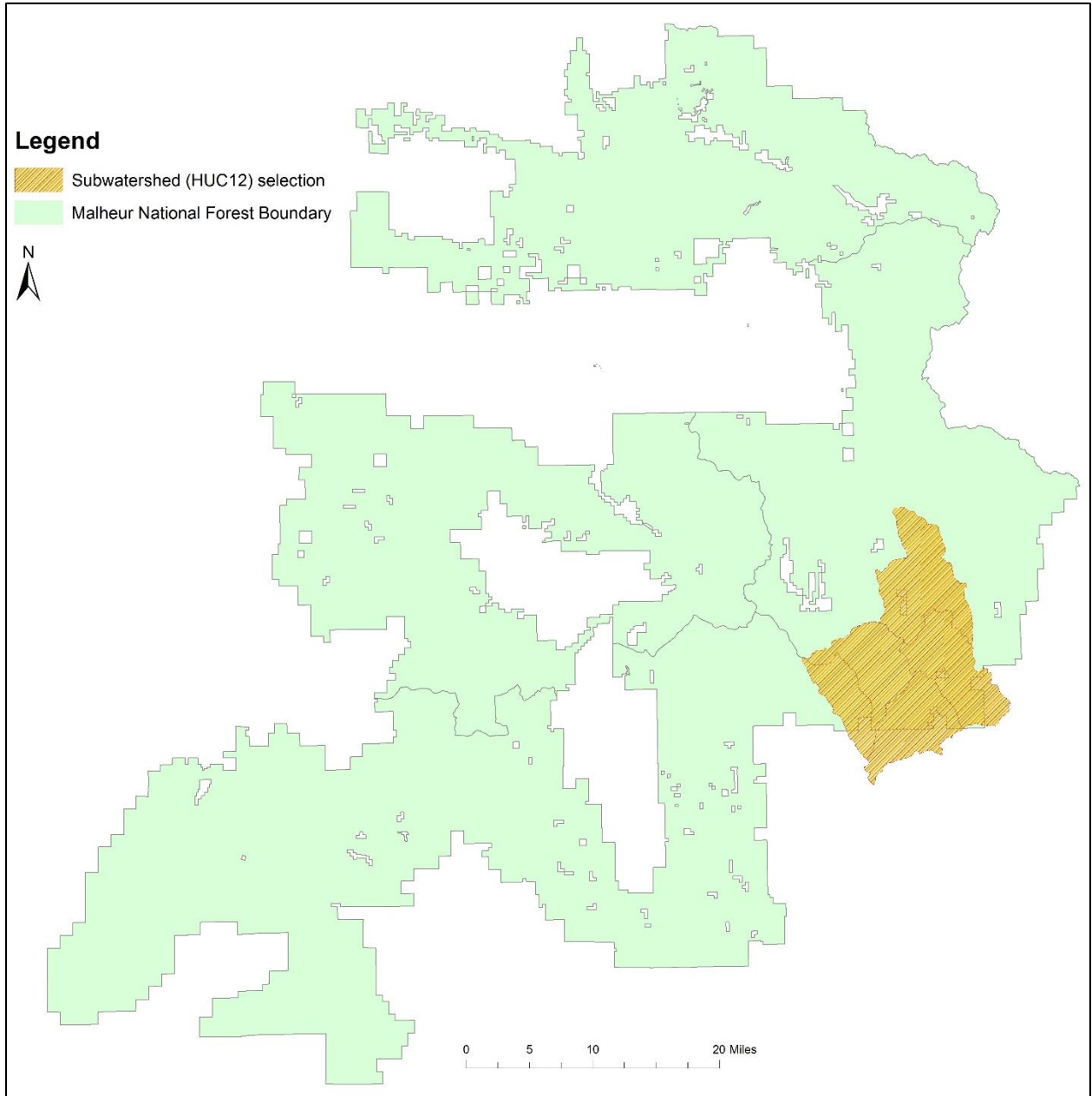
See maps and tables below for location information by specific project.

**T: Pathway**

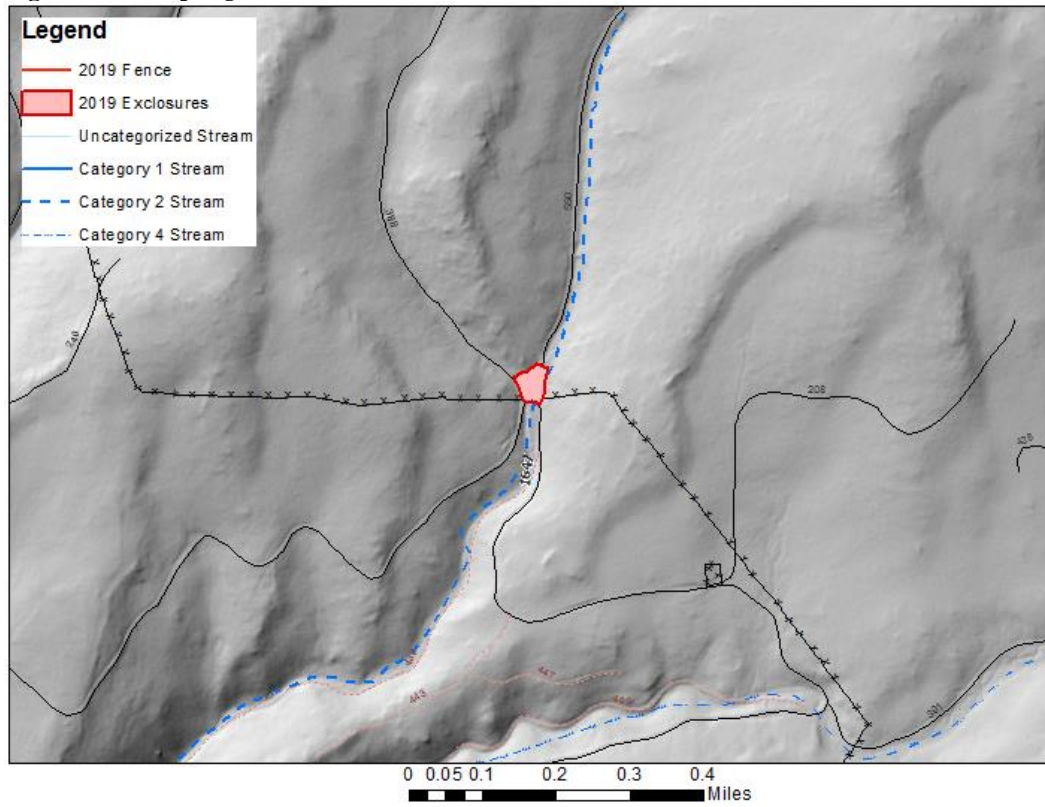
Geospatial information for this project is located here:

T:\FS\NFS\Malheur\Project\AquaticRestoration2014\GIS\Implementation\PCRD\FY19\  
RangeImprovements

