

**EA-OR-014-00-02**

**UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
KLAMATH FALLS RESOURCE AREA OFFICE  
ENVIRONMENTAL ASSESSMENT NO. OR-014-00-02  
BARNES VALLEY CREEK CROSSING UPGRADE**

**I. INTRODUCTION**

This Environmental Assessment (EA) will address the Klamath Falls Resource Area proposal to upgrade the existing concrete stream ford on the CCC road (no. 41-14E-11) where it crosses Barnes Valley Creek at T39S, R14 ½ E, Sec. 22 (see attached map, figure 1).

The proposed construction project would be done to improve fish passage for trout and endangered suckers and reduce sedimentation to Barnes Valley Creek from the road surface and road drainage system. The project is located in on BLM administered lands in the Gerber Reservoir area approximately 35 miles east of the city of Klamath Falls, Oregon in the Barnes Valley Creek watershed upstream of Gerber Reservoir. This proposed project is being planned under the direction of the Klamath Falls Resource Management Plan Record of Decision (June 1995) and is consistent with meeting the goals of the Aquatic Conservation Strategy to improve habitat conditions for native aquatic species.

**A. CONFORMANCE**

The proposed action and alternatives are in conformance with *Klamath Falls Resource Area Record of Decision and Resource Management Plan, June 1995 (Klamath Falls Resource Area ROD/RMP)* to which this document is tiered. This document is incorporated by reference.

**B. NEED FOR THE PROPOSED ACTION**

Barnes Valley Creek is important spawning and rearing habitat for native redband trout and federally listed endangered shortnose suckers. The existing low water ford is an impediment to upstream and downstream fish migration. These impediments may be causing increased rates of predation on native fish by foraging pelicans, exotic fish species, and bull frogs. Additionally, storm events and vehicular traffic are causing erosion and loss of road surface material during normal runoff periods and during normal vehicle traffic during the spawning season. Excessive fine sediment loading is known to be harmful to spawning and rearing redband trout and suckers because the inter-spaces between coarse substrate required for spawning can be filled with fine particles thus reducing the survival of eggs and emergent fish.

It has been determined that the existing ford is being hydraulically undermined and may not have adequate structural integrity to withstand high flow events in the long term. The road surface and

drainage system within 100 feet of both sides of the stream crossing have highly erodible road surface material and inadequate cross-drainage. The existing structure functions like a dam to create pool habitat in the form of wide shallow pools above and below the crossing. These habitats are favorable to exotic species tolerant of slow moving water. Conversely, these conditions may be harmful to native species including trout and shortnose suckers.

Under the Aquatic Conservation Strategy BLM administered lands will be managed to: *“Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species”,* and ... *“maintain and restore spatial and temporal connectivity within and between watersheds. These connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.”* (ROD B-11).

The Klamath Falls Resource Area Management plan provides direction to *“Design and implement watershed restoration projects in a manner that promotes long-term ecological integrity of ecosystems, conserve the genetic integrity of native species, and attain Aquatic Conservation Strategy objectives.”* (Klamath Falls Resource Area Record of Decision and Resource Management Plan, June 1995, page 17).

The proposed project would lead toward attainment of these goals by eliminating a migration barrier, reducing a human caused sedimentation source, and re-configuring the stream channel to a more natural channel bottom and stream morphology. Improved fish passage would increase connectivity for native species to their spawning areas.

## **II. PROPOSED ACTION AND ALTERNATIVES**

### **PROPOSED ACTION - ALTERNATIVE 1**

**Project Description-** Install a precast, flexible concrete cable blocking structure, set to current streambed elevation to approximate natural stream cross-section morphology. Install asphalt apron approach extending 200 feet from both ends of ford. Improve the road drainage system within the Barnes Valley Creek canyon by installing additional cross-drainage culverts and repositioning existing culverts to reduce sedimentation. Install signs on both sides of the Barnes Valley Creek canyon on the CCC road to alert the driving public of the potential hazards of driving into the crossing area.

