UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT

ENVIRONMENTAL ASSESSMENT

for

LITTLE HYATT DAM PROJECT
EA No. OR-110-01-002

This environmental assessment (EA) for the proposed Little Hyatt Dam Project was prepared utilizing a systematic interdisciplinary approach integrating the natural and social sciences and the environmental design arts with planning and decision making.

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EA COVER SHEET

RESOURCE AREA: Ashland OR-110-01-02 ACTION/TITLE: Little Hyatt Dam Project
LOCATION: T. 39S.,R3E.,Section 20, Willamette Meridian

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ASHLAND RESOURCE AREA
LITTLE HYATT DAM PROJECT
ENVIRONMENTAL ASSESSMENT

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CHAPTER I
PURPOSE OF AND NEED FOR ACTION

A. INTRODUCTION & BACKGROUND

In 1923, Little Hyatt Dam was constructed on Keene Creek in Jackson County, Oregon for the Talent Irrigation District (TID). This diverted irrigation water from the Klamath Basin to the Rogue Basin. In the 1950's, the Bureau of Reclamation built Keene Creek Reservoir and the Green Springs Hydroelectric Plant. With these projects, TID stopped using Little Hyatt Reservoir for irrigation purposes.

Since the 1950s, the reservoir has been used for recreation. In 1993, BLM acquired the dam with the intent to protect the reservoir's recreational values. Presently, BLM holds no storage permit or water right as required by the State of Oregon.

This Environmental Assessment documents the analysis of a proposal to repair the Little Hyatt Dam located on Keene Creek. This document complies with the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA; 40 CFR Parts 1500-1508) and the Department of the Interior's manual guidance on the National Environmental Policy Act of 1969 (516 DM 1-7). All planned activities are located on public lands administered by the BLM in Section 20, T39S, R3E (See Appendix A for Location Map).

When BLM acquired the dam, the Bureau of Reclamation noted that the dam was "in need of repairs". In 1996, BLM inspected the dam, determining that indeed, "the structure appear(ed) to be in poor condition." BLM's report also noted that the condition of the dam presents a potential hazard to downstream land uses including the Pacific Crest Trail foot bridge crossing (200 feet downstream), camping, and other uses. The concrete dam measures 125 feet along its crest, 18 feet high, 2 feet thick, with a 75 feet wide spillway. The concrete has eroded, exposing vertical and horizontal rebar (the support structure inside the concrete). The concrete at the toe of the dam has been undermined. The dam gates are inoperable.

In 1997, the Oregon Water Resources Department, the Bureau of Reclamation, and TID inspected Little Hyatt Dam; their report also documents the dam's poor condition. For example, they observed several hundred gallons of water per minute flowing between the foundation and the concrete interface. Because the downstream valley is wide and generally uninhabited, there did not appear to be a significant threat downstream life or property. Therefore, a hazard rating of low was assigned to the dam. Regardless, a sudden release of water resulting from a dam failure poses some risk to public recreating downstream as well as facilities (trail and road), and property.

In April of 1998, BLM proposed removal of the dam based on the dams poor condition. However, information gathered at public meetings indicated strong support for retaining the dam and preserving its related recreational and cultural values.

B. PURPOSE AND NEED

The 1995 Medford District Record of Decision and Resource Management Plan directs the agency to provide a wide range of dispersed and recreational opportunities to contribute to the recreational demand on public lands in the Medford District (USDI 1995, p. 63). The RMP lists the Little Hyatt Reservoir as an existing recreation site that would continue to be managed and maintained within the Hyatt Lake-Howard Prairie Special Recreation Management Area (SRMA). The RMP directs the agency to manage Special Recreation Management Areas to realize their potential to provide appropriate recreational experience opportunities while protecting sensitive resources, increasing public awareness, reducing conflicts, and diversifying the regional economy (USDI 1995, p. 64-66).

Repair or reconstruction of the Little Hyatt Reservoir dam is needed to:

- Comply with the Medford District RMP direction for recreational opportunities;
- Protect downstream human life, property, and facilities (roads, trails, bridges, etc);
- Maintain the recreational values placed on this area by local residents throughout the southern Oregon area.

In 1998, BLM contracted a private engineering firm to complete a thorough study of the dam and the reservoir. The technical report and analysis, *Preliminary Report Engineering Study Little Hyatt Dam* (Otak 1998) is incorporated by reference to this EA. As a result of this study, two action alternatives were developed for addressing the purpose and need for this project. Descriptions of these alternatives are found in Chapter II of this document.

C. CONFORMANCE WITH EXISTING LAND USE PLANS

The proposed activities are in conformance with and tiered to the *Medford District Record of Decision and Resource Management Plan* (RMP) (USDI 1995b), as amended by the *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (USDI, USDA 2001) and the *Medford District Record of Decision and Resource Management Plan* (RMP) (USDI 1995b). The Medford District RMP incorporates the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (NWFP) (USDA and USDI 1994). These documents are available at the Medford BLM office and the Medford BLM web site at <http://www.or.blm.gov/Medford/>.