**Figure 1.** Subwatershed location within the Malheur National Forest



**Figure 2. Bear Spring**



**Figure 3. Burke Springs (Upper & Lower)**

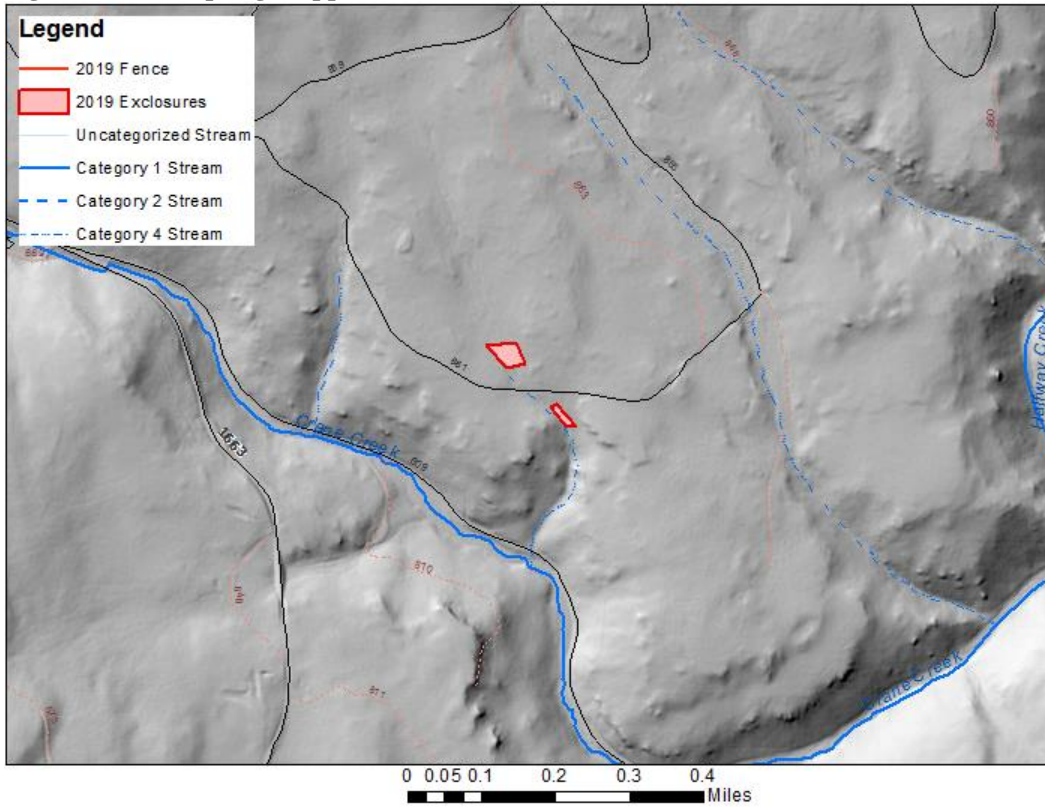


Figure 4. Cliff Creek Exclosure

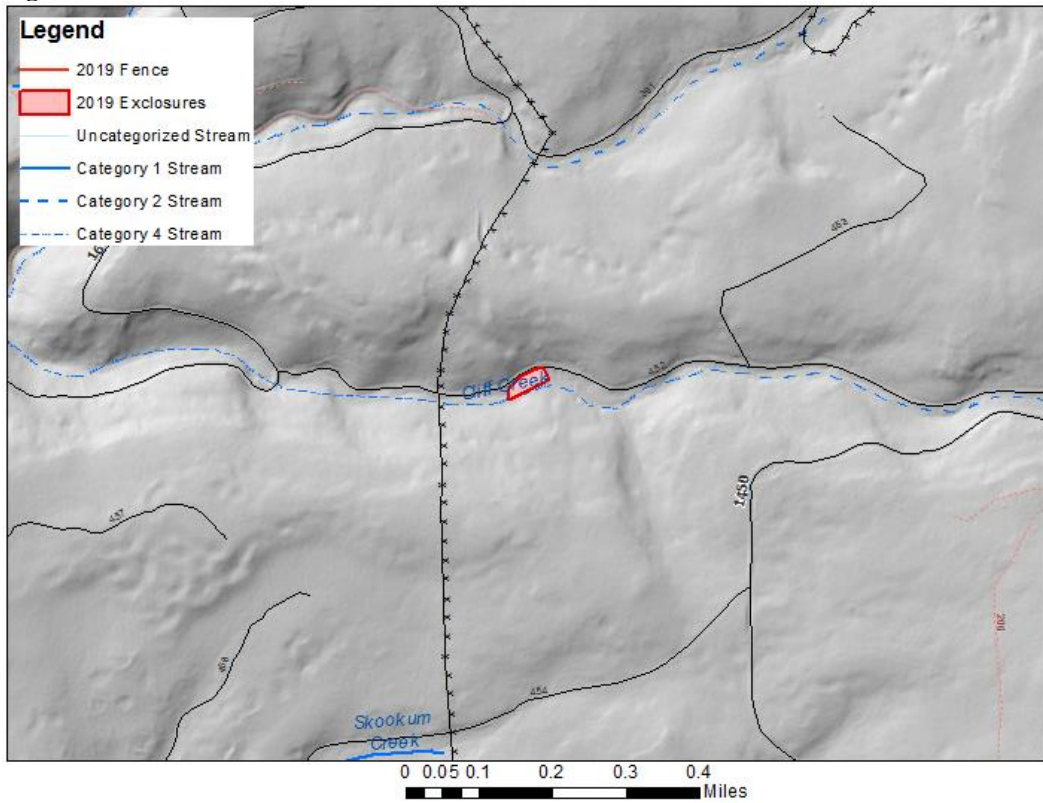
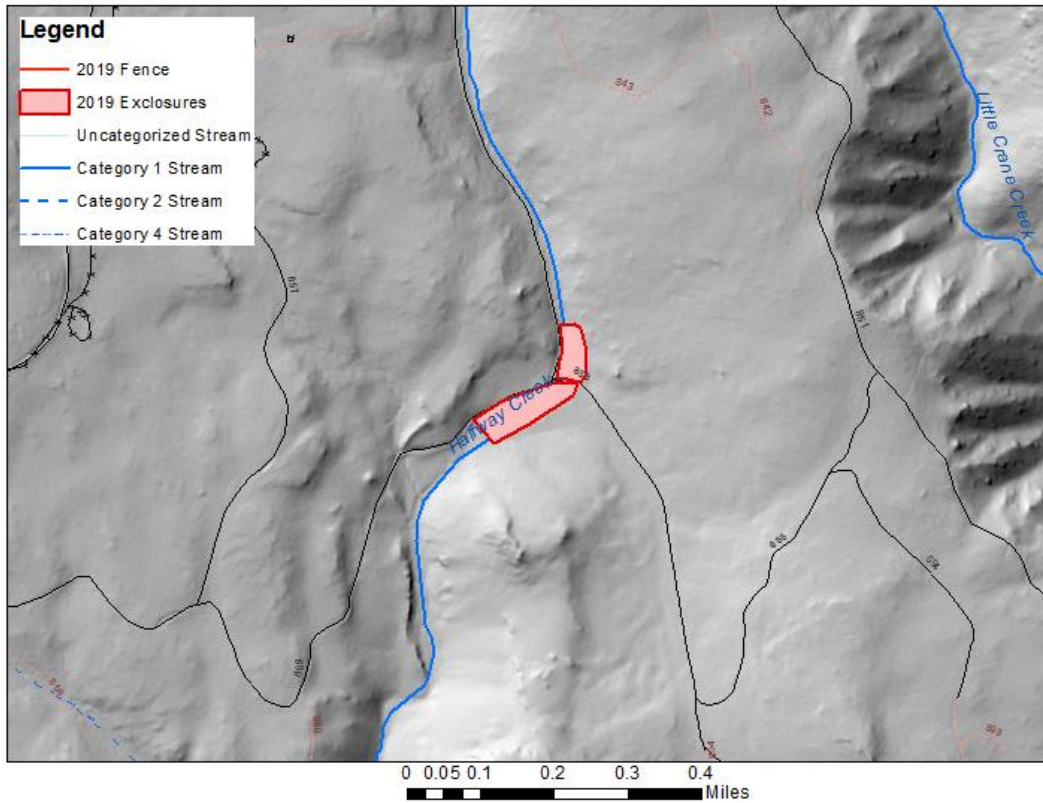
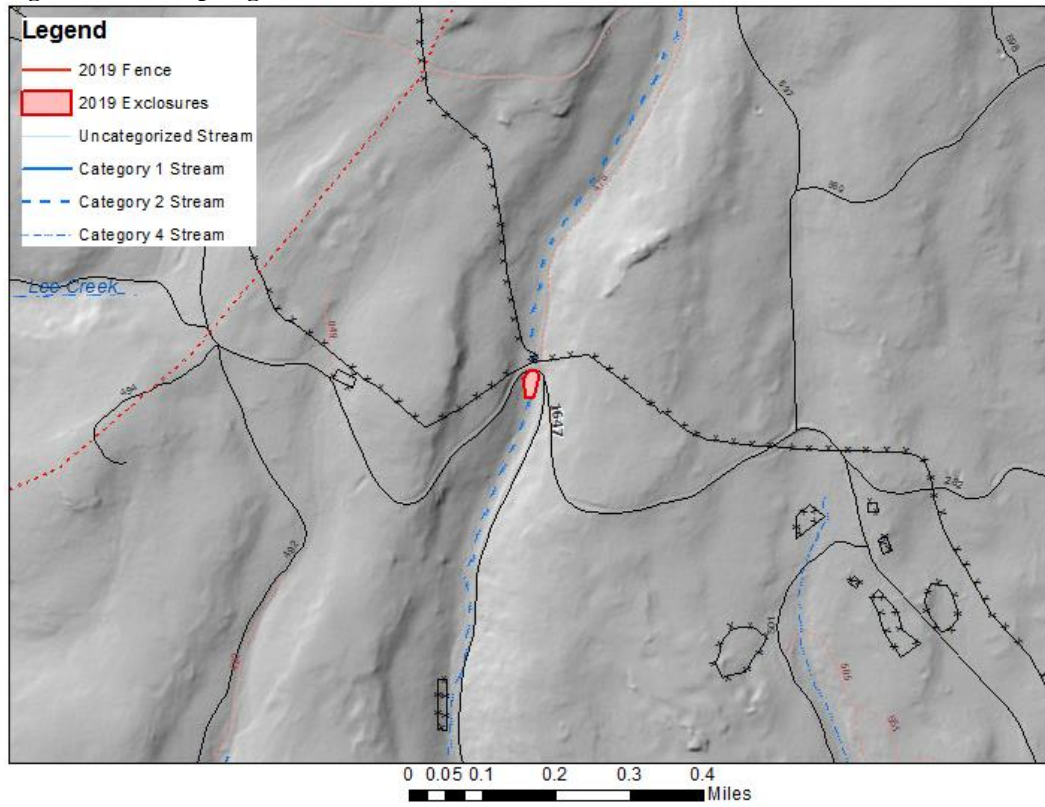


Figure 5. Halfway Aspen Exclosures (Upper & Lower)