### **ALTERNATIVE 2-**

**Project Description-** Install a poured concrete crossing, similar to existing structure but conforming to a more natural U-shaped cross-section. This structure would not have a natural substrate surface, but would include a box shaped low flow channel constructed with steel I-beam. Install asphalt approach extending 100 feet from both ends of ford. Improve the road drainage system within the Barnes Valley Creek canyon by installing additional cross-drainage culverts and repositioning

existing culverts to reduce sedimentation. Install signs on both sides of the Barnes Valley Creek canyon on the CCC road to alert the driving public of the potential hazards of driving into the crossing area.

## **DESIGN FEATURES OF PROPOSED ACTION (Alternative 1) and Alternative 2**

**1. Removal of existing structure** - All construction work would be done during the Oregon Department of Fish and Wildlife (ODFW) instream work period July 1-March 3. Additionally, work would be accomplished during the low flow period (late summer/early fall). If stream flow is present when construction begins, or at anytime during construction, a temporary diversion and bypass would be constructed using a plastic coffer dam and flexible pipe to minimize sedimentation and maintain uninterrupted flow in Barnes Valley Creek. The pipe would be temporarily buried to maintain vehicle access during construction.

**2. Equipment cleaning-** In order to slow the spread of noxious weeds, all equipment would be cleaned prior to and following its arrival on Bureau of Land Management land.

**3. New construction-** Stream flow would not be interrupted at any time during construction. Any flowing water would be routed through a diversion and piped through the project area. BLM would attempt to remove as many of the native fish as is feasible prior to construction activity by electro-shocking in the pools adjacent to the concrete structure. These fish will be placed in suitable pool habitats directly upstream of the project site. All excavated concrete would be removed for burial at an existing BLM rock quarry.

**4. Best Management Practices (BMP) and Northwest Plan standards and guidelines for Roads Management with Riparian Reserves** - All road construction activity would follow the Best Management Practices described in the Klamath Falls Resource Area RMP, pages D-13 through D-18, and BMPs for Fisheries Habitat Improvement Projects, pages D-38 through D-39.

### **Additionally, the following standard procedures would be followed:**

1. In-stream construction would occur during low flow, between August 15 and September 30, which falls within Oregon Department of Fish & Wildlife (ODF&W) instream work guidelines for the Lost River and tributaries (July 1 - March 31).
2. Anticipated construction equipment could include a tracked excavator, hydraulic hammer, backhoe, and dump truck.
3. Equipment procedures such as fueling and certain maintenance operations would follow existing county and state requirements. Refueling would occur at least 100 feet from the stream course and in an area that would not allow spills to drain into waterways.

**5. Site stabilization-** Disturbed areas would be stabilized using clean rip-rap, bio-matting, transplanting of woody vegetation when possible, and seeding. In the event seeding is needed, annual and perennial rye mixtures with strict guidelines on seed purity (no crop or noxious weed content) would be used. The crossing would be designed to withstand a flow equivalent to the 100 year flood return interval.

**6. Contingency Plan:** In the unlikely event that the existing structure is removed and BLM is unable to install a new crossing structure before winter, the existing streambed would be graded and contoured with 3-5 inch clean crushed rock and would be made to conform to the established natural stream channel dimensions. The new structure would then be installed in July-August 2001.

### **C. NO ACTION - ALTERNATIVE 3**

The No Action Alternative would be to leave this crossing and approach in its present condition. The duration of available fish passage would not be extended. Additionally, sedimentation concerns would not be alleviated and the stream would retain its less desirable shallow, pool-like morphology.

## **III. ALTERNATIVES NOT ANALYZED**

**A. New Bridge Construction:** This option was dropped from consideration because there is not sufficient width within the confines of the valley bottom to allow bridge construction without re-locating the existing road. Current recreational and commercial use of this road did not warrant further consideration of this option.

**B. Culvert Installation:** This option was dropped from consideration because estimated peak flows between 800 to 1800 cfs would require a very large culvert system and large amounts of fill material. The required size of culvert and needed for year-round traffic did not justify further consideration of this option.