D. RELATIONSHIP TO STATUTES, REGULATIONS, AND OTHER PLANS

The proposed action and alternatives are in conformance with the direction given for the management of public lands in the Medford District by the Oregon and California Lands Act of 1937 (O&C Act) and the Federal Land Policy and Management Act of 1976 (FLPMA), Clean Water Act, and the Endangered Species Act.

E. DECISIONS TO BE MADE ON THIS ANALYSIS

This environmental assessment (EA) is being prepared to determine if the proposed action and any of the alternatives would have a significant effect on the human environment beyond those previously addressed in tiered Environmental Impact Statements (see section C above). It is also being used to inform interested parties of the anticipated impacts and provide them with an opportunity to comment on the various alternatives.

The Ashland Resource Area Field Manager must decide:

- Whether to implement the proposed action or an alternative to the proposed action (including No-Action Alternative); and

- Whether or not the impacts of the proposed action or alternatives are significant to the human environment.

If the impacts are not significant, a Finding of No Significant Impact (FONSI) can be issued and a decision can be implemented. If any impacts are determined to be significant to the human environment, an EIS must be prepared.

F. SCOPING AND ISSUES

Scoping is conducted early in the NEPA process to identify issues associated with the implementation of the Proposed Action and depth of analysis needed. Scoping for a proposal to remove the Little Hyatt Dam began in April of 1998; letters were sent to groups and individuals who expressed previous interest in projects located in the vicinity of the project area, and to adjacent landowners. In response, the BLM received strong public support for retaining the Little Hyatt Dam. Due to public interest, BLM sent letters in June of 1998 to inform the public that an Environmental Assessment would be completed that would consider options for repairing or rebuilding the dam as well. Public meetings were conducted in May of 1999. Many comments were received throughout the scoping process.

An interdisciplinary team of resource specialists reviewed the proposal and all pertinent information, including public input received, and identified relevant issues to be addressed during the environmental analysis. The list of relevant issues below also includes those issues for which a disclosure of environmental effects is required by law or policy.

Hydrologic Function and Water Quality

Threatened, Endangered or Sensitive Species (Bureau Sensitive Species)

Northwest Forest Plan Survey and Manage species

Cultural Resources

Attainment of Aquatic Conservation Strategy Objectives

Invasive, Non-native Species (warm water fish and noxious weeds)

Public Use and Safety

CHAPTER II
ALTERNATIVES

A. INTRODUCTION

This chapter identifies a range of alternatives for the implementation of a site-specific proposal to maintain the dam and Little Hyatt Reservoir on Keene Creek. The range of alternatives includes alternatives considered in detail, as well as those alternatives considered but eliminated from detailed study. The Ashland Resource Area contracted with a private engineering firm to complete a thorough study of the existing dam and the reservoir (copy in EA file), and to investigate options for rebuilding or repairing the dam. This study was used in support of the development of alternatives.

B. ALTERNATIVES CONSIDERED AND ANALYZED IN DETAIL

Two action alternatives and a no-action alternative are analyzed in detail in this EA. The action alternatives also include specific project design features that would be required as part of the project to eliminate or reduce potential adverse impacts. Recommendations outlined in the Jenny Creek Watershed Assessment, and the Best Management Practices as outlined in the Medford District RMP (Appendix D) were incorporated into the project design.

Alternative 1 - Repair Dam (Proposed Action)

This alternative represents BLMs Proposed Action for maintaining the dam and Little Hyatt Reservoir by repairing the existing concrete dam. This Alternative would include the following actions:

- Obtain an easement or acquire adjacent land;
- The reservoir would be dewatered during construction phase;
- The entire surface of the dam (both sides) would be sandblasted, cleaned, and deteriorated surface areas would be patched;
- All debris and excavated material would be disposed of at a site within three (3) miles of the project on BLM land in T39S, R3E, Section 22;
- A concrete liner would be placed over the entire downstream face, and a composite geomembrane would be placed over the entire upstream face.
- Obtain a water right for impoundment.

Alternative 2 - Rebuild Dam

This alternative represents a second option for maintaining the dam and Little Hyatt Reservoir by rebuilding the concrete dam and reinforcing the structure with rock fill. This alternative would involve the following actions:

- Obtain an easement or acquire adjacent private land;
- The reservoir would be dewatered during construction phase;
- The entire surface of the dam (both sides) would be sandblasted, cleaned, and deteriorated surface areas would be patched;
- All debris and excavated material would be disposed of at a site within three (3) miles of the project on BLM land in T39S, R3E, Section 22;

- The existing dam would be used as an impermeable core, with rock fill placed against both faces;
- Install a low-level drain pipe and control;
- A BLM rock pit, with six (6) miles of the project site (T39S, R3E, Section 22) would be used as a source for the rock fill;
- Water rights for the impoundment would be obtained.