**Figure 6. Jones Spring**



**Figure 7. Knox Meadow Exclosure Realignment**

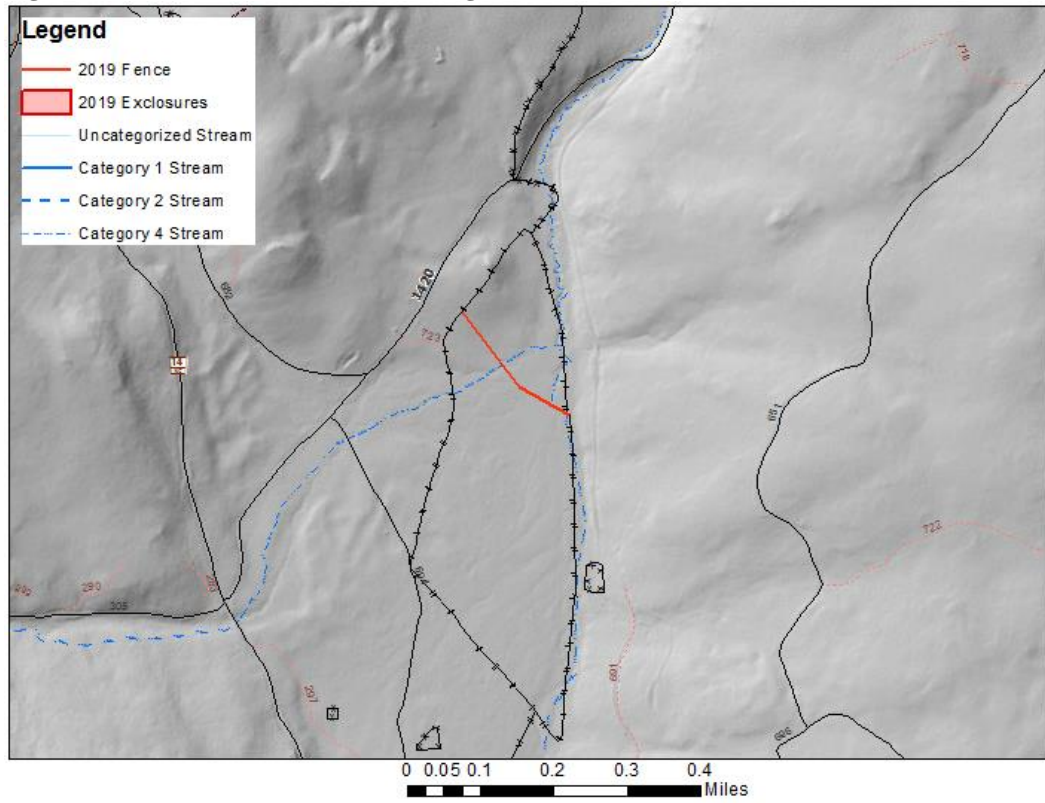


Figure 8. L&H and Barnett Springs Aspen

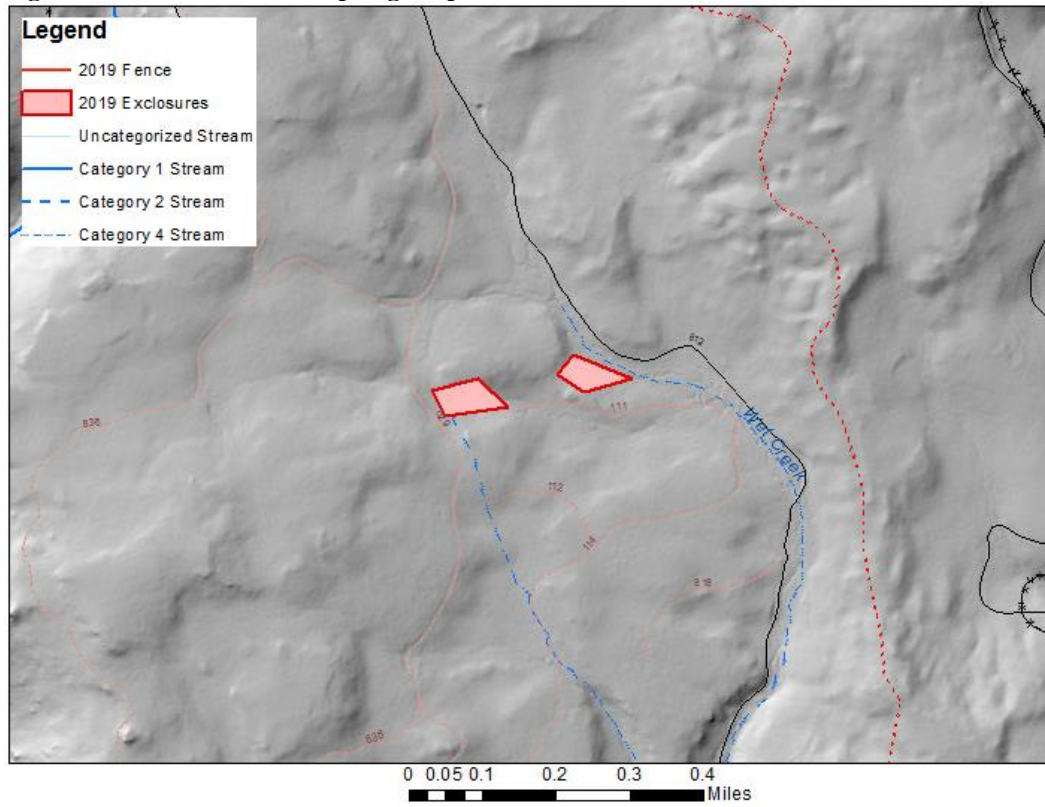
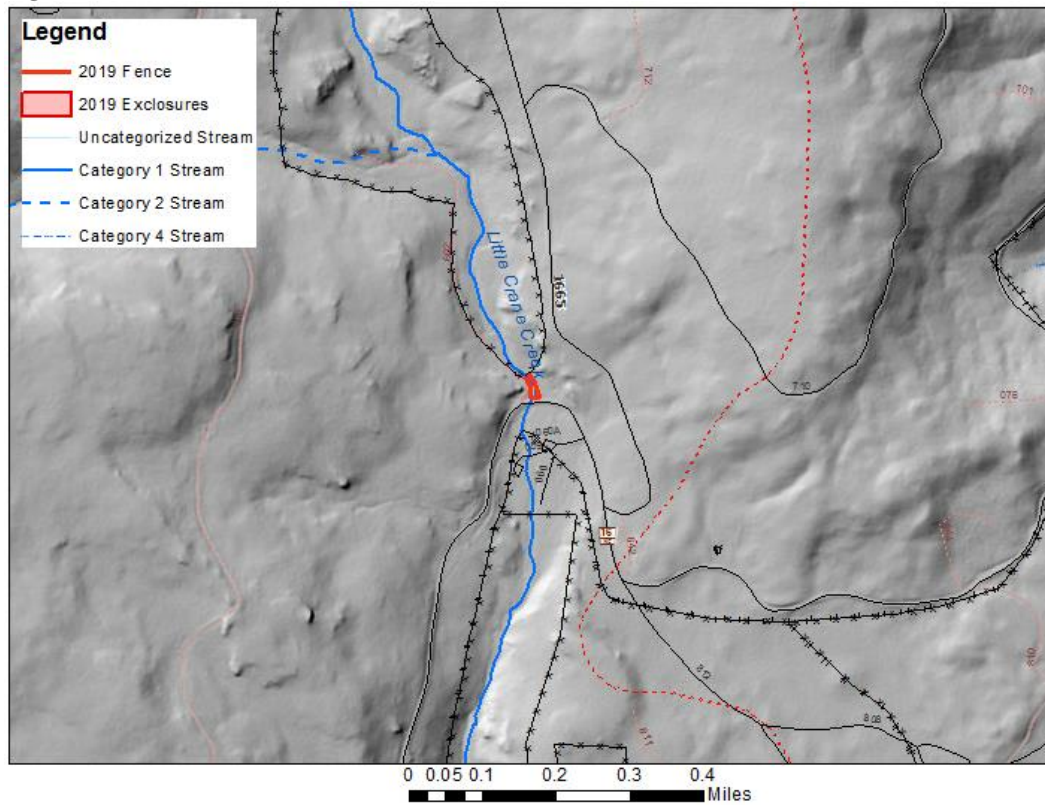
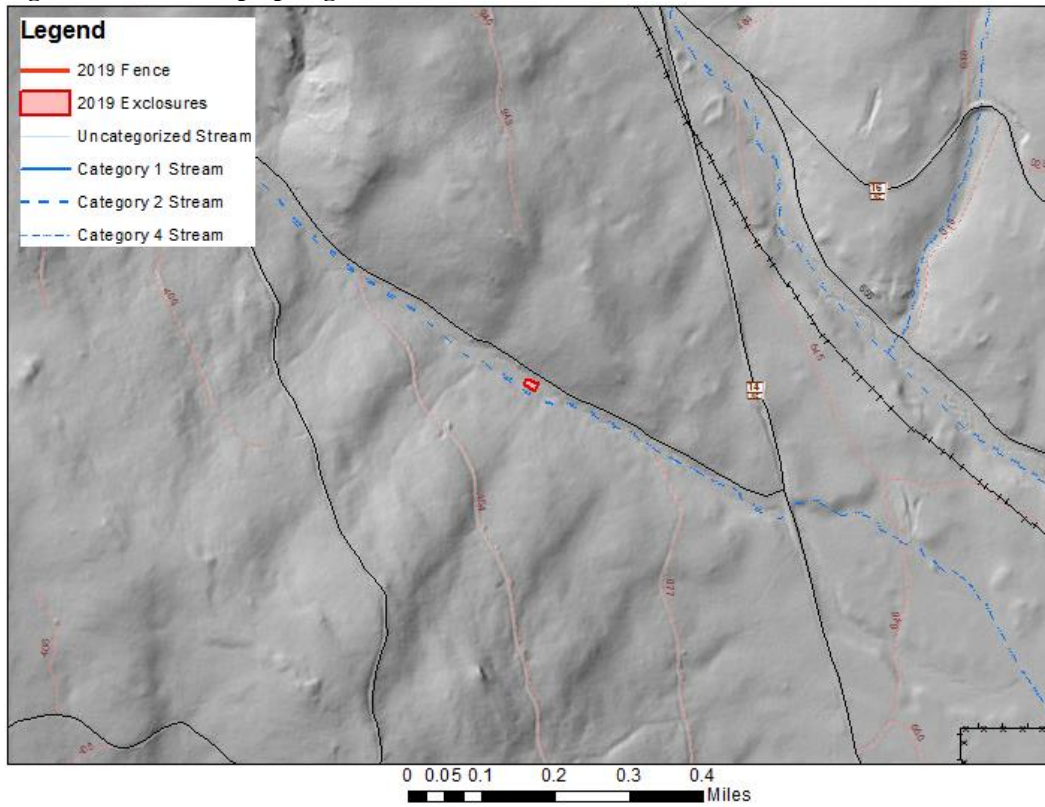