**C. Retrofit of existing structure:** This option was not fully analyzed because it was apparent that the benefit of lower high water velocities and improved stream morphology would not be realized. This option would not result in improved upstream passage for migrating fish or improved stream morphology.

## **IV. AFFECTED ENVIRONMENT**

### **A. PROJECT AREA**

The project construction area is entirely within a Riparian Reserve area (Klamath Falls Resource Area RMP). The staging area for equipment and supplies is 1/4 mile north of the construction site on the CCC Road within an existing turnout.

### **B. VEGETATION**

The over-story vegetation on the slopes adjacent to the project area is predominantly Ponderosa Pine and Western juniper. The understory of the stand includes bitterbrush, mountain mahogany, snowberry bush.

The riparian area supports a narrow strip of riparian associated tree and shrub species (willow species, red osier dogwood, and cottonwood). Within the Barnes Valley Creek has a flood plain and associated riparian plant community varying in width from 40' to 100'.

### **C. BOTANICAL RESOURCES**

#### **Special Status Plants:**

Botanical surveys were conducted under BLM contract in 1996. No special status plant species were found in the project area.

#### **Noxious Weeds and Non-native Plant Species**

The project construction site has a known population of Russian Knapweed (*Acroptilon repens*) which is being treated with herbicide under a BLM contract. The site is monitored annually.

### **D. AQUATIC AND RIPARIAN RESOURCES AND FISHERIES**

Barnes Valley Creek contains spawning and rearing habitat for migratory populations of redband (also known as rainbow) trout (*Oncorhynchus mykiss*), and shortnose suckers (*Chasmistes brevirostris*). Resident populations of Klamath speckled dace (*Rhinichthys osculus*), marbled sculpin (*Cottus klamathensis*) also occupy the stream. Introduced exotic species in Barnes Valley Creek include a suite of aquatic species adapted to warm, slow moving water. These are: Bull frog (*Rana catesbeiana*), fathead minnow (*Pimephales promelas*), brown bullhead (*Ameiurus nebulosus*), yellow perch (*Perca flavescens*), pumpkinseed (*Lepomis gibbosus*), and largemouth bass (*Micropterus salmoides*).

Barnes Valley Creek has a C4 type morphology as described by Rosgren (1994). A Moderate stream gradient, a pool/riffle sequence, and cobble and gravel stream substrates provide spawning substrate and sufficient water depth for spawning suckers and trout above and below the project reach. Moderate cover for fish is available from willow shrubs and boulders. The concrete ford, which is flat in cross-section to the stream, interrupts the natural stream morphology and causes hydraulic scouring and deposition resulting in wide pools above and below the ford. From observed species assemblages, these pools appear to be favorable breeding and rearing habitat for non-native exotic species such as bull frogs, fathead minnows, and yellow perch.

During the Spring (April-May) when high water flows are coincident with spawning readiness in trout and sucker species, the existing concrete ford causes the stream to make a hydraulic jump, increasing water velocity and reducing average water depth over the concrete ford. The lack of depth and high velocity are observed to be inhibitory for fish migrating during daylight hours. Additionally, white pelicans (*Pelecanus erythrohynchos*) have been observed to congregate and feed on migrating fish congregated in the pool below the ford. The smooth light colored background on the concrete may also be inhibitory for fish migration.

During times when the reservoir is at full capacity (usually in early spring), the water surface elevation is over the crossing and therefore spawning habitat is available only upstream of the crossing.

## **E. SPECIAL STATUS AND THREATENED AND ENDANGERED SPECIES**

**Special Status Species** - Bureau Sensitive species which could potentially occur in the area include the black-backed and white-headed woodpecker. Habitat for Bureau Assessment species is not present in the area.

**Other Wildlife** - Forty-seven species of landbirds have been documented to utilize Barnes Valley Creek during the breeding and migration periods of May through October. These species include many neotropical migratory birds, some of which use the area for breeding.