Project Design Features Common to the Action Alternatives

Project design features (PDFs) are included for the purpose of mitigating, reducing, or benefitting anticipated adverse environmental impacts which might stem from the implementation of the alternatives. This section outlines these PDFs which would be common to all action alternatives.

- Keene Creek flow would be diverted via a temporary surface pipeline around the project area for the extent of the project. Flow will be captured via a temporary diversion at a point upstream of the reservoir where Keene Creek is contained within one defined channel. Water would be piped to a location downstream of the project area. At the point where flow is returned to the Keene Creek channel, the pipeline would release flow directly down a straight section of channel, at grade, with temporary placement of energy-dissipating riprap immediately under and downstream of the pipeline outfall.
- Screened pumps, siphons, and other equipment would be used as the reservoir is drawn down to prevent the release of reservoir fish downstream into Keene Creek.
- The pipeline would remain in place during refilling of the reservoir, continuing to divert enough water around the reservoir to prevent Keene Creek from being dewatered downstream of the reservoir.
- Pipeline, temporary diversions, temporary riprap, etc. will be removed from Keene Creek and associated Riparian Reserves as the project is completed.
- To limit the number of weed seeds available for spread, the lake draw down period would be limited to a single work season ending August 1.
- Seeding and planting of vegetation and installing appropriate erosion control measures would be used as needed to restore areas where ground disturbance has occurred within riparian reserves.
- The dry lake bed would be monitored for colonization of noxious weeds, and if noxious weeds establish, they would be treated manually to prevent them from setting seed during the lake draw down.

Alternative 3 (No-Action Alternative)

This alternative represents no change from the existing condition and is used as a baseline against

which to compare other alternatives. Under this alternative, no management to maintain the dam and reservoir would occur. As a result, the following conditions would likely result:

- Erosion due to temperature and seepage may form holes and drain the reservoir;
- The right abutment would continue to erode until it becomes unstable and overturns; which could result in sudden failure of the dam;
- As the dam deteriorates to about nine (9) inches thick, deterioration would accelerate rapidly;
- BLM would be unable to obtain a water right due to the unsafe and illegal status of the dam, and BLM could be issued a Public Notification of Non-Compliance.

C. ALTERNATIVE CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Drain the lake and breach or remove the dam

An alternative to drain the lake, remove the dam, and restore Keene Creek to it's original channel was originally considered; however, this alternative was dropped from detailed analysis for a variety of reasons. The Medford District RMP directs the agency to continue to maintain this site to provide for recreation opportunities; therefore, removal of the dam would not meet direction provided by the RMP. Scoping identified strong public support for retaining the dam, preserving the reservoir, and protecting its recreational values. While this alternative would provide for downstream safety, it would not meet the need to maintain the Little Hyatt Reservoir and its associated recreational values. Additionally, this alternative would have reduced foraging areas for ospreys and would reduce foraging efficiency for Bald Eagles, listed as a Threatened species under the Endangered Species Act. Therefore, this alternative was eliminated from detailed study.

CHAPTER III
AFFECTED ENVIRONMENT

The affected environment describes the present condition within the proposed Little Hyatt Reservoir project area that would be affected by the alternatives. The information in this chapter would serve as a general baseline for determining the effects of the alternatives. No attempt has been made to describe every detail of every resource within the proposed project area. Only enough detail has been given to determine if any of the alternatives would cause significant impacts to the environment. The information is organized around the major issues.

A. CULTURAL/HISTORICAL

Cultural sites exist throughout the Little Hyatt area, but no known sites exist at the proposed disturbance around the dam area.

B. THREATENED AND ENDANGERED, SPECIAL STATUS AND SURVEY & MANAGE BOTANICAL SPECIES

There are no known sites of Special Status or Survey & Manage vascular plants, bryophytes, lichens, or fungi in the project area. The project area is ***not*** within the range of any plant species listed as threatened or endangered.

C. INVASIVE, NON-NATIVE PLANT SPECIES

Noxious weeds and introduced species do not occur in the project area but can be found in the vicinity. See appendix for a list of species found in the general area.