Figure 9. Little Crane Exclosure



**Figure 10. Lost Camp Spring**



**Figure 11. McAllister Spring**

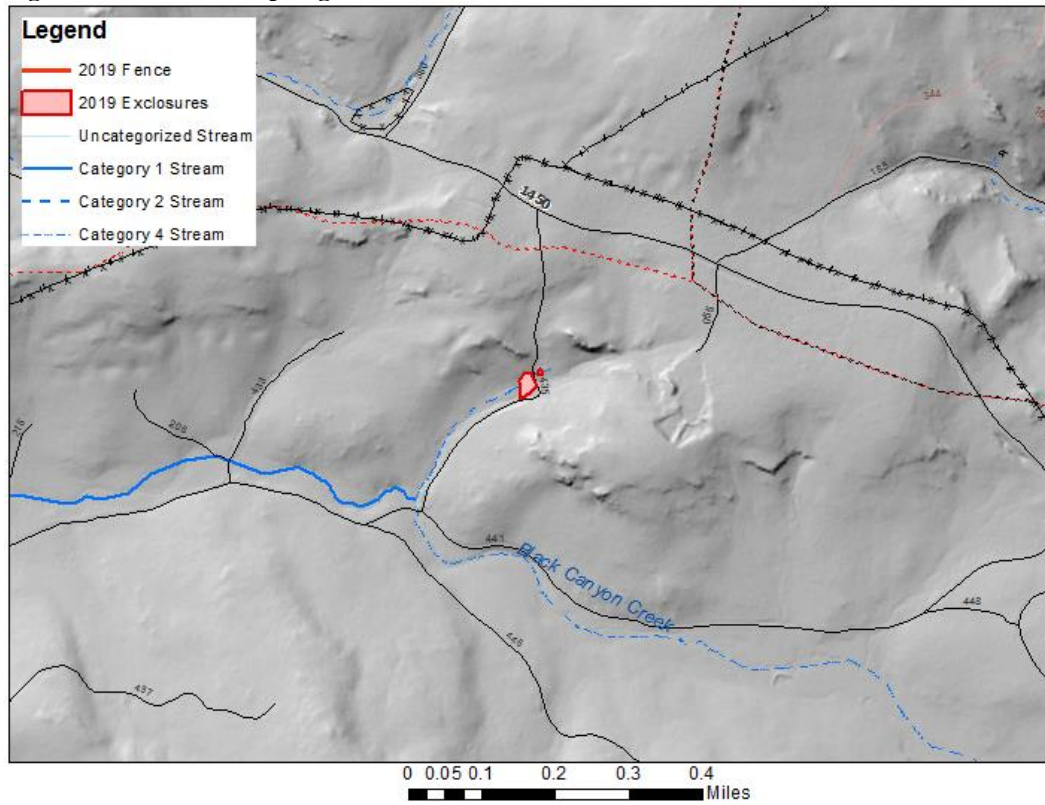


Figure 12. Skookum Spring

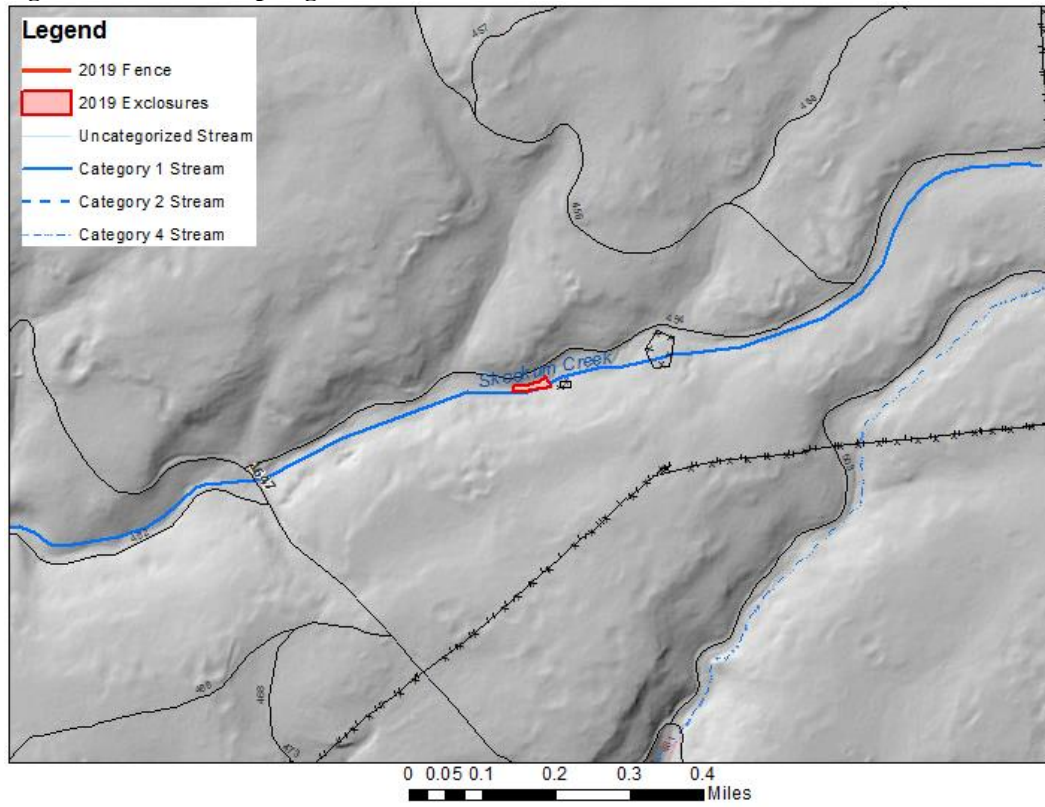


Figure 13. South Horse Exclosure

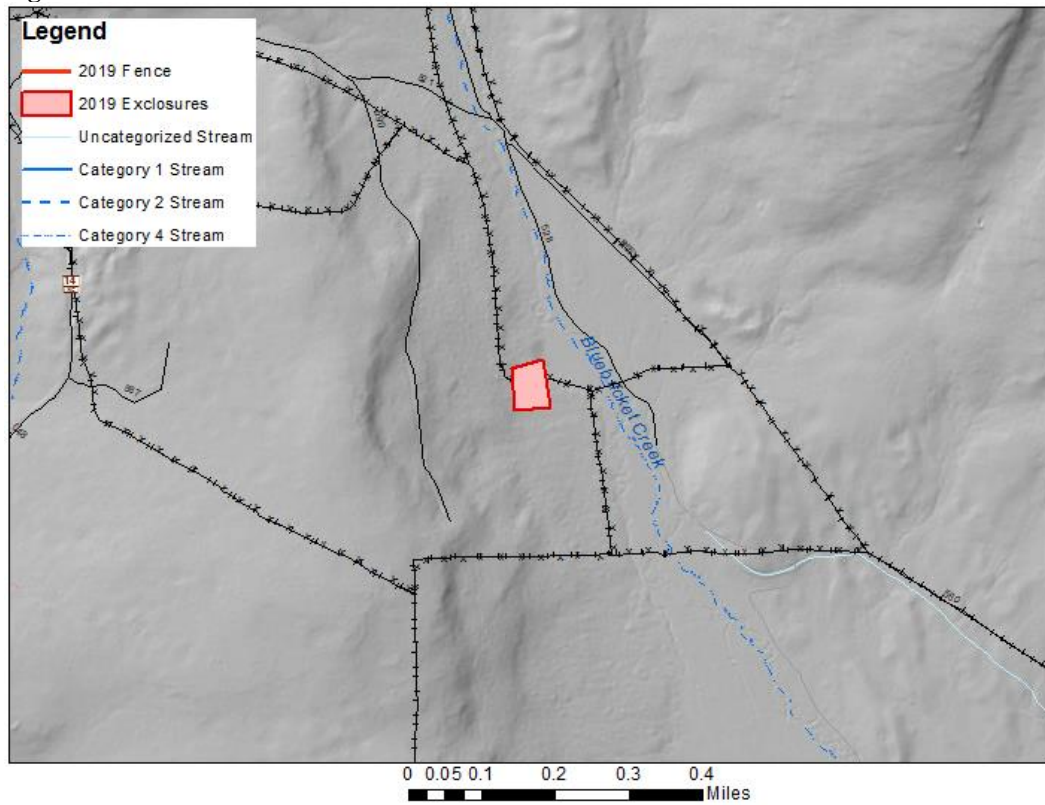
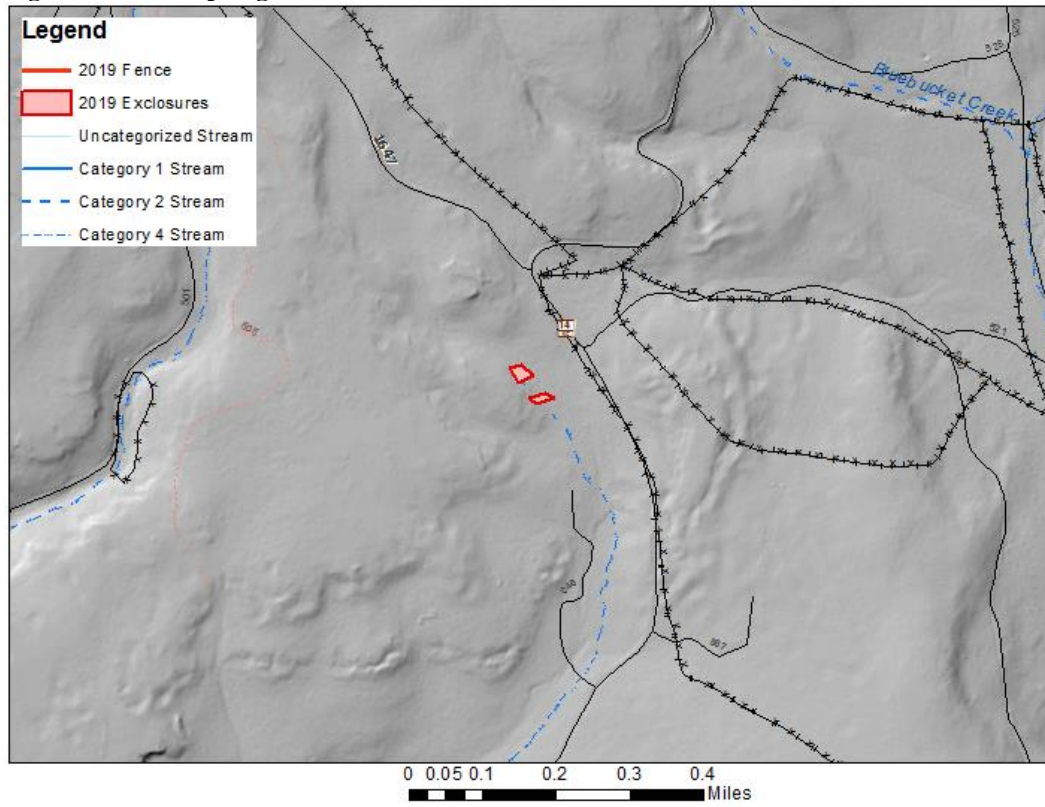


Figure 14. Twin Springs



## Implementation Plan by Project

Location(s)	Activity Categories
<ul style="list-style-type: none"> <li>▪ Jones Spring</li> <li>▪ McAllister Spring</li> <li>▪ Twin Enclosures</li> <li>▪ Skookum Spring</li> <li>▪ Lost Camp Spring</li> <li>▪ Little Crane Extension</li> <li>▪ Cliff Creek</li> <li>▪ Knox Meadow</li> <li>▪ L&amp;H Aspen</li> <li>▪ Barnett Springs Aspen</li> <li>▪ Halfway Aspen</li> <li>▪ Summit Creek</li> </ul>	<ul style="list-style-type: none"> <li>▪ Category 9 - Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering Facilities</li> </ul>

### Desired Conditions

#### **Fish-bearing streams and critical habitat:**

While the specific channel dimensions, riparian hardwood species composition, elevation, aspect, etc. of each stream may vary, the general desired conditions for fish-bearing streams are the same. The general desired conditions for these fish-bearing streams are described below:

- A riparian area with vigorous and abundant hardwood communities (including a diversity of willows, dogwoods, aspen, cottonwood, and/or alder) to provide forage and habitat for a variety of wildlife species, to increase shade, bank stabilization, and habitat complexity within the stream, and to deliver leafy material to the stream to support aquatic food webs. The floodplain would also contain a variety of hydric graminoids (sedges, rushes, grasses, etc.) with rooting zones that store water and stabilize the floodplain during high flow events. The width of the desired vegetation corridor would extend to the floodprone width of the floodplain (to the toe slope or base of an abandoned terrace).
- A floodplain with maximum capacity to store water for slow release through the dry season. Water table elevations would approach the ground surface elevation of the floodplain for the majority of the dry season, except at naturally occurring high spots, mounds, and abandoned terraces. Stream channels would have floodplain connectivity during high flows to allow inundation of the floodplain for sediment and nutrient deposition and energy dissipation.
- Fish habitat to support all life stages of native fish species, particularly bull trout (threatened under the ESA [endangered species act]) and increase the competitive advantage of bull trout over invasive brook trout. The stream channel would be a

Rosgen C or E type channel with deep pools and channel complexity (containing wood, shrub roots, undercut banks, etc.) for hiding cover and forage.

- Water quality would be high; the channel would be shaded by shrubs, stream temperatures would be suitable for bull trout spawning and rearing (9 °C), and fine sediment would be stored on the channel margin and outside of sensitive spawning areas. Spawning gravels would be abundant and channels would have low width /depth ratios (below 10; USDA Forest Service, 1990).
- Habitat to support the natural expansion and reintroduction of beaver throughout the Summit and Bosenberg subwatersheds. Evidence of present or historic beaver activity has been observed throughout the entire watershed and within the streams listed above. Beaver are a keystone species defined as “a plant or animal that plays a unique and crucial role in the way an ecosystem functions. Without keystone species, the ecosystem would be dramatically different or cease to exist altogether” ([education.nationalgeographic.org/encyclopedia/keystone-species/](http://education.nationalgeographic.org/encyclopedia/keystone-species/)) The recovery of active beaver within these streams would provide long term maintenance of these habitats to support hardwood riparian communities, fish and wildlife diversity, and store cool water in the floodplain.

Culverts and road crossings would provide:

- fish passage for all life stages of bull trout and redband trout
- adequate passage of streamflow at all stages, including floodstage (sizing for a 50-100 year flood)
- adequate passage for sediment and debris
- a road-stream crossing that does not degrade water quality and water storage capacity or contribute to channel incision

#### **Non-fish-bearing intermittent channels:**

- A riparian area with vigorous aspen and/or other hardwood communities (willows, dogwoods, and alder) to provide forage and habitat for a variety of wildlife species, to increase shade, bank stabilization, and habitat complexity within the stream, and to deliver leafy material to the stream to support aquatic food webs. The floodplain would also contain a variety of hydric graminoids (sedges, rushes, grasses, etc.) with rooting zones that store water and stabilize the floodplain during high flow events. The width of the desired vegetation corridor would extend to the floodprone width of the floodplain (to the toe slope or base of an abandoned terrace).
- A floodplain with maximum capacity to store water for slow release through the dry season. Water table elevations would approach the ground surface elevation of the floodplain for the majority of the dry season, except at naturally occurring high spots, mounds, and abandoned terraces. Stream channels would have floodplain connectivity during high flows to allow inundation of the floodplain for sediment and nutrient deposition and energy dissipation.

- Water quality would be high; the channel would be shaded by shrubs, stream temperatures would be as low as possible. Sediment delivery from these headwater drainages would be consistent with natural disturbance processes. Channels would have low width /depth ratios (below 10; USDA Forest Service, 1990).

### **Upland Springs**

- Abundance of cool, clean spring water to support groundwater-dependent ecosystems, wildlife and domestic ungulates
- Wide distribution of springs across a watershed area to reduce over-use by ungulates at any given site

### **Funding and Timing:**

Anticipated years of implementation are provided in the tables below for each project. Anticipated implementation years may change based on funding. Some projects may also not be completed in one field season.

## Range Improvements

The purpose of these projects is to expand availability of upland water sources for livestock and to improve range exclosures to protect springs and sensitive heritage sites. These projects will promote upland forage utilization and livestock distribution over the project areas. Upland water development and riparian exclosure construction includes the following activity category:

- Category 9 – Off-Channel Livestock Watering Facilities

<b>Project description</b>	<b>Project Location</b>	<b>TR Location</b>	<b>USGS quad</b>	<b>Land Use Plan Conformance</b>	<b>Year</b>
<b>See project descriptions below</b>	<b>Bear Spring</b> Bluebucket Allotment Dry Meadow Pasture & Rock Spring Pasture	T 17 S R 34 E Section 23 SE ¼ NW ¼	Knox Mountain (A444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2	2019
	<b>Burke Springs</b> Flag Prairie Crane Prairie Riparian Pasture	T 16 S R 35 E Section 29 SW ¼ NW ¼	Crane Prairie (B444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2 & MA14F	2019
	<b>Cliff Creek Exclosure</b> Bluebucket Allotment Dry Meadow Pasture	T 17 S R 34 E Section 26 NE ¼ SE ¼	Knox Mountain (A444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2	2019
	<b>Halfway Aspen</b> Flag Prairie Mountain Pasture	T 16 S R 35 E Section 21 SW ¼ NW ¼	Crane Prairie (B444118)	<i>Within:</i> Category 1 RHCA <i>Adjacent to:</i> MA2 & MA14F	2019

<b>Project description</b>	<b>Project Location</b>	<b>TR Location</b>	<b>USGS quad</b>	<b>Land Use Plan Conformance</b>	<b>Year</b>
	<b>Jones Spring</b> Bluebucket Allotment Teepee Pasture	T. 18 S R 35 E Section 6 NW ¼ NW ¼	Knox Mountain (A444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2	2019
	<b>Knox Meadow</b> Ott Allotment Knox Meadows Pasture	T 17 S R 35 E Section 18	Knox Mountain (A444118)	<i>Within:</i> Category 4 RHCA & MA2	2019
	<b>L&amp;H and Barnett Springs Aspen</b> Flag Prairie Allotment Mountain Pasture	T 16 S R 35 E Section 15 NW ¼ SW ¼ & SE ¼	Crane Prairie (B444118)	<i>Within:</i> Category 4 RHCA & MA2 <i>Adjacent to:</i> MA14F	2019
	<b>Little Crane Exclosure</b> Spring Creek Allotment Little Crane Pasture	T 16 S R 35 E Section 9 SE ¼ NW ¼	Crane Prairie (B444118)	<i>Within:</i> Category 1 RHCA <i>Adjacent to:</i> MA14F	2019
	<b>Lost Camp Spring</b> Spring Creek Allotment Lower Crane Pasture	T 16 S R 34 E Section 23 SE ¼ NW ¼	Crane Prairie (B444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2, MA14F	2019
	<b>McAllister Spring</b> Bluebucket Allotment Dry Meadow Pasture	T 17 S R 34 E Section 3 SE ¼	Dollar Basin (A544118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA2	2019

<b>Project description</b>	<b>Project Location</b>	<b>TR Location</b>	<b>USGS quad</b>	<b>Land Use Plan Conformance</b>	<b>Year</b>
		NW ¼			
	<b>Skookum Spring</b> Bluebucket Allotment Rock Spring Pasture	T 17 S R 34 E Section 35 NW ¼ NW ¼	Dollar Basin (A544118)	<i>Within:</i> Category 1 RHCA <i>Adjacent to:</i> MA2	2019
	<b>South Horse Exclosure</b> Bluebucket Allotment South Horse Pasture	T 18 S R 35 E Section 8 NE ¼ SE ¼	Knox Mountain (A444118)	<i>Within:</i> MA4a <i>Adjacent to:</i> Category 4 RCHA	2019
	<b>Twin Spring</b> Bluebucket Allotment Teepee Pasture	T 18 S R 35 E Section 5 SW ¼ SW ¼	Knox Mountain (A444118)	<i>Within:</i> Category 4 RHCA <i>Adjacent to:</i> MA4A	2019

## Implementation Plan

All proposed water troughs and ponds will adhere to Forest Service Standards as described in term grazing permits. These standards create water developments that provide cool clean water to wildlife and livestock while protecting sensitive resources in the surrounding area. The proposed water developments within the project planning area will also follow the same standards when constructed as the existing sources. All water developments will follow standards laid out in the Specifications for Structural Range Improvements (PNW GTR-250, 1990).

