

# **Environmental Assessment**

**Environmental Assessment (EA) Number: OR-054-02-058**  
**Title: North Fork Crooked River Headcut (Lookout Pasture)**  
**Serial Number or Project Number: 73-5180**  
**Bureau of Land Management (BLM) Office: Prineville, OR**  
**Resource Area: Central Oregon**

## **I. Purpose and Need**

The purpose is to reduce streambank erosion and reestablish, in a controlled manner, approximately 75 feet of the old stream channel of the North Fork Crooked River. The river is breaching the berm of an old stock pond that had been constructed across the stream channel and is constricting the channel. The current channel dimensions (width, depth, meander radius of curvature) of the stream segment cutting through the breached berm are out of balance for the stream type. The purpose is to increase the radius of curvature of the stream channel meander bend, increase the width, and establish a small floodplain and point-bar within the channel bottom. This will increase energy dissipation and provide for movement of water and sediment through the old channel without excessive erosion. In addition, the constructed spillway channel, located parallel to the old channel, would be filled in using soil and rock used in the construction of the spillway.

Management direction for riparian and aquatic habitat in the Brothers/La Pine Resource Management Plan (1989) require measures to protect or restore natural functions within riparian areas (pg 98). The Standards for Rangeland Health (1997) require that riparian areas to be in properly functioning physical condition. This means that hydrologic, vegetative, and erosional/depositional processes interact to support stream and riparian area physical function.

## **II. Proposed Action and Alternatives**

### **No-Action**

Reestablishment of correct channel dimensions through the breached berm would not occur. Ponding of water upstream of the constricted breach-point would continue during bankfull flows and higher flow events. Erosion of the channel banks at the breach-point would continue, with the possibility of an instantaneous break in the breach.

**Proposed Action**

The proposed action would increase the meander bend radius of curvature of one meander bend, remove the constriction at the berm, and construct a small floodplain where the stream is breaching the berm. This would require excavating approximately 50ft<sup>3</sup> of stream channel bank, and building a point bar on the inside of the new meander bend. The old, constructed spillway channel would be filled in to reduce the possibility of the spillway channel recapturing the stream channel during future high flow events. Approximately 200ft<sup>3</sup> of soil and rock would be excavated from the old spillway berm that currently runs parallel, and adjacent to, the spillway and stream channel. In total, approximately 250ft<sup>3</sup> (10yd<sup>3</sup>) of material would be excavated on site.

**III. Description of the Affected Environment**

The North Fork Crooked River project area is located on BLM managed public land approximately 14 miles east of Ochoco Ranger Station at the intersection of Forest Service (FS) Road 42 and 4215 (T14S R21E Sec 29 SW1/4). The area is located on the southwest side of Big Summit Prairie and is characterized by rolling hills. The project area lies between segment 1 and segment 2 of the North Fork Crooked Wild and Scenic River, but is not located within the wild and scenic river corridor. The project area is within the Lookout Pasture, which changed from private ownership into public land ownership in 1994. The pasture was fenced off and excluded from livestock grazing the same year in order to promote stream channel and riparian vegetation recovery. Though there is no planned grazing within the pasture, trespass cattle enter the enclosure on a regular basis.

The North Fork Crooked River is listed as water quality limited for stream temperature and flow modification according to Section 303(d) of the Clean Water Act. High stream temperatures are due in part to stream diversions result in low flows.

The elevation is 4577' and average annual precipitation is approximately 20-24"/year, most of which falls as snow from November through April. Additional amounts of precipitation are derived from summer thunderstorms during the months of July, August, and September.

**Soils and Vegetation**

The John Day formation is the underlying geology of the valley bottom through which this section of the North Fork Crooked flows. The John Day Formation is comprised of fine grained volcanic tuffs which is the basis for the wide, low gradient valley bottom. The surrounding hills are composed of the less erosive Picture Gorge Basalt. The soils are deep, gravelly and non-gravelly, ashy, sandy loam surface soils over silty loams and clay loam subsoils at depths greater than 2 feet. Bedrock in most areas would be greater than 40 inches. The soils are aquic-moisture regimes that generally are indicative of

wetland type soils supporting riparian type vegetation. The soils are also cryic, and thus very cold and wet with a very short growing season.

Lodgepole pine and ponderosa pine are the dominant vegetation types on the surrounding hillslopes, while sedges and rushes dominate the valley bottom. Sagebrush is also prevalent within the valley bottom, likely as a result of past channel downcutting, effectively reducing available soil moisture within the meadow.