D. HYDROLOGY

Little Hyatt Reservoir is located on Keene Creek, a major tributary of the Jenny Creek Watershed in the Upper Klamath Subbasin. Little Hyatt Reservoir is one of a chain of reservoirs in the Keene Creek Subwatershed. Approximately 1.7 miles upstream of Little Hyatt Dam, Hyatt Reservoir Dam impounds flow from 7,373 acres of upper Keene Creek. Keene Creek Reservoir lies approximately 2.5 miles downstream of Little Hyatt Reservoir. From Keene Creek Reservoir, water is transported to the Bear Creek Watershed (a tributary of the Rogue River) through tunnels and a pipeline down to Green Springs Power Plant, then on down to Emigrant Creek for storage in Emigrant Reservoir and dispersal through the Talent Irrigation District canal system. The transbasin conveyance of water from Keene Creek Reservoir to Emigrant Creek normally captures 100 percent of the flow of Keene Creek. Input to the downstream Jenny Creek system via Keene Creek only occurs during flood events or instances where the transport system into Emigrant is shut down.

Flow into the Little Hyatt Reservoir is controlled by Bureau of Reclamation and TID-regulated

releases from Hyatt Dam, which typically occur between April and September, but sometimes begin as early as February. Additional flow comes from Burnt Creek to the north and two adjacent smaller drainages which enter Keene Creek and Little Hyatt Reservoir from the west. Normal releases from Hyatt Dam are 20 to 30 cubic feet/second (cfs).

The flow regime of Keene Creek between Hyatt Reservoir and Keene Creek Reservoir is reversed due to reservoir management, with high flows during the summer irrigation season and low flows in winter as Hyatt Reservoir is filled. The Bureau of Reclamation and Talent Irrigation District control the flow of Keene Creek for delivery of irrigation water to the Rogue Valley, and for the production of hydroelectric power.

There are no valid existing water rights related to Little Hyatt Dam and Reservoir, either for storage or diversion of water from Keene Creek. Approximately 20 acre feet of water is currently stored in the reservoir; none is diverted.

Keene Creek is 303d-listed for temperature, with severe stream temperature problems. Little Hyatt Reservoir is estimated to contribute 1.5° F stream heating that would not otherwise occur if Keene Creek was in its historic channel through the reservoir area and if riparian vegetation was similar to adjacent sections of Keene Creek. Stream temperature data collected in Keene Creek at sites above and below (1,600 feet apart) Little Hyatt Reservoir during the summer of 1998 (Appendix C) indicated that July and August daily maximum stream temperatures increased an average of 2° F as Keene Creek passed through the reservoir. This computes to a 6.6° F/mile rate of increase. In comparison, a stream temperature increase of 2.7° F was observed in the 9000 feet section of Keene Creek from Little Hyatt Reservoir up to Hyatt Dam, a 1.6°/mile rate of increase.

Keene Creek is “sediment starved”due to capture of bedload by the dams on Keene Creek. Reduced quantities of sediment moving through the system do not allow sufficient deposition of fine sediments on the floodplain and riparian areas during flood events. With unnaturally high summer flows maintained at a relatively steady level year after year, banks and adjacent floodplains have been scoured, resulting in a wider, shallower stream than occurred naturally. Unnaturally wide, shallow streams do not move sediment as efficiently, and as a result, the remaining fine sediment remains trapped in the channel during flood events, rather than being deposited on the banks and adjacent floodplain. Large woody riparian vegetation is lacking and riparian vegetation is likely reduced through much of the area, partly due to the lack of fine sediment deposition outside of the stream channel. Past livestock grazing practices may have had an impact, as well. In spite of the deficit of fine sediments, severe downcutting of the stream has not occurred in most locations, due to the presence of rock and bedrock capable of providing an armoring layer for the streambed. Due to low gradient, regulated flows, bedrock controls and non-erodible banks, Keene Creek between Little Hyatt and Keene Creek Reservoirs has a relatively stable channel.

In 1997, sediments that accumulate behind the reservoir were collected and analyzed. Four (4) samples were analyzed to detect semivolatile organic compounds (SVOCs), priority pollutant metals, chlorinated herbicides, pesticides (polychlorinated biphenyls (PCBs)), nitrogen as ammonia, nitrogen as nitrite, nitrate, and total phosphorus. Concentrations of metals detected in

sediments appear similar to background concentrations of metals in Oregon soils. No SVOCs, chlorinated herbicides, pesticides or PCBs were detected. Nitrogen as ammonia and phosphorus concentrations are high relative to what would be expected for these constituents in surface soils, but may not be unusual for organic sediments. Ammonia concentrations exceeding nitrate concentrations would be expected in an anaerobic, highly organic environment, typical of lake-bottom sediments. (AGRA Earth & Environmental 1997).

E. RIPARIAN AND AQUATIC HABITAT

Areas along streams, reservoirs, wetlands, and other features are managed as Riparian Reserves on Federal lands. Riparian Reserves on Keene Creek extend out approximately 300 feet on each side of the stream. The Riparian Reserve around Little Hyatt Reservoir extends approximately 150 feet beyond the greater of the maximum water level or the extent of riparian and/or wetland vegetation. Riparian Reserve widths applicable to this area are detailed on page 91 of the Jenny Creek Watershed Analysis (USDI 1995).