### 1. Bear Spring

The existing enclosure will be adjusted to exclude the drainage and spring from livestock. The existing trough will be adjusted away from riparian areas and cultural resources to minimize ungulate damage.

### 2. Burke Springs

2 enclosures will be constructed with buck n' pole material to protect springs and riparian areas. The current trough in the southern enclosure will be reset outside the fence. The pond in the northern enclosure will be piped to a new trough set outside the riparian area.

### 3. Cliff Creek Enclosure

Approximately 0.7 acres of riparian area will be excluded from cattle with a buck n' pole fence. The enclosure will protect the riparian area and a cultural site.

### 4. Halfway Aspen

Two enclosures, approximately 1 acre each will be constructed with buck n' pole material. The water will be piped out of the pond, out of the enclosure and approximately 50-80 feet to a new trough. The overflow will be directed back to the natural drainage. These enclosures will allow the aspen saplings to establish out of reach of livestock and big game.

### 5. Jones Spring

The drainage will be fenced with buck n' pole materials to create an approximate 0.4 acre enclosure restricting livestock use. The enclosure will also prevent damage to cultural resources.

### 6. Knox Meadow Enclosure

A 4-strand barbed wire fence will be constructed in conjunction with the existing barbed wire enclosure to exclude cattle from a large wet area at the north end of the meadow. The fence will have 18-6-6-12 inch spacing throughout. The north boundary fence will be pulled to make 1 large enclosure. The new enclosure will protect a degraded stream that has a large headcut, several spring sources and the large wet area.

7. L&H and Barnett Springs Aspen

Approximately 2 acres will be protected with buck n' pole fence enclosures. Two initial enclosures will be constructed, with a possible five total enclosures, to protect aspen saplings and spring sources to allow the aspen to establish out of reach of cattle and big game.

8. Little Crane Enclosure Extension

The existing fence will be extended south to the 16 road with buck n' pole fencing. This will provide further protection to Bull Trout critical habitat.

9. Lost Camp Spring

The existing enclosure will be extended to add approximately 0.2 acres with buck n' pole fence material. The existing head box will be reset and the pipeline extended to a site farther downstream to a new trough.

10. McAllister Spring

Two buck n' pole enclosures will be constructed to protect approximately 0.50 acres including the spring source and cultural resources. The existing pipeline will be extended to a new trough approximately 50 feet east from the existing trough. The overflow will be directed back to the drainage.

11. Skookum Spring

The existing enclosure will be extended to add approximately 0.4 acres with buck n' pole fence material. The existing trough will be relocated approximately 400 feet downstream and away from the stream channel. This will include trenching for the pipeline and leveling an area for the trough.

12. South Horse Enclosure

Buck n' pole material will be used to protect approximately 1.5 acres of riparian area and sensitive cultural resources adjacent to Bluebucket Creek.

13. Twin Spring

Two buck n' pole enclosures will be constructed to protect approximately 0.50 acres including the spring site and surrounding area. The spring will be developed with a headbox, pipeline, and trough. This will include trenching for the pipeline and leveling an area for the new trough. The new enclosures will exclude livestock from the spring site.

Specifications for Water Developments:

1. Troughs shall be capable of holding water for the intended purpose. Holes are to be plugged, mended or the trough replaced.
2. Metal troughs shall have wood or rock supports under them to prevent rusting.

3. Troughs will be cleaned with debris removed and contain no more than 2 inches of mud, needles, etc. on the bottom.
4. Troughs shall have a functional escape ramp for birds and small mammals.
5. Inlet pipe shall carry water from the spring box to the trough and not leak.
6. Drain pipe to be kept open, operating and able to drain overflow away from the trough to keep an area of 20 feet around trough reasonably dry.
7. Outflow pipe should be directed and allow flow to return to original spring channel.
8. The inlet and overflow pipe shall be covered with soil to protect them.
9. Water shall not leak between the spring box and pipe.
10. Spring source shall be fenced and protected from ungulate trampling to prevent soil displacement, turbidity and sealing of the water from the pipe.
11. A reasonable amount of water shall flow from spring into pipe and a reasonable amount of water shall continue to flow as it had naturally prior to the head box placement.
12. Spring boxes to be kept clean of debris.

### **Existing Condition & Reference Photos**

**Figure 15. Knox Meadow headcut**



**Figure 16. Burke Springs Upper (before grazing season)**



**Figure 17. Burke Springs Upper (after grazing season)**



**Figure 18. Buck n' Pole fence example**



**Figure 19. New trough installation example**



## Program Administration

1. Integration of project design criteria and conservation measures and terms and conditions into project design and contract language
  - a. This document is to outline the conservation measures and PDCs that will be used during project implementation to remain compliant with the aquatic restoration BA as well as ARBO II.
2. Project notification: The following information will be provided to the FWS Level 1 Aquatics members 30 days prior to implementation as a Project Notification Form 7.
  - a. Action identifier- 0411-2019
  - b. Project Range Spring & Exclosure Projects-
  - c. Location-

Project	<i>Range Spring &amp; Exclosure Projects</i>
Stream Name	<i>Various</i>
6 <sup>th</sup> field HUC	<i>Crane Creek- 170501161103 Cliff Creek-Malheur River 170501160105 Bluebucket Creek 170501160106 Tamarack Creek 170501160601</i>
Latitude (Decimal Degrees)	<i>Various- See project location table</i>
Longitude (Decimal Degrees)	<i>Various- See project location table</i>

- d. Agency contact- *PCRD Range*
  - e. Timing- *Work will occur in the field season of 2019. No in-stream work window timing restrictions are applicable, as all of the work will occur on an upland spring and outside the wetted area.*
  - f. Activity category-  
*Category 9– Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering Facilities*
  - g. Project description- *fencing springs and riparian areas from cattle. See more detailed information above.*
  - h. Extent- *Various- See more information above*
  - i. Species affected-
    - i. Listed species: *Bull Trout*
    - ii. Critical Habitat: *Bull Trout Critical Habitat (Little Crane Exclosure)*
    - iii. MIS Species: *Redband Trout, Columbia Spotted Frog*
  - j. Date of submittal- *To be completed in 2019, at least 30 day prior to implementation*
  - k. Site assessments- *Assessment for contaminants will not be required on this project*
  - l. Review- *FWS fish passage review and Restoration Review Team review are not required.*
  - m. Verification- \_\_\_\_\_
  - n. SOD project notification- \_\_\_\_\_
3. Minor Variance: No variances from the criteria specified in the aquatic restoration document are being considered.

4. FWS Fish Passage Review and Approval: This will occur on a project by project basis as required.
5. Restoration Review Team: This work does not require review by the restoration review team.
6. Project Completion Report: To be completed after implementation. This project will be completed within three years of implementation initiation.
7. Annual Program Report: annual reporting will occur in the winter of the fiscal year after work was done before February 15<sup>th</sup> and occur annually until project completion.

## **Project Design Criteria**

### **General Aquatic Conservation Measures**

8. Technical Skill and Planning Requirements:
  - a. An appropriately qualified fisheries biologist or hydrologist will be involved in the design of this project.
  - b. The scope of this project is limited in both space and context. Field evaluations and site-specific surveys will require little work. Appropriate time will be allotted for these actions, prior to implementation. Planning and design will involve appropriate expertise.
  - c. The assigned fisheries biologist or hydrologist will make sure that any applicable conservation measures and project design criteria are met through the contracting process.
9. Climate Change: Although individual activities only affect small areas of the watershed, the impacts of this work as a whole will improve resistance and resilience of the system and biota to climate change through cold-water storage, enhanced biodiversity and improved habitat.
10. In-Water Work Period: In-stream activities will occur between July 15<sup>th</sup> and August 15<sup>th</sup>, and work occurring outside the high flow elevation can occur outside of this window.
11. Fish passage: Fish passage will be addressed on a case-by-case basis depending on the actions within a specific checklist.
12. Site Assessment For Contaminants: In developed or previously developed sites, such as areas with past dredge mines, or sites with known or suspected contamination, a site assessment for contaminants will be conducted on projects that involve excavation of >20 cubic yards of material. The action agencies will complete a site assessment to identify the type, quantity, and extent of any potential contamination. The level of detail and resources committed to such an assessment will be commensurate with the level and type of past or current development at the site. The assessment may include the following:
  - a. Review of readily available records, such as former site use, building plans, records of any prior contamination events.
  - b. Site visit to observe the areas used for various industrial processes and the condition of the property.
  - c. Interviews with knowledgeable people, such as site owners, operators, occupants, neighbors, local government officials, etc.
  - d. Report that
13. Pollution and Erosion Control Measures: Implement the following pollution and erosion control measures:
  - a. Project Contact: Identify a project contact (name, phone number, an address) that will be responsible for implementing pollution and erosion control measures.
  - b. List and describe any hazardous material that would be used at the project site, including procedures for inventory, storage, handling, and monitoring; notification procedures; specific clean-up and disposal

instructions for different products available on the site; proposed methods for disposal of spilled material; and employee training for spill containment.

- c. Temporarily store any waste liquids generated at the staging areas under cover on an impervious surface, such as tarpaulins, until such time they can be properly transported to and treated at an approved facility for treatment of hazardous materials.
- d. Procedures based on best management practices to confine, remove, and dispose of construction waste, including every type of debris, discharge water, concrete, cement, grout, washout facility, welding slag, petroleum product, or other hazardous materials generated, used, or stored on-site.
- e. Procedures to contain and control a spill of any hazardous material generated, used or stored on-site, including notification of proper authorities. Ensure that materials for emergency erosion and hazardous materials control are onsite (e.g., silt fence, straw bales, oil-absorbing floating boom whenever surface water is present).
- f. Best management practices to confine vegetation and soil disturbance to the minimum area, and minimum length of time, as necessary to complete the action, and otherwise prevent or minimize erosion associated with the action area.
- g. No uncured concrete or form materials will be allowed to enter the active stream channel.
- h. Steps to cease work under high flows, except for efforts to avoid or minimize resource damage.

#### 14. Site Preparation

- a. Flagging sensitive areas –Prior to construction, clearly mark critical riparian vegetation areas, wetlands, and other sensitive sites to minimize ground disturbance.
- b. Staging area –Establish staging areas for storage of vehicles, equipment, and fuels to minimize erosion into or contamination of streams and floodplains.
  - i. No Topographical Restrictions –place staging area 150 feet or more from any natural water body or wetland in areas where topography does not restrict such a distance.
  - ii. Topographical Restrictions –place staging area away from any natural water body or wetland to the greatest extent possible in areas with high topographical restriction, such as constricted valley types.
- c. Temporary erosion controls –Place sediment barriers prior to construction around sites where significant levels of erosion may enter the stream directly or through road ditches. Temporary erosion controls will be in place before any significant alteration of the action site and will be removed once the site has been stabilized following construction activities.
- d. Stockpile materials –Minimize clearing and grubbing activities when preparing staging, project, and or stockpile areas. Any large wood, topsoil, and native channel material displaced by construction will be stockpiled

for use during site restoration. Materials used for implementation of aquatic restoration categories (e.g., large wood, boulders, fencing material) may be staged within the 100-year floodplain.