**Threatened and Endangered Species** - There are no activity centers for any terrestrial species listed or proposed under the Endangered Species Act within 1/4 mile of the project area. Bald eagles (*Haliaeetus leucocephalus*) are known to forage in the area and it is likely that they take advantage of the shallow pool habitat where fish congregate below the concrete ford.

**Shortnose Suckers**- Gerber reservoir and its major tributaries have a geographically distinct population of shortnose suckers. Barnes Valley Creek is the primary spawning tributary for the Gerber population and is the only available spawning tributary during low precipitation or low runoff years. Barnes Valley Creek and Gerber Reservoir are listed as proposed critical habitat for shortnose suckers. Spawning activity has been monitored by BLM at the CCC road crossing annually since 1992. Information interpreted from these surveys suggests that peak adult migration occurs on about May 15 in most years. The duration of adult migration is estimated to be between three and four weeks depending on flow conditions. Larval out-migration generally occurs between May 15 and June 5. Adult and juvenile suckers have not been observed in the project area between July and March. Spawning activity has been documented at or near the crossing in the spring of all survey years except one (1994). All available spawning habitat for suckers and trout except for approximately 200 feet, is upstream of the CCC road crossing. A biological assessment and effects determination on endangered suckers will be completed before work begins.

## **F. CULTURAL RESOURCES**

No cultural resources were found in survey of project area. The existing structure is not a cultural resource.

## **G. RECREATION AND VISUAL RESOURCES**

Under the Klamath Falls RMP, the area is classified as Visual Resource Management Class II, which allows for low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer

The project area is in BLM administered lands used for dispersed recreation activities, such as hunting, fishing and driving for pleasure.

## **V. DIRECT AND INDIRECT EFFECTS**

This section will describe the consequences of implementing the proposed action (alternative 1), alternative 2, and the anticipated consequences of the no action alternative.

### **A. UNAFFECTED RESOURCES**

The following resources are either not present or would not be affected by the proposed action or the no-action alternative: Areas of Critical Environmental Concern, prime or unique farm lands, Native American religious concerns, solid or hazardous wastes, Wild and Scenic Rivers, Wilderness, and low income or minority populations.

**CULTURAL RESOURCES** - are not expected to be affected by the proposed action or the no-action alternative. If in connection with the proposed action there is an encounter or awareness of any objects or sites of cultural value, such as historical or pre-historical ruins, graves, grave markers, fossils or artifacts, the site specific proposed action would be suspended until mitigative measures are established.

**VISUAL RESOURCES** - Visual resources would be improved under the preferred alternative because the proposed structure would conform to the natural stream morphology and be less visible than the existing structure.

**AIR QUALITY** - would not be affected by the proposed action or the no-action alternative.

## **B. DIRECT AND INDIRECT EFFECTS OF ALTERNATIVE 1- PROPOSED ACTION, and Alternative 2**

### **VEGETATION**

No affect on upland vegetation communities would occur. Riparian vegetation would be disturbed over a 100 foot reach of the stream. When feasible, topsoil, willow, and other woody vegetation would be removed and transplanted back to the project site to establish site vegetative cover and site stability. The extent of the floodplain available for colonization by a riparian plant community would increase over the long term in the immediate vicinity of the crossing.

### **BOTANICAL RESOURCES**

The proposed action would have no effect upon federally listed threatened or endangered plants or other special status plant species. Design features addressing cleaning of equipment would reduce the potential spread of noxious weeds. Russian knapweed (*A. repens*) would be avoided by vehicles, machinery, and equipment to reduce potential to spread this species by seed or rhizome segments.

### **AQUATIC AND RIPARIAN RESOURCES**

Temporary increases in sediment and turbidity from structure removal and replacement within Barnes Valley Creek would occur. Implementation of project design features 1, 3, 4, and 5 (sedimentation control measures) would reduce the potential for sediment moving into the stream channel during construction. Working during the low flow season, when migratory fish are not

present, would minimize the effects of sedimentation and turbidity on native aquatic species. There are expected to be few, if any, native fish in the project area or in the stream below the project area because stream flow is likely to be negligible (less than .1 cubic feet per second) during implementation. Implementation of project design feature # 5 (site stabilization, seeding, transplanting, and high flow design criteria) would ensure that short-term (1-3 years) and long-term (3+ years) sedimentation following construction is minimized. The untreated vegetation adjacent to the stream channels outside of the construction area would protect streambanks and contribute to maintaining current water quality and riparian and aquatic conditions.