The impoundment behind the Little Hyatt Dam forms a small reservoir and wetland where a meandering stream once existed. The impact of this change on native aquatic organisms is unknown; however in general, the flow regime is highly altered, migration has been restricted, spawning habitat limited, water temperatures have increased, and non-native species have probably been favored over native species.

Water levels in Keene Creek, downstream of the Little Hyatt Dam fluctuate throughout the year due to irrigation needs and power generation. As mentioned in the Hydrology section, the reversed hydrograph impacts the stream system and consequently it's aquatic inhabitants. Keene Creek between Hyatt and Keene Creek Reservoirs is no longer connected to it's floodplain that would normally provide nutrients to the stream.

The dams in this reservoir chain are impassable to upstream migration of fish and many other aquatic organisms. Downstream migration is limited to occasional reservoir overflow events. Downstream migrations within the chain of reservoirs may not be critical due to the unnatural conditions that exist in this section of the Keene Creek system. However, non-native fish that are "spilled" over Keene Creek Reservoir could negatively affect aquatic ecosystems in lower Keene Creek and Jenny Creek. The dams restrict seasonal movement of aquatic organisms that would normally seek cooler habitats in the summer and areas of reduced flow in the winter. Dams also restrict access to spawning habitat by blocking upstream and downstream movement.

Water temperature is a limiting factor for salmonids and other cold water fishes. Summer temperatures in Keene Creek exceed those that are generally accepted for salmonids. Introduced species that are more tolerant of these warmer temperatures may outcomptete physiologically stressed native species for food and space.

All of the factors mentioned above combine to make Little Hyatt Reservoir and this section of Keene Creek a highly regulated and unnatural segment of the Keene Creek drainage system.

F. FISHERIES

Fish stocking practices designed to enhance sport fishing in this lake chain have altered the structure of native aquatic communities by introducing both native and non-native sport fish species. The effects of introduced species in this watershed are unknown however, competition for resources, spawning habitat, and mates are all possible consequences of species introductions.

Both native and non-native fish inhabit the Little Hyatt Reservoir and Keene Creek between Hyatt and Keene Creek Reservoirs. Originally, native fish in this system included redband trout *(Oncorhynchus mykiss)*, speckled dace *(Rhinichthys osculus)*, and Klamath small-scale suckers *(Catastomus rimiculus)*. However, the genetic integrity of redband trout *(O. mykiss)* may be compromised due to the long-term stocking of rainbow trout *(O. mykiss)* in this system and the potential for interbreeding between the two subspecies. In addition, recent sampling by BLM found only speckled dace in Keene Creek between Little Hyatt and Keene Reservoirs. Oregon Department of Fish and Wildlife (ODFW) stocks the reservoirs in this system with native and non-native gamefish species. Little Hyatt Reservoir is stocked with rainbow trout *(O. mykiss)*. Hyatt Reservoir is also stocked with rainbow trout *(O. mykiss)* and largemouth bass (*Micropterus salmoides*)(ODFW 2001). Stocking practices in Hyatt Reservoir are important to Little Hyatt because the systems are connected and there is occasional downstream migration from Hyatt Reservoir.

Little Hyatt is sampled regularly to assess fish populations. Through information collected during gillnet studies, the following species have been confirmed in Little Hyatt Reservoir: rainbow trout (*O. mykiss*), large mouth bass (*Micropterus salmoides*), brown bullhead *(Ictalurus nebulosus*), black crappie (*Pomoxis negromaculatus*), golden shiners (*Notemigonus crysoleucus*), and brook trout (*Salvelinus fontinalus*)(ODFW 2001). Brook trout used to be stocked in Hyatt Reservoir and since this practice has stopped, D. Haight, ODFW biologist believes there are few if any brook trout in the system (Haight, pers. comm. 2001). Small numbers of bluegill sunfish (*Lepomis macrochirus*) are expected in Little Hyatt Reservoir because they are known to exist in Hyatt Reservoir. Pumpkinseed *(Lepomis gibbosus)* and Brown bullhead *(Ictalurus nebulosus*) are known to occur in Keene Creek Reservoir. Rainbow trout (*O. mykiss*), brook trout (*S. fontinalus*), and speckled dace *(R. osculus)* are thought to occur in Keene Creek, between Little Hyatt Reservoir and Keene Creek Reservoir however, recent surveys conducted by BLM found only speckled dace on BLM land within this section.

G. WILDLIFE

General

Little Hyatt Reservoir and the immediate surrounding area (shore and marshes) provide nesting, foraging, and resting habitat for a variety of wildlife species. Species commonly observed at the lake include, mallard (*Anas platyrhnchos*), wood duck (*Aix sponsa*), double-crested cormorant (*Phalacrocorax auritus*), belted kingfisher (*Ceryle alcyon*), osprey (*Pandion haliaetus*) and muskrat (*Ondatra zibethicus*).