### **Wildlife**

Wildlife within the project area is consistent with those species listed in Appendix N (Wildlife Habitat Interrelationships) of the Draft Brothers/La Pine Resource Management Plan and Environmental Impact Statement (1987).

### **Fisheries**

The North Fork Crooked River stream reaches in association with the Lookout Pasture represent the last stream reaches before the North Fork Crooked River enters Big Summit Prairie. Lack of riparian vegetation along the river in Big Summit Prairie allows for penetration of incoming solar radiation into the stream channel. As a result, downstream of Lookout Pasture the river quickly becomes unsuitable habitat for salmonid fish due to high stream temperatures.

Native redband trout inhabit the North Fork Crooked River in Lookout Pasture as well as other native fish such as speckled dace and sculpins. Water temperatures in this area are typically cooler than downstream reaches and act as a summer refugia area for the resident redband trout.

### **Riparian/Wetlands**

The North Fork Crooked River arises from springs approximately 5 river miles upstream from the project area. Grays Creek, a tributary to the North Fork Crooked River, is also a major contributor to streamflow and enters the river approximately 3 river miles upstream from the project area. Within the project area segment, the North Fork Crooked River is a low gradient channel that meanders moderately across a relatively wide valley bottom (slope=1%; sinuosity=1.25). The channel is classified as a Rosgen (1996) stream type C, that is recovering within an old gully.

Although downcut into the alluvial valley approximately 2-4 feet, the valley bottom remains moist enough to sustain wet meadow type vegetation, with limited encroachment of sagebrush. Stream channel banks are well vegetated with sedges, rushes, and willows for most of the channel length. As a consequence, channel banks are relatively stable.

### **Threatened and Endangered Plants and Animals**

The project area was surveyed in 2001 for the presence/absence of special status plants. One small population of Peck's long-bearded mariposa lily (*Calochortus longebarbatus* var. *peckii*) was observed on the west bank of the channel near the project area. No other

special status plants were observed or suspected in the project area.

Peck's long-bearded mariposa lily is a Bureau Sensitive species that is found in vernal moist, low gradient draws and streambeds, and in broad meadow basins where it is situated between the wettest parts of the meadow and the forested edge. Sterile, it reproduces by bulblets that form at the base of the plant and by bulbils that form in the lower flower axils. Winter and spring moisture levels determine the amount of flowering during a given year, recognizing that a large percentage of the population resides in the below-ground bulb bank. In the Prineville District, this plant is found in the Ochoco Mountains in Crook, Wheeler and Harney counties, and is known from Big Summit Prairie and some of the drainages south of the Ochoco National Forest, including the Maury Mountains. It normally flowers in July.

The Columbia spotted frog (*Rana luteiventris*), a former C2 species under the endangered species act (the candidate species system is not longer used), is found in the area both upstream in Big Summit Prairie and downstream in the North Fork Crooked River and its tributaries.

#### **Recreation**

Recreation use is low in the project area. Visitor's fish for trout and hunt for ducks with limited results.

The proposed project area is not within an area having high or sensitive visual qualities.

#### **Livestock Grazing**

Prior to 1994, the project area was privately owned and grazed by livestock. Since the parcel came into public ownership in 1994, the pasture has been excluded from livestock grazing with the exception of trespass cattle during the summer months.

### **IV. Impacts**

#### **Soil and Vegetation**

##### No-Action

The channel banks and riparian vegetation at the berm would continue to erode as the berm continues to breach and become wider. Erosion of the banks would continue to be severe, as the constricted channel works to increase the width/depth ratio. The soil and upland plants adjacent to the spillway would remain undisturbed.

##### Proposed Action

Approximately 50ft<sup>3</sup> of soil would be excavated from the channel berm to increase the width/depth ratio and the radius of curvature. Vegetation from the berm (sedges) would be used to reestablish vegetation on the newly constructed point bar in the channel. In addition, approximately 200ft<sup>3</sup> of soil would be excavated from the old spillway berm, which would displace upland vegetation, including sagebrush and grasses.

## **Wildlife**

### No-Action

There would be no effects to wildlife with continuation of the current conditions.

### Proposed Action

The proposed action would have little to no impact on wildlife species in the project area. The exception may be effects to the Columbia spotted frog (*Rana luteiventris*), which is addressed in the Threatened and Endangered Plants and Animals section below.