The new stream crossing would have immediate benefits for native aquatic species including Federally endangered shortnose suckers. Sedimentation from vehicular traffic entering the water would be reduced due to the lateral extension of a hard surface on the crossing and the addition of an asphalt road surface approach leading to the crossing. Water depth over the crossing would increase for a given flow thus extending the duration fish passage opportunities and increasing connectivity from Gerber Reservoir to its tributary streams. Susceptibility of native species to predation may decrease because fish would not congregate in pools above or below the existing structure. The habitat type (approximately 200 linear feet of stream near the crossing) would be transformed from a shallow pool to a riffle or glide with appropriately sized cobble and gravel for spawning. This would increase the total amount of spawning and rearing habitat for native fishes in the lower reach of the stream. Additionally, because the active channel width would decrease, the width of the floodplain available for colonization by a riparian plant community would increase in the immediate vicinity of the crossing. Increased riparian width, would in turn, lead to the long-term maintenance of favorable stream channel morphology (low width/ depth ratios)

The proposed design would have a coarse (gravel and cobble) bottom substrate and approximate the stream channel roughness of the natural channel. This would allow for variable channel bottom water velocities and enhanced fish migration. This is in contrast to the smooth surface that would exist in design alternative 2, a solid concrete structure. Design alternative II would require the installation of an I-beam box culvert with a gap for low water fish passage. This would increase the amount of routine maintenance required to clean out accumulated debris.

The elimination of warm, low velocity water habitat in the project area would favor native fish species over the introduced exotic fish and amphibian species that currently dominate the site in the summer. This could potentially shift the competitive advantage from the exotic species to native species and reduce predation rates on native species.

## **WILDLIFE**

**Special Status Species** - The proposed action would have no negative effects upon any of the Bureau Sensitive species which could potentially occur in the area.

**Other Wildlife** - The proposed action would have no negative effects upon the landbird species utilizing the area.

**Threatened and Endangered Species** - A small reduction in foraging opportunities for bald eagles may result from the construction activity in the short-term. This may occur in two consecutive



construction seasons since the contingency plan allows for installation to occur in the following summer/fall after removal of the existing structure. A slight reduction in shallow pool habitat and fewer congregating suckers may result in fewer foraging opportunities in the long term.

### **RECREATION**

Alternative 1 and 2 would cause a decrease in the ability to use the crossing during high flows during the spring due to increased water depth. This may shift some use to Horse Camp Rim Road, Norcross Rd and Main Haul Road.

During construction, the proposed action and alternative 2 would cause intermittent interruptions in through traffic on the CCC road. The road may closed for up to 5 days in late summer or early Fall while the replacement crossing is installed. Alternative routes for crossing Barnes Valley Creek are available via Horse Camp Rim Road and the Main Haul Road.

### **CUMULATIVE IMPACTS**

This analysis incorporates the analysis of cumulative effects in the Klamath Falls Resource Area RAMP/EIS November, 1994 (Chapter 4). These documents analyze most cumulative effects of timber harvest, range management and other related activities. None of the alternatives would have cumulative effects on resources beyond those effects analyzed in the above documents. The following supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

Improving the crossing to conform to a natural stream morphology would contribute to the restoration and cumulative recovery of the physical and functional nature of the stream and riparian system within the watershed by improving the connectivity of the stream system. The proposed action would contribute to a decreased quantity of sediment input into the stream system in the long term and would decrease road maintenance required in the long term to meet water quality objectives.