Threatened/Special Status/Survey and Manage Species

Bald eagles (*Haliaeetus leucocephalus*), a federally threatened species, are occasionally observed

at the reservoir. In 1998 Little Hyatt Reservoir was systematically observed by BLM personnel to determine the extent of use by the bald eagles that nest at Hyatt Lake. There were six observation periods of four hours duration during June and July. Two observation periods each were conducted in the early morning, midmorning to midafternoon, and late afternoon. A bald eagle was observed on only one occasion - an early morning observation period. The eagle attacked and stole a fish from an osprey that had been fishing Little Hyatt Reservoir. Ospreys were observed or heard during all observation periods. The conclusion from these observations was that the Hyatt Lake eagles do not often fish Little Hyatt Reservoir, but they occasionally steal fish from ospreys that fish the reservoir. This conclusion was corroborated by a U.S. Geological Service biologist who conducted research on ospreys at Hyatt, Little Hyatt and Howard Prairie reservoirs from 1988-1992 (Kaiser, pers. comm.).

Special Status Species (SSS) are those species that are federally listed as threatened or endangered, proposed or candidates for federal listing as threatened or endangered, or are BLM designated sensitive, assessment or tracking species. Tracking species, however, are not considered to be SSS for management purposes. Based on opportunistic and systematic surveys of Little Hyatt Reservoir by BLM personnel, no SSS, other than bald eagles, are known to be present at Little Hyatt Dam and reservoir.

Little Hyatt Dam and reservoir do not provide habitat for any terrestrial Survey and Manage species the Ashland Resource Area is required to survey for under the Northwest Forest Plan Standards and Guidelines.

H. VISUAL RESOURCES AND RECREATION

Little Hyatt Reservoir is a small lake southeast of Hyatt Lake and is part of the Hyatt Lake/Howard Prairie Lake Special Recreation Management Area (SRMP). Little Hyatt Lake Reservoir is very popular with the local communities of southern Oregon.

The Medford District Resource Management Plan (RMP) allocates the visual quality of BLM land within this area as VRM II. In addition, the dam structure is located along the Pacific Crest National Scenic Trail, in which the RMP classifies 1/4 mile either side of as VRM II. Under the RMP, VRM II lands are to be managed in a manner which retains the existing character of landscapes.

Existing Visual Quality and Landscape Character:

Little Hyatt Lake is a small, remote reservoir with a natural-lake feel. Keene Creek, which feeds the lake from the north, winds its way through an open meadow in and amongst stands of ponderosa pine. The creek gradually widens into a marsh, marking the northern end of the lake. Mesic and wetland plants characterize this part of the lake where a variety of songbird, waterfowl, and mammal are common. Stands of large douglas fir and ponderosa pine define the east and west shorelines of the lake. These trees are aligned along converging ridgelines which funnel together at the south end of the lake where the dam is located. The dam is built into the base of a narrow notch in a linear wall of basalt that traverses this ridgeline.

The dam structure has endured a significant amount of erosion and weathering. Pitting and staining in the moss-covered concrete face of the downstream side of the dam has actually helped the structure blend with the texture and tones of the adjacent rock in the natural landscape. A notch in a concrete diversion channel below the dam releases enough water to create a waterfall down a rock face into Keene Creek Riparian vegetation along the stream helps to screen the dam from the road and from views along the Pacific Crest National Scenic Trail (PCNST) , which crosses Keene Creek at a wood footbridge below the dam. At high water levels, the dam itself acts like a weir, sending a curtain of water over the top of the dam to the rocky basalt bedrock below. Along with the waterfall in the canal notch, this provides a more natural feeling to the concrete structure when approaching the dam from along the road and the PCNST and has become part of the sense of place of this area.

When viewed from the lakeshore, the dam abutments and discharge gates are the most visible part of the structure. These abutments, and the visible portion of the arched dam, blend relatively well with the texture and color of the adjacent basalt rock formations. This is largely due to grasses and shrubs growing in and adjacent to the concrete forms and discoloration of the concrete from weathering. A large, picturesque douglas-fir snag immediately adjacent to the east abutment also helps to minimize draw the eye away from the geometric appearance of the dam.

Old Hyatt Lake Reservoir Road [County Road 9112] borders along the eastern edge of the lake. A corral and a pole fence on private land at the north end of the lake contribute to the more remote, rustic setting. Off-road vehicle use in the meadow along the north lakeshore are evident, however, and distract from the overall scenic quality.