- e. Hazard trees –Where appropriate, include hazard tree removal (amount and type) in project design. Fell hazard trees when they pose a safety risk. If possible, fell hazard trees within riparian areas towards a stream. Keep felled trees on site when needed to meet coarse large wood objectives.

#### 15. Heavy Equipment Use

- a. Choice of equipment – Heavy equipment will be commensurate with the project and operated in a manner that minimizes adverse effects to the environment (e.g., minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils).
- b. Fueling and cleaning and inspection for petroleum products and invasive weeds
  - i. All equipment used for instream work will be cleaned for petroleum accumulations, dirt, plant material (to prevent the spread of noxious weeds), and leaks repaired prior to entering the project area. Such equipment includes large machinery, stationary power equipment (e.g., generators, canes), and gas-powered equipment with tanks larger than five gallons.
  - ii. Store and fuel equipment in staging areas after daily use.
  - iii. Inspect daily for fluid leaks before leaving the vehicle staging area for operation.
  - iv. Thoroughly clean equipment before operation below ordinary high water or within 50 feet of any natural water body or areas that drain directly to streams or wetlands and as often as necessary during operation to remain grease free.
- c. Temporary access roads – Existing roadways will be used whenever possible. Minimize the number of temporary access roads and travel paths to lessen soil disturbance and compaction and impacts to vegetation. Temporary access roads will not be built on slopes where grade, soil, or other features suggest a likelihood of excessive erosion or failure. When necessary, temporary access roads will be obliterated or revegetated. Temporary roads in wet or flooded areas will be restored by the end of the applicable in-water work period. Construction of new permanent roads is not permitted.
- d. Stream crossings – Minimize number and length of stream crossings. Such crossings will be at right angles and avoid potential spawning areas to the greatest extent possible. Stream crossings shall not increase the risk of channel re-routing at low and high water conditions. After project completion, temporary stream
- e. Work from top of bank – To the extent feasible, heavy equipment will work from the top of the bank, unless work instream would result in less damage to the aquatic ecosystem.

- f. Timely completion – Minimize time in which heavy equipment is in stream channels, riparian areas, and wetlands. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible. During excavation, stockpile native streambed materials above the bankfull elevation, where it cannot reenter the stream, for later use.

#### 16. Site Restoration

- a. Initiate rehabilitation – Upon project completion, rehabilitate all disturbed areas in a manner that results in similar or better than pre-work conditions through removal of project related waste, spreading of stockpiled materials (soil, large wood, trees, etc.) seeding, or planting with local native seed mixes or plants.
- b. Short-term stabilization – Measures may include the use of non-native sterile seed mix (when native seeds are not available), weed-free certified straw, jute matting, and other similar techniques. Short-term stabilization measures will be maintained until permanent erosion control measures are effective. Stabilization measures will be instigated within three days of construction completion.
- c. Revegetation – Replant each area requiring revegetation prior to or at the beginning of the first growing season following construction. Achieve reestablishment of vegetation in disturbed areas to at least 70% of pre-project levels within three years. Use an appropriate mix of species that will achieve establishment and erosion control objectives, preferably forb, grass, shrub, or tree species native to the project area or region and appropriate to the site. Barriers will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
- d. Planting manuals – All riparian plantings shall follow Forest Service direction described in the Regional letter to Units, Use of Native and Nonnative Plants on National Forests and Grasslands May 2006 (Final Draft), and or BLM Instruction Memorandum No. OR-2001-014, Policy on the Use of Native Species Plant Material.
- e. Decompact soils – Decompact soil by scarifying the soil surface of roads and paths, stream crossings, staging, and stockpile areas so that seeds and plantings can root.

#### 17. Monitoring

Monitoring will be conducted by Action Agency staff, as appropriate for that project, during and after a project to track effects and compliance with this opinion.

##### a. Implementation

- i. Visually monitor during project implementation to ensure effects are not greater (amount, extent) than anticipated and to contact Level 1 representatives if problems arise.
- ii. Fix any problems that arise during project implementation.
- iii. Regular biologist/hydrologist coordination if biologist/hydrologist is not always on site to ensure contractor is following all stipulations.

- b. 401 Certification – To minimize short-term degradation to water quality during project implementation, follow current 401 Certification provisions of the Federal Clean Water Act for maintenance or water quality standards described by the following: Oregon Department of Environmental Quality (Oregon BLM, Forest Service, and BIA); Washington Department of Ecology (Washington BLM); and the Memorandum of Understanding between the Washington Department of Fish and Wildlife and Forest Service regarding Hydraulic Projects Conducted by Forest Service, Pacific Northwest Region (WDFW and USDA-Forest Service 2012); California, Idaho, or Nevada 401 Certification protocols (BLM and Forest Service).
  - c. Post project – A post-project review shall be conducted after winter and spring high flows.
    - i. For each project, conduct a walk through/visual observation to determine if there are post-project affects that were not considered during consultation. For fish passage and revegetation projects, monitor in the following manner:
    - ii. Fish Passage Projects – Note any problems with channel scour or bedload deposition, substrate, discontinuous flow, vegetation establishment, or invasive plant infestation.
    - iii. Revegetation – For all plant treatment projects, including site restoration, monitor for and remove invasive plants until native plants become established.
    - iv. In cases where remedial action is required, such actions are permitted without additional consultation if they use relevant PDC and aquatic conservation measures and the effects of the action categories are not exceeded.
18. Work Area Isolation, Surface Water Withdrawals, and Fish Capture and Release – Isolate the construction area and remove fish from a project site for projects that include concentrated and major excavation at a single location within the stream channel. This condition will typically apply to the following aquatic restoration categories: Fish Passage Restoration; Dam, Tidegate, and Legacy Structure Removal; Channel Reconstruction/Relocation.
- a. Isolate capture area – Install block nets at up and downstream locations outside of the construction zone to exclude fish from entering the project area. Leave nets secured to the stream channel bed and banks until construction activities within the stream channel are complete. If block nets or traps remain in place more than one day, monitor the nets and or traps at least on a daily basis to ensure they are secured to the banks and free of organic accumulation and to minimize fish predation in the trap.
  - b. Capture and release – Fish trapped within the isolated work area will be captured and released as prudent to minimize the risk of injury, then released at a safe release site, preferably upstream of the isolated reach in a pool or other area that provides cover and flow refuge. Collect fish in the best manner to minimize potential stranding and stress by seine or dip nets as the area is slowly dewatered, baited minnow traps placed overnight, or electrofishing (if other options are ineffective). Fish must be handled with

extreme care and kept in water the maximum extent possible during transfer procedures. A healthy environment for the stressed fish shall be provided—large buckets (five-gallon minimum to prevent overcrowding) and minimal handling of fish. Place large fish in buckets separate from smaller prey-sized fish. Monitor water temperature in buckets and well-being of captured fish. If buckets are not being immediately transported, use aerators to maintain water quality. As rapidly as possible, but after fish have recovered, release fish. In cases where the stream is intermittent upstream, release fish in downstream areas and away from the influence of the construction. Capture and release will be supervised by a fishery biologist experienced with work area isolation and safe handling of all fish.

- c. Electrofishing – Use electrofishing only where other means of fish capture may not be feasible or effective. If electrofishing will be used to capture fish for salvage, NMFS’s electrofishing guidelines will be followed (NMFS 2000).
  - i. Reasonable effort should be made to avoid handling fish in warm water temperatures, such as conducting fish evacuation first thing in the morning, when the water temperature would likely be coolest. No electrofishing should occur when water temperatures are above 18°C or are expected to rise above this temperature prior to concluding the fish capture.
  - ii. If fish are observed spawning during the in-water work period, electrofishing shall not be conducted in the vicinity of spawning fish or active redds.
  - iii. Only Direct Current (DC) or Pulsed Direct Current shall be used.
  - iv. Conductivity <100, use voltage ranges from 900 to 1100. Conductivity from 100 to 300, use voltage ranges from 500 to 800. Conductivity greater than 300, use voltage to 400.
  - v. Begin electrofishing with minimum pulse width and recommended voltage and then gradually increase to the point where fish are immobilized and captured. Turn off current once fish are immobilized.
  - vi. Do not allow fish to come into contact with anode. Do not electrofish an area for an extended period of time. Remove fish immediately from water and handle as described above (PDC 20b). Dark bands on the fish indicate injury, suggesting a reduction in voltage and pulse width and longer recovery time.
  - vi. If mortality is occurring during salvage, immediately discontinue salvage operations (unless this would result in additional fish mortality), reevaluate the current procedures, and adjust or postpone procedures to reduce mortality.
- d. Dewater construction site –When dewatering is necessary to protect species or critical habitat, divert flow around the construction site with a coffer dam (built with non-erosive materials), taking care to not dewater downstream channels during dewatering. Pass flow and fish downstream

with a by-pass culvert or a water-proof lined diversion ditch. Diversion sandbags can be filled with material mined from the floodplain as long as such material is replaced at end of project. Small amounts of instream material can be moved to help seal and secure diversion structures. If ESA listed-fish may be present and pumps are required to dewater, the intake must have a fish screen(s) and be operated in accordance with NMFS fish screen criteria described below (in part e.iv) of this section. Dissipate flow energy at the bypass outflow to prevent damage to riparian vegetation or stream channel. If diversion allows for downstream fish passage, place diversion outlet in a location to promote safe reentry of fish into the stream channel, preferably into pool habitat with cover. Pump seepage water from the de-watered work area to a temporary storage and treatment site or into upland areas and allow water to filter through vegetation prior to reentering the stream channel.

- e. Surface water withdrawals
  - i. Surface water may be diverted to meet construction needs, but only if developed sources are unavailable or inadequate. Where ESA-listed fish may be present, diversions may not exceed 10% of the available flow and fish screen(s) will be installed, operated, and maintained according to NMFS's fish screen criteria (NMFS 2011e).
  - ii. For the dewatering of a work site to remove or install culverts, bridge abutments etc., if ESA-listed fish may be present, a fish screen that meets criteria specified by NMFS (2011e) must be used on the intake to avoid juvenile fish entrainment. If ESA-listed salmon, steelhead, eulachon, or green sturgeon may be present, the Action Agencies will ensure that the fish screen design is reviewed and approved by NMFS for consistency with NMFS (2011e) criteria if the diversion (gravity or pump) is at a rate greater than 3 cfs. NMFS approved fish screens have the following specifications: a) An automated cleaning device with a minimum effective surface area of 2.5 square feet per cfs, and a nominal maximum approach velocity of 0.4 feet per second (fps), or no automated cleaning device, a minimum effective surface area of 1 square foot per cfs, and a nominal maximum approach rate of 0.2 fps; and b) a round or square screen mesh that is no larger than 2.38 mm (0.094 inches) in the narrow dimension, or any other shape that is no larger than 1.75 mm (0.069 inches) in the narrow dimension.
- f. Stream re-watering – Upon project completion, slowly re-water the construction site to prevent loss of surface water downstream as the construction site streambed absorbs water and to prevent a sudden release of suspended sediment. Monitor downstream during re-watering to prevent stranding of aquatic organisms below the construction site.

## Project Design Criteria by Resource

### Fisheries and Hydrology

Fisheries and Hydrology resources will follow all mitigation measures and project design criteria for aquatic restoration activities as shown in the ‘Aquatic Restoration Project Categories, Program Administration, General Aquatic Conservation Measures, and Project Design Criteria for Aquatic Restoration Activity Categories on the Malheur National Forest.’

Additional Aquatic project design criteria were developed for the following elements: Tree Tipping and Felling, Juniper Treatments, Tree Hauling, and Prescribed Burning.

#### *General For Inside Riparian Habitat Conservation Areas*

All snags will be maintained within the RHCA unless deemed a hazard to the restoration activity.

#### *Tree Tipping and Tree Felling for Large Wood Projects*

Source trees being extracted (either by tipping and or falling) as part of this project for instream restoration will not be harvested from within the primary shade zone.