No cumulative negative impacts are anticipated from the proposed action

### **C. DIRECT AND INDIRECT EFFECTS OF ALTERNATIVE NO. 3 (NO ACTION)**

The No-Action Alternative would have no immediate effect on resources within the project area. However, the no-action alternative would leave existing structure in place and would not eliminate the potential for structural failure which would increase over time due to continual undermining of the concrete slab and deterioration of the concrete. Structure failure would cause a moderate amount sediment load to Barnes Valley Creek. The pool habitat near the ford would be a continued source of favorable breeding and rearing habitat for undesirable aquatic animals. Sediment input from the road system would continue during high water events and normal vehicle traffic crossing.

### **CUMULATIVE IMPACTS**

The No-Action Alternative would have no cumulative effect on resources within the project area.

## **VI. MITIGATION MEASURES**

None

## **VII. CONSULTATION AND COORDINATION**

### **A. PROJECT DEVELOPMENT**

1. A Scoping Letter was sent on May 9, 2000 to the Gerber Coordinated Resource Management Planning mailing list and other interested public.

2. The proposed action and alternatives were developed and analyzed by the following BLM interdisciplinary team of BLM specialists:

Andy Hamilton, Restoration Specialist, BLM, Klamath Basin Ecosystem Restoration Office  
Larry Frazier, Supervisory Natural Resource Specialist  
Brian McCarty, Road Engineer  
Dana Eckard, Range Management Specialist  
Steve Hayner, Wildlife Biologist  
Michelle Durant, Archaeologist  
Lou Whiteaker, Botanist  
Scott Senter, Recreation Planner  
Scott Snedaker, Fishery Biologist

3. The proposed engineering design was reviewed by:

Jeff Johns, BLM District Engineer, Medford, OR  
Jim Platt, Engineer, BLM Lakeview District  
Brian McCarty, Road Engineer, Klamath Falls Resource Area  
Barbara Machado, District Hydrologist, Lakeview District BLM

### **B. CONSULTATION**

Pursuant the Endangered Species Act, consultation will be conducted with the U.S. Fish and Wildlife Service (USFWS) on affects of this proposed action to Federally endangered shortnose suckers (*Chasmistes brevirostris*) and Bald Eagles, . The project work will not be awarded until a final biological opinion or letter of concurrence, which includes a non-jeopardy determination, has been received. The proposed action was designed to follow the guidance of the Klamath Falls Resource Area Resource Management Plan which incorporates the ACS objectives within the Northwest Forest Plan.

### **C. OTHER PERMITTING REQUIREMENTS**

A U.S. Army Corps of Engineers Nationwide Permit No. 3, for removal and fill activities in waterways, and an Oregon Division of State Land General Authorization for Restoration and Enhancement Activities will be obtained prior to construction.

## VIII. REFERENCES

Rosgen, Dave. 1994. A classification of natural Rivers, Caetano, vol 22: 169-199. Elsevier Science, B.V. Amsterdam.

USDA, Forest Service and USDI, Bureau of Land Management. February 1994. *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl*. Washington D.C.

USDA, Forest Service and USDI, Bureau of Land Management. February 1994. *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl, Appendix J2 Results of Additional Species Analysis*.

USDA, Forest Service and USDI, Bureau of Land Management. April 1994. *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl*. Washington D.C.

USDI, Bureau of Land Management. 1994. Klamath Falls Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement (Volume I). Klamath Falls Resource Area, Klamath Falls, Oregon, September 1994.

USDI, US Fish and Wildlife Service. 1993., Lost River (*Deltistes luxatus*) and shortnose (*Chasmistes brevirostris*) sucker Recovery Plan.

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
Klamath Falls Resource Area**

**Preliminary  
Finding of No Significant Impact**

**Determination:**

On the basis of the information contained in the Environmental Assessment, and all other information available to me, it is my determination that implementation of the proposed action or alternatives will not have significant environmental impacts beyond those already addressed in the *Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents* (April 1994), and the *Klamath Falls Resource Area Record of Decision and Resource Management Plan* (June, 1995). This EA is in conformance with the KFRA RMP, and does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

for Larry Frazier  
Teresa A. Raml

Manager, Klamath Falls Resource Area

8-8-00

Date