Built in 1923, the dam and lake have been a part of the landscape in this area for most of the last century. No longer used for irrigation, the lake setting has existed primarily as a scenic recreation destination for hiking, picnicking, fishing, canoeing, and just relaxing. Those who frequent the lake regard it as special, with a unique sense of place. Although man-made, the lake and dam are reminiscent of more natural features, and as such, have become part of the valued, characteristic landscape of the area. Deviations from the characteristic landscape are subordinate to the overall valued sense of place, hence, the area continues to meet the visual quality objectives of the VRM Class II allocation.

In the past, vehicles have gained access to the west shore of the lake by driving through the stream above the lake. Some vehicles accessing the west shore have driven through and caused damage to a wet area in the name of fun. One violator was caught, cited, and made to pay for repairs. The access to the west shore is on private land but the owner has cooperated with BLM in fencing the crossing.

CHAPTER IV
ENVIRONMENTAL CONSEQUENCES

This chapter forms the scientific and analytic basis for comparison of alternatives. Discussions include the environmental impacts of the alternatives and any adverse environmental effects which cannot be avoided should the proposal be implemented. It also identifies and analyzes mitigation measures, if any, which may be taken to avoid or reduce projected impacts.

The impact analysis addresses direct, indirect, and cumulative impacts on all affected resources of the human environment, including critical elements.

A. CULTURAL/HISTORICAL

Because of the small size of the dam, the area of ground disturbance would be relatively small. No unacceptable impacts to cultural resources are anticipated. If cultural resources are discovered as part of the construction process, construction would stop, the District Archaeologist would be contacted, and work would be continued only after the Archaeologist has evaluated the situation and determined the proper course of action.

B. THREATENED AND ENDANGERED, SPECIAL STATUS, AND SURVEY & MANAGE BOTANICAL SPECIES

Under the No-Action Alternative the dam would eventually fail and the lake would drain. Both action alternatives would maintain the existing lake and would therefore have identical effects on Special Status and Survey & Manage plant species. All alternatives would have no direct effects on Special Status or Survey & Manage plant species.

Indirect effects under the action alternatives would include a small decrease of suitable habitat for plant species that occupy open meadow and forest edge habitats. Conversely, a small increase in suitable habitat for plant species that occupy wetlands would be provided by maintaining the lake. The edges of this lake contribute to the area of wetlands in the watershed; a rare habitat type within the watershed. Implementation of the action alternatives would have a slight contribution to the decrease of open meadow habitat in the project area. Considering cumulative effects, the loss of open meadow habitat throughout the watershed is mainly attributed to the successful exclusion of wildfire since the turn of the century. Open meadow habitat was historcially maintained by frequent low intensity fire. In the absence of fire, this habitat type is gradually being invaded by shrubs and trees.

Under the No-Action Alternative, the lake would eventually drain and open meadow area would be increased. However, the disturbed area of the recently drained lake would have a high potential to be colonized by non-native plants that could out compete the establishment of native plants.

C. INVASIVE, NON-NATIVE PLANT SPECIES

The action alternatives would maintain the existing lake and would therefore have identical effects on noxious weeds and non-native plant species. The draw down of the lake required for dam repair or rebuilding is expected to last one season. During this time the exposed lake bottom would provide an ideal seedbed available for seed germination. Project design features are included as part of project implementation to prevent the dry lake bed from becoming a seed source for noxious weeds. The dry lake bottom would be monitored, and if noxious weeds become established, they would be treated manually to prevent seeds from setting.

Under the No-Action Alternative, the dam would eventually fail and the lake would drain exposing the lake bottom. Noxious weeds and introduced plants could quickly establish in disturbed, bare areas. If this occurs, it is likely they would provide a seed source for establishment in the neighboring meadow.

D. HYDROLOGY AND FISH

No Action

Under the no action alternative, the Little Hyatt Dam would probably weather and decay over time through natural processes. In the short term, the dam would continue to restrict fish passage. Over the long term, the dam would rupture and/or collapse, the impoundment would disappear, and limited fish passage would be restored. However, restoration of fish passage would probably not significantly improve resident fish conditions in this artificial system due to the presence on non-native fish species and other impoundments located both up and down stream.

All of the dams in this chain of reservoirs are impassable to upstream migration though downstream migration occurs when the reservoirs overflow. Overflow events on Keene Creek Reservoir are infrequent (see Chapter III, section D, Hydrology) but could allow non-native fish to become established down stream and compete with native fish.

Movement of non-native fish in this system would occur with or without the dams. Until Little Hyatt dam degrades, downstream movement of all fish species would continue although less frequently than if the dam is removed. Once the dam degrades, fish currently inhabiting the reservoir could move downstream into Keene Creek and upstream fish passage would be restored. Neither of these situations would be considered an improvement over current conditions, given the non-native fish known to reside in this system.