**Table 1 Primary shade zone width, based on adjacent hill slope.**

	Hill Slope less than 30%	Hill Slope 30% to 60%	Hill Slope greater than 30%
Primary Shade Zone Width (slope distance)	50 ft.	55 ft.	60 ft.

The Temperature Implementation Strategies allow the distances in the above table to be less (but not less than 25 ft.) if any of the following conditions applies:

The trees are located on a south facing slope (175-185 degree azimuth) and therefore do not provide stream shade;

An appropriate level of analysis is completed and documented, such as shade modeling, using site-specific characteristics to determine the primary shade tree width; and or Field monitoring or measurements are completed to determine the width where optimum Angular Canopy Density (65% or greater) is achieved (see TMDL Implementation Strategies).

If trees are being felled for safety reasons they can be felled towards the stream.

Source trees should come from but are not limited to: over or fully stocked upland and riparian stands, hazard trees, trees generated from administrative sites (maintenance, expansion, or new construction), and hardwood restoration.

*There is no DBH (diameter at breast height) restriction for large wood, but consider the following before removing and placing trees:*

#### Diameter

The key to establishing a logjam is utilizing larger diameter wood that resists decay. These pieces of wood are often called “key pieces,” and serve as the anchors for the logjam structure. Wood can improve fish habitat only if the wood is large enough to stay, influence flow patterns, and sediment sorting. Larger diameter wood retains its size longer as abrasion and decay occurs over the years. Larger diameter wood is more effective in creating pools and complex channels that improve fish populations. The

minimum diameter required for a key piece of wood depends on the bankfull width of the stream is found in the following table.

**Table 2 Bankfull widths and minimum diameter of logs to be considered key pieces.**

Bankfull Width* - Feet	Minimum Diameter* - Inches
0 to 10	10
10 to 20	16
20 to 30	18
Over 30	22

\*This table was taken from '1995 A Guide to Placement of Large Wood in Streams.

### Length

The length of the wood is also important to stability. To be considered a key piece a log with a rootwad still attached should be at least one and one-half times (1.5X) the bankfull or a log without a rootwad should be twice (2X) the length of the stream's bankfull width. As the best fish habitat is formed around jams composed of 3 to 7 logs, at least 2 key pieces should be used at each structure.

Mimic natural accumulations of large woody debris based on stream type, valley setting, and community type and ensure future large woody debris recruitment

Tailholds as part of tree tipping operations are permitted across perennial, intermittent and ephemeral streams but the use of protective straps will be required to prevent tree damage.

### *Juniper Treatments*

The majority of the juniper treatment areas would be within the riparian habitat conservation areas and adjoining uplands. For each area evaluated for juniper treatments, interdisciplinary teams would discuss the following questions in order to identify the attributes of an area and select the appropriate treatments:

What kind of site (potential natural vegetation, soils)?

Successional state of site?

Components that need to be restored?

How units may fit into the overall landscape mosaic?

Long-term goals and objectives?

Utilize the "Western Juniper Field Guide: Asking the Right Questions to Select the Appropriate Management Actions. (Bates et al. 2007, Circular 1321)  
<http://pubs.usgs.gov/circ/1321/pdf/circ1321.pdf>

### *Tree and Boulder Hauling*

Apply mitigation and best management practices for dust abatement ( water, lignosulfonate, Calcium and Magnesium Chlorides) dry conditions, and erosion control as directed by physical scientist or road engineer (See Road Maintenance project design criteria #6 for application).

Haul on gravel and native-surface roads will be limited to dry conditions.

Haul Restrictions to Prevent Fine Sediment Delivery to Streams

Haul or maintenance is permitted on roads under the following conditions:

During haul, weather conditions are monitored daily for the chance of precipitation by the Hydrologist or Fish Biologist.

No rutting of the road surface is occurring, indicating the subsurface is wet.

Frozen ground conditions.

Haul will cease at any time when the travelway of the road is wet and turbid water or fines are observed moving off the road surface to ditchlines that deliver to stream channels regardless of time of year.

Roads Exempt from Haul Restrictions include (Do to no mechanism for sediment delivery):

Paved roads

Surfaced Ridge top roads

Surfaced outsploped roads with no ditch or stream crossings

*Prescribed Burning and Related Activities*

Mechanical piling and burning of large piles will be restricted to existing roads and landings.

Include all relevant PDC in Silviculture prescriptions and burn plan objectives for all fuel treatment activities within RHCA's.

Use all available fuel treatments and preparation activities as necessary (e.g. multiple entries, slash pull-back; modified ignition methods, locations, timing, and sequence; thinning of small green trees; pruning of green trees and snags, prescribed fire, fire suppression, jack pot burning, etc.) to achieve the specific PDC. Suppression should be used only as a last resort to achieve other PDC.

For perennial and fish-bearing stream channels:

Avoid removing trees along stream banks (e.g. don't cause bank instability or increase erosion)

Within 100' of the stream channel backing fire is preferred.

Within primary shade zone retain 100% of the over-story canopy closure with the exception of hardwood treatment.

For intermittent, non-fish-bearing stream channels:

Within 50' of the stream channel backing fire is preferred.

For the maintenance and use of water sources and draft sites:

Minimize disturbance of existing riparian vegetation to the greatest extent practical; in particular, maintain shade, bank stability, and large woody material recruitment potential.

Use sediment control measures such as straw bales, filter cloth, or sediment fences when conditions warrant.

Maximize maintenance activities during late summer and early fall to best avoid wet conditions.

Do not pump from streams that do not have continuous surface flow. When pumping water in all situations from streams, ensure that at least one-half of the original streamflow remains below the pump site.

Refuel power equipment, or use absorbent pads for immobile equipment, and prepare concrete at least 150 feet (or as far as possible from the water body where local site

conditions do not allow a 150 foot setback) from water bodies to prevent direct delivery of contaminants into associated water bodies.

Fisheries, hydrology or other qualified personnel must work with engineering/fire personnel to review proposed activities to minimize potential effects to fish, stream channel conditions, and water quality.

Use and develop off-channel ponds outside of stream channels were feasible and appropriate. Work with fire folks to prioritize and decommission unnecessary in-stream drafting sites.

Water withdrawal equipment must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries guidelines.

## Wildlife

### *Threatened, Endangered or Sensitive Species*

If wolves become established (denning) while project implementation is occurring, measures will be taken to avoid activity in that vicinity

If any evidence of wolverines is discovered during project implementation, measures will be taken to provide protection. If a den is found we would protect it from human disturbance.

### *Raptors*

No activities will occur within currently known goshawk or other raptor nest stands. To conserve nesting habitat and to minimize disturbance to nesting individuals, restrictions would be executed according to the requirements of the species involved. With all newly discovered raptor nests, a buffer zone would be established by the wildlife biologist to restrict activities near the nest area during occupancy.

Where possible, retain trees with inactive nests that may be important to secondary nesters (e.g. Great Gray Owl).

Any snags in riparian areas or uplands will be protected from disturbance, removal, or use in stream restoration activities unless deemed a safety hazard at a specific work site.

### *Big Game*

Within big game winter range a wildlife biologist will be consulted between December 1 and April 1 to determine if activities should be restricted for big game needs.

## Botany

Note: Pre-implementation planning project design criteria are identified.

### *Rare and Sensitive Plants and Habitats*

**Pre-Implementation:** Proposed restoration projects shall be completely surveyed early in the implementation planning process by a qualified botanist or rare plant technician, to identify and assess any sensitive or rare plant populations or habitats.

**Pre-Implementation:** Proposed restoration projects shall develop restoration plans for degraded sensitive species habitats and/or mitigation plans in areas where sensitive plant populations are documented. This shall be accomplished by a journey-level Forest Service botanist in collaboration with the interdisciplinary team and other stakeholders.

Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not be allowed in any documented sensitive plant

sites unless it is for the demonstrated benefit or protection of the site. All sensitive plant populations should be buffered 100 ft. from all operational activities where topography does not restrict such a distance. Sensitive plant sites and associated buffers shall be identified as Areas to Protect (ATPs).

#### *Sensitive and Unique Habitats*

The integrity of unique habitats shall be maintained. Unique habitats [may] include meadows, rimrock, talus slopes, cliffs, animal dens, wallows, bogs [fens], seeps and springs. This shall be accomplished by incorporating cover buffers approximately 100 feet in width.

Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, recreation sites, prescribed fires, fire lines, and other operational activities shall not occur within, or at the interface of lithosols (scablands).

Cutting of old-growth juniper shall be prohibited. Old-growth characteristics include: sparse limbs, dead limbed or spiked-tops, deeply furrowed and fibrous bark, branches covered with bright-green arboreal lichens, noticeable decay of cambium layer at base of tree, and limited terminal leader growth in upper branches.

#### *Groundwater-Dependent Ecosystems*

The integrity of groundwater-dependent ecosystems (GDE) shall be maintained. Spring developments shall not dewater GDEs. Spring developments shall not be allowed if the spring is occupied by rare or sensitive plant species, or in peatlands, fens, or where histic soils are present. These sites should be buffered 100 ft. from all operational activities where topography does not restrict such a distance, and be identified as Areas to Protect (ATPs).

Heavy equipment, vehicle operation, road construction, staging areas, stockpile areas, piling of slash, fence construction, fire lines, and other operational activities shall not be allowed in springs, seeps, or any other GDE, unless it is for the benefit or protection of the GDE or development of the spring.

Spring developments should not disturb the spring orifice (point where water emerges).

Spring head boxes should be placed in a location that will cause the least amount of disturbance to the soils and vegetation of the GDE. Preferable locations for spring head boxes should be in an established channel downstream from the orifice or a location where flowing water becomes subsurface.

When necessary, construct fenced enclosures around spring developments to prevent damage from wild ungulates and livestock.

Spring developments shall have a return flow system to minimize the diversion of surface and subsurface water from the catchment area. Consider using a float valve or similar device to reduce the amount of water withdrawn from the GDE.

When developing springs, place troughs far enough away from GDEs, wetlands, and other sensitive or unique habitats to prevent erosion, compaction, or degradation to sensitive soils and vegetation due to livestock congregation.

#### *Invasive Plant Species*

**Pre-Implementation:** Proposed restoration projects shall be surveyed for invasive plants early in the implementation planning process by a qualified invasive plant specialist /technician, to identify and assess any undocumented invasive plant infestation.

**Pre-Implementation:** For project areas that overlap or are adjacent to invasive plant infestations, assure that there is sufficient time prior to develop a long-term site

strategy for control, eradication, and revegetation of the site. This shall be accomplished by a qualified invasive plant specialist in collaboration with the interdisciplinary team and other stakeholders.

All activities shall be conducted in a manner as to minimize or prevent the potential spread or establishment of invasive species.

Actions conducted on National Forest System Lands that will operate outside the limits of the road prism, require the cleaning of all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering the National Forest. Cleaning will be inspected and approved by the forest officer in charge of administering the project.

Assure that all materials are weed-free. Use weed-free straw and mulch for all projects conducted or authorized by the Forest Service on National Forest System Lands. If State certified straw and/or mulch is not available, individual Forests should require sources certified to be weed-free using the North American Weed Free Forage Program standards or a similar certification process.

Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and/or rock that are judged to be weed free by District or Forest weed specialists.

Prohibit heavy equipment operation, vehicle travel, staging areas, fire-control lines, and any other operational activities in invasive plant infestations, unless the activities are for the express purpose of eradicating the infestation or INV1 and INV2 have been completed.

Conduct post-implementation monitoring for invasive plants. Continue monitoring, treating, and removing invasive plants until all infestations are eradicated and native plant species are well established.

#### *Native Plant Materials and Revegetation*

**Pre-Implementation:** Where the need for native plant materials is anticipated, assure that there is sufficient time for the plant materials specialist to develop a native plant materials plan and/or prescription prior to implementation of planned revegetation, rehabilitation, and restoration projects. This may include allowing for enough time to harvest and store hardwood cuttings, produce suitable quantities of native seed, and/or grow-out container stock.