## **Fisheries**

### No-Action

Without intervention or correction, the potential remains for an uncontrolled breach of the berm, or for the river to overflow its banks during a flood event and capture the old spillway. Either of these actions will effectively reduce the amount of aquatic habitat available within the channel. Particularly if the old spillway captures the channel, vital fish habitat such as undercut banks and hiding cover would be lost. The river would lose connection with its floodplain and flow in a straight, rocky channel. Stream temperatures would likely increase due to lack of groundwater recharge and sparse riparian vegetation. An increase in water temperature through the summer months would further restrict resident redband usage to areas upstream of these conditions.

### Proposed Action

Completion of this project would remove the threat of potential habitat degradation resulting from capture of the old spillway by the channel, or erosion of the channel banks at the constricted berm. Fish habitat would improve in the long term for this section of the channel.

## **Riparian/Wetlands**

### No-Action

The channel banks and riparian vegetation at the berm would continue to erode as the berm continues to breach and become wider. Erosion of the banks would continue to be severe, as the constricted channel works to increase the width/depth ratio. The scour pool below the berm, and the pool upstream of the berm (the old pond) would continue to be too large and out of equilibrium with the remaining stream channel. Establishment of a point bar and small floodplain vegetated with sedges and rushes would not occur for many years. Riparian vegetation would continue to be lost on the floodplain as the channel erodes. Recovery of the wet meadow would take longer as the timeframe for channel recovery is extended.

### Proposed Action

The constricted portion of the channel would be excavated at the berm, effectively removing riparian vegetation from the berm. However, this vegetation would be placed on the newly constructed floodplain in the downcut bottom to stabilize the new floodplain and banks. Removal of the constriction would promote narrowing of the pools above and below the berm, and allow for establishment of riparian vegetation on the channel margins. Movement of the channel in this segment to one in equilibrium with its stream type would allow for quicker recovery of the associated wet meadow.

### **Threatened and Endangered Plants and Animals**

#### No-Action

In the short term there would be no impacts to the small population of Peck's long-bearded mariposa lily, or to the Columbia spotted frog (*Rana luteiventris*). In the long term, an indirect impact of continued channel degradation could be the reduction of available habitat along this stream reach.

#### Proposed Action

Direct impacts include possible disturbance to the population of Peck's long-bearded mariposa lily. Known populations of special status plants would be identified on the ground and avoided if possible during project implementation. While the population will be identified on the ground prior to project implementation, it may be impossible to avoid it, in which case this population would be removed from the site. In the long term, restoration of the stream channel would insure the existence of available habitat for this species in the project area. There would be no cumulative impacts as Peck's long-bearded mariposa lily, although considered special status, is abundant in the drainage south of the project area and elsewhere in the region.

The restoration of a Rosgen C stream channel type would improve habitat for the Columbia spotted frog (*Rana luteiventris*) and prevent the erosion of existing habitat.

### **Recreation**

#### No-Action

Continuation of the current condition would have no effect on recreation opportunities.

#### Proposed Action

The proposed project is not expected to effect recreation opportunities.

Visual quality would be reduced in the short-term due to excavation of dirt and rock from the river channel, contrasting with surrounding riparian vegetation.

## **Livestock Grazing**

### No-Action

Continuation of the current condition would have no effect on livestock grazing.

### Proposed Action

Implementation of the proposed action would have no effect on livestock grazing.

## **V. No Impact Items**

The following critical elements were considered, but will not be addressed because they would either not be affected or do not exist in the project area:

1. Agricultural Lands (prime or unique)
2. Air Quality
3. Areas of Critical Environmental Concern
4. Environmental Justice
5. Invasive, Non-native Species
6. Native American Religious Concerns
7. Wastes (hazardous or solid)
8. Water Quality (surface or ground)
9. Wilderness (including Wilderness Study Areas)

### Persons and Agencies Consulted

Marc Wilcox, Deschutes NF, Forest Hydrologist

Louis Wasniewski, Deschutes NF Asst. Forest Hydrologist

## **VII. References**

Rosgen, Dave. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, CO

USDI Bureau of Land Management, 1987. Draft Brothers/La Pine Resource Management Plan, Environmental Impact Statement. Prineville District Office. Prineville, OR.

USDI Bureau of Land Management, 1989. Brothers/La Pine Resource Management Plan, Record of Decision and Rangeland Program Summary. Prineville District Office. Prineville, OR.

USDI Bureau of Land Management, 1997. Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Publics Lands Administered by the Bureau of Land Management in the States of Oregon and Washington.

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NEPA requirements met:

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Date