Locally adapted, genetically appropriate native plant materials are the first choice for use in revegetation, restoration and rehabilitation, where timely natural regeneration of the native plant community is not likely to occur. Use a diverse assemblage of species that have the potential to naturally occur in the project area. Acquire native seed or plant sources as close to the watershed as possible. Examples of areas that may need treatment include: habitat restoration efforts, log decks, staging areas, landing zones, temporary roads, slash piles, culvert replacements, severely burned areas, skid trails, decommissioned roads, invasive species treatments, and other disturbances.

Non-native, non-invasive plant species may be used in the following situations: (1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality, and to help prevent the establishment of invasive species), (2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, (3) if native plant materials are not available and/or are not economically feasible, and (4) in permanently altered plant communities.

Under no circumstances shall non-native invasive plant species and/or noxious weeds be used for revegetation.

Development, review and/or approval of revegetation, rehabilitation, and restoration prescriptions, including species selection, genetic heritage, growth stage, seed mixes, sowing guidelines, and any needed site preparation, shall be accomplished by a plant materials specialist who is knowledgeable and trained or certified in the plant community type where the revegetation will occur.

Concentrate plantings above the bank-full elevation. Sedge and rush mats should be placed and sized to prevent their movement during high flow events.

Newly planted and/or seeded areas should be protected from animals and activities that may prevent, retard, or slow the establishment and recovery of native vegetation. Site-specific measures may include building fences, piling slash, jackstrawing, closing areas to vehicles, and/or temporarily changing grazing regimes until the desired condition is sufficiently achieved.

### **Soils**

For projects involving heavy machinery off roads, the project proponents shall inspect the site for existing impacts to the soil. If existing impacts appear to be heavy on the Malheur or moderate on the Ochoco, they shall contact a soil scientist, who shall determine what site specific project design criteria are necessary to meet Forest Plan and Forest Service Manual standards and guidelines. (If a soil scientist is not available, a silviculturist or hydrologist can do the work.) If standards and guidelines cannot be met, heavy machinery shall not be used.

Erosion would be minimized by following General Aquatic Conservation Measures and by implementing the appropriate project design criteria based on the type of activity (see appendix A).

Erosion from heavy machinery use would be minimized; by minimizing compaction and puddling, rutting would be minimized.

For Livestock Stream Crossings and Off-Channel Watering Facilities, out-of-channel erosion would be minimized.

For Road Erosion Control, erosion would be minimized.

For Juniper Removal, erosion would be minimized. It is possible that Juniper Removal would increase ground cover within a few years, and thereby reduce erosion.

Prescribed Fire (including for disposal of slash after Juniper removal) can involve only low and moderate severity fire, and erosion from fire lines would be minimized, so erosion from prescribed fire would not be significant.

### **Fire and Fuels**

Mechanical tools may be necessary to prepare fire control lines for these burns, but would be limited, and typically no heavy equipment would be used. Prescribed burns or wildfires could temporarily affect air quality.

The project design criteria for both Juniper Removal and Riparian Vegetation Treatment (controlled burning) would be followed. National, state, and local policies regarding prescribed fire implementation will be met.

Activities that are expected to create smoke emissions would follow the State of Oregon Smoke Management Plan. Prior to burning, approval will be obtained from the Oregon Department of Forestry, who determines compliance with the Clean Air Act. State smoke forecasts, which predict wind direction and smoke mixing height, will be obtained prior to all burning to ensure smoke intrusions will not occur in the local smoke sensitive receptor areas.

Burning will follow the guidance provided by the Oregon Smoke Management Plan (Directive 1-4-1-601, Operational Guidance for the Oregon Smoke Management

Program), which is an agreement between federal land management agencies in northeast Oregon and Oregon Department of Forestry limiting smoke emission amounts. Oregon Department of Forestry monitors activity, and if a limit is reached it will shut down prescribed fire activity.

### **Heritage Resources**

Compliance with Section 106 of the National Historic Preservation Act for activities authorized under this analysis will be completed and concurred with by the Oregon State Historic Preservation Office before any ground disturbing action takes place. For each potential activity the District or Zone archaeologist will determine which of the criteria in the 2004 Programmatic Agreement with the Oregon State Historic Preservation Office best fit the particular project. This will vary somewhat project to project based on the scale of the particular activity, the location on the landscape, and the nature of associated cultural resources, if any.

The District or Zone archaeologist will document their findings on a Programmatic Agreement form with a project description, rationale and location map which will be attached to the Forest Service Heritage Event database. The Forest archaeologist will review and sign off on the Programmatic Review form if concurred with. For appendices A, B and C projects as defined in the 2004 Programmatic Agreement, the Forest will retain the documentation and provide the Oregon State Historic Preservation Office with the annual summary of projects as described in the Preservation Act.

For full inventories the District or Zone archaeologist will complete an inventory report meeting current Oregon State Historic Preservation Office standards which will be reviewed by the Forest archaeologist. The Forest archaeologist will forward the completed inventory report to the Oregon State Historic Preservation Office for review and concurrence signature or further discussion as appropriate.

Consultation with Native American tribes is conducted under the terms of the Memorandums of Understanding the Forest has with each individual tribe. The Forest regularly consults with the Burns Paiute Tribe, the Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes of Warm Springs Reservation.

For work requiring a full inventory under the terms of the 2004 Programmatic Agreement any identified cultural resources sites will generally be avoided. For cases where site avoidance is impractical mitigation procedures will be developed in consultation with the Oregon SHPO before project work begins.

If any previously unidentified cultural resources are located during project implementation, ground disturbing work will be halted until the resources are evaluated by the District or Zone archaeologist. If the cultural resources are determined to be potentially eligible for listing on the National Register of Historic Places work will either be permanently halted or a mitigation plan will be developed in consultation with the Oregon SHPO before work continues.

### **Recreation**

Motorized aquatic restoration methods would not be used within Wilderness, Wild portions of Wild and Scenic Rivers, and Inventoried Roadless Areas.

Mechanized aquatic restoration methods would not be used within Wilderness or Wild portions of Wild and Scenic Rivers.

## Grazing

### *General*

Range and Fire Specialists and permittees would coordinate activities including scheduling of burning activities in grazing units.

Utilize the Forest Post-Fire Interim Grazing Guidelines to aid in determining when to resume grazing activities.

Whenever possible, units to be rested would be burned in the spring of the year to be rested or in the fall prior to the rest year.

If a rest period is required following a burn the permittee has the option to exclude cattle grazing from those portions of a pasture that were burned through the use of fencing and could continue to graze the unburned areas of a unit.

### *Protection of Government and Permittee Investments*

All existing structural range improvements (fences, gates, spring developments, etc) and permanent ecological plots would be contractually protected.

Maintain structural integrity of range improvements.

If structural improvements are damaged during project operations they would be repaired to Forest Service standards prior to livestock scheduled use by the party responsible for causing the damage. Repairs would be required of the purchaser if damage were done during thinning or fuel treatment contractors or by force account where appropriate.

Three or more splices to a single wire within a distance of 20 feet will be replaced with a single splice.

Fence right of ways (6ft either side of fence), trails, other developments and access to them would be cleared of slash produced by project activities.

### *Aspen Restoration*

New aspen enclosure fences would have gates installed in proper locations to allow for removal of stray livestock. Aspen fences would be maintained each year and repaired whenever necessary. Plans for aspen enclosures will define when restoration of the protected stand has been achieved and who has responsibility for maintenance of the structure. When fences are no longer needed, aspen fences should be removed.

Alternate livestock water sources to those being used in aspen stands would be developed off-site before fencing aspen or re-evaluate fencing of the aspen site. Coordinate with range specialist and permittee.

### *Notification*

During planning stage of each individual project all potentially impacted grazing permittees will have notice of action and opportunity to provide input that may lessen impacts to their livestock operation well in advance of implementation.

Prior to implementation all potentially impacted grazing permittees will be given notice of dates when work will start.

## **Project Design Criteria for Aquatic Restoration Activity Categories**

### **9. Livestock Fencing, Stream Crossings and Off-Channel Livestock Watering Facilities**

projects will be implemented by constructing fences to exclude riparian grazing, providing controlled access for walkways that livestock use to transit across streams and through riparian areas, and reducing livestock use in riparian areas and stream channels by providing upslope water facilities. Such projects promote a balanced approach to livestock use in riparian areas, reducing livestock impacts to riparian soils and vegetation, streambanks, channel substrates, and water quality. Equipment such as excavators, bull dozers, dump trucks, front-end loaders, and similar equipment may be used to implement projects.

#### **a. Livestock Fencing**

- i. Fence placement must allow for lateral movement of a stream and to allow establishment of riparian plant species. To the extent possible, fences will be placed outside the channel migration zone.
- ii. Minimize vegetation removal, especially potential large wood recruitment sources, when constructing fence lines.
- iii. Where appropriate, construct fences at water gaps in a manner that allows passage of large wood and other debris.

#### **b. Livestock Stream Crossings**

- i. The number of crossings will be minimized.
- ii. Locate crossings or water gaps where streambanks are naturally low. Livestock crossings or water gaps must not be located in areas where compaction or other damage can occur to sensitive soils and vegetation (e.g., wetlands) due to congregating livestock.
- iii. To the extent possible, crossings will not be placed in areas where ESA listed species spawn or are suspected of spawning (e.g., pool tailouts where spawning may occur), or within 300-foot upstream of such areas.
- iv. Existing access roads and stream crossings will be used whenever possible, unless new construction would result in less habitat disturbance and the old trail or crossing is retired.
- v. Access roads or trails will be provided with a vegetative buffer that is adequate to avoid or minimize runoff of sediment and other pollutants to surface waters.
- vi. Essential crossings will be designed and constructed or improved to handle reasonably foreseeable flood risks, including associated bedload and debris, and to prevent the diversion of streamflow out of the channel and down the trail if the crossing fails.
- vii. If necessary, the streambank and approach lanes can be stabilized with native vegetation or angular rock to reduce chronic sedimentation. The stream crossing or water gap should be armored with sufficient sized rock (e.g., cobble-size rock) and use angular rock if natural substrate is not of adequate size.
- viii. Livestock crossings will not create barriers to the passage of adult and juvenile fish. Whenever a culvert or bridge—including bridges constructed from flatbed railroad cars, boxcars, or truck flatbeds—is used to create the crossing, the

structure width will tier to project design criteria listed for Stream Simulation Culvert and Bridge Projects under Fish Passage Restoration (PDC 21).

ix. Stream crossings and water gaps will be designed and constructed to a width of 10 to 15 feet in the upstream-downstream direction to minimize the time livestock will spend in the crossing or riparian area.

x. When using pressure treated lumber for fence posts, complete all cutting/drilling offsite (to the extent possible) so that treated wood chips and debris do not enter water or flood prone areas.

xi. Riparian fencing is not to be used to create livestock handling facilities or riparian pastures.

**c. Off-channel Livestock Watering Facilities**

i. The development of a spring is not allowed if the spring is occupied by ESA-listed species.

ii. Water withdrawals must not dewater habitats or cause low stream flow conditions that could affect ESA-listed fish. Withdrawals may not exceed 10% of the available flow.

iii. Troughs or tanks fed from a stream or river must have an existing valid water right. Surface water intakes must be screened to meet the most recent version of NMFS fish screen criteria (NMFS 2011e)(NMFS 2011e)(NMFS 2011e)(NMFS 2011e)(NMFS 2011e)(NMFS 2011e)(NMFS 2011e), be self-cleaning, or regularly maintained by removing debris buildup. A responsible party will be designated to conduct regular inspection and as-needed maintenance to ensure pumps and screens are properly functioning.

iv. Place troughs far enough from a stream or surround with a protective surface to prevent mud and sediment delivery to the stream. Avoid steep slopes and areas where compaction or damage could occur to sensitive soils, slopes, or vegetation due to congregating livestock.

v. Ensure that each livestock water development has a float valve or similar device, a return flow system, a fenced overflow area, or similar means to minimize water withdrawal and potential runoff and erosion.

vi. Minimize removal of vegetation around springs, wet areas.

vii. When necessary, construct a fence around the spring development to prevent livestock damage.