As the dam deteriorates, sediments that have been captured by the dam would be carried downstream. If the dam were to deteriorate slowly, small pulses of sediment would be released. If a “sudden” failure occurs a large volume of water and sediment would be carried downstream within a short period of time. Depending on the time of year and how much of the sediment moves at once, eggs and juvenile fish could be negatively impacted. Approximately two miles of Keene Creek could be impacted by this sediment before Keene Creek Reservoir traps the

remaining suspended sediments. Whether the dam fails gradually over time or all at once would also determine sediment impacts to Keene Creek Reservoir. A sudden flush of sediment may result in a need for sediment removal from Keene Creek Reservoir.

In the short term, stream temperature conditions would remain unchanged. In the long term, after the eventual failure of the dam, summer stream temperatures between Little Hyatt and Keene Creek dams would gradually be reduced up to 1.5° F as a natural channel recovers and riparian vegetation once again begins to provide shade.

Cumulative Effects

Implementation of this alternative is anticipated to have no short-term effect on the objectives of the Aquatic Conservation Strategy (ACS) or water quality issues, as conditions would remain essentially unchanged. Because management of flows and associated reservoir levels and stream routing would not change under the No-Action Alternative, stream and riparian condition would continue to be dictated by processes unrelated to the project implementation. Little Hyatt would continue to contribute approximately 1.5° F. to maximum stream temperatures in Keene Creek as a result of implementation of this alternative, for the short-term. Conditions would change over the long-term as the dam structure failed. A resulting reduction in stream heating is expected as the channel and associated riparian vegetation become reestablished. Effects to stream temperature as a result of Little Hyatt would not extend downstream of Keene Creek Reservoir due to the current flow management regime.

The cumulative effects of non-native fish species entering the Keene Creek and Jenny Creek systems are unknown. Keene Creek and potentially Jenny Creek may not support these non-native species; however, they may survive to compete with native fish for resources. Non-native fish could compete with native fish for food and habitat, increasing stresses on native fish. The extent of effects related to the introduction of non-native species is unknown. Golden shiners *(Notemigonus crysoleucas)* and brown bullhead *(Ictalurus nebulosus*) have been reported in Jenny Creek and an analysis of the redband trout in Jenny Creek indicates that some genetic mixing has occurred between stocked rainbow trout *(O. mykiss)* and redband trout *(O. mykiss)* (Currens 1992). Hybridization between hatchery rainbow trout *(O. mykiss)* and native redband trout *(O. mykiss)* is possible in this system whether the dam stands or not. Where hybridization occurs, it is expected to have negative consequences for the redband trout.

Action Alternatives (Rebuild or Repair the Dam)

Water levels in Little Hyatt Reservoir remain relatively constant throughout the year and this has allowed riparian and wetland vegetation to become established in and around the reservoir, allowing the reservoir to function more naturally. During implementation of this alternative, there would be short-term disturbance to the aquatic community in the reservoir. Dewatering the reservoir and piping water around the dam could result in loss of this riparian vegetation as normally inundated areas would dry out. The above-ground portion of many reeds, rushes, and sedges around the periphery of the reservoir are expected to die back; however, due to the projected fall-winter time-frame for this work to be accomplished, it is expected these species would resprout the following spring and summer. Impacts are anticipated to be similar to what would be experienced by many wetland areas in a severe drought. Downstream habitat and organisms should not be significantly impacted by piping water around the dam.

During construction/repair activities, Keene Creek would be routed through a pipeline around the work area. Stream temperatures impact caused by the pipeline are anticipated to be similar to those caused by the reservoir, so no change is anticipated. In the long term, the reservoir would continue to function as it has prior to the project. No long term changes in water quality would occur.

Dewatering the reservoir during repair efforts would affect fish that normally reside in the reservoir. These fish are the product of stocking programs or overflow from Hyatt Reservoir and should not be released below the dam. Instead, these fish would be collected in an effort to clean the reservoir of undesirable species such as brown bullhead *(Ictalurus nebulosus*) and bluegill sunfish (*Lepomis macrochirus*) (ODFW 2001). Data from this collection effort would supplement historical gillnet data. By sampling all of the fish from Little Hyatt Reservoir, an accurate species and population count would be recorded. Ideally only native fish would exist in this system; however pressure from anglers motivates ODFW to stock these reservoirs with angler favorites. Fortunately the Keene Creek Reservoir, downstream of Little Hyatt Reservoir offers limited protection from these non-native introduced fish entering the more natural Keene and Jenny Creek systems located downstream of the reservoir as it is rarely overtopped.

Cumulative Effects

Because management of flows, spillway elevation, and therefore associated reservoir levels and stream routing would not change as a result of completion of this project, stream and riparian condition would continue to be dictated by processes unrelated to this project. Little Hyatt would continue to contribute approximately 1.5° F. to maximum stream temperatures in Keene Creek indefinitely as a result of implementation of this alternative. Impacts to stream temperature as a result of Little Hyatt do not extend downstream of Keene Creek Reservoir due to the current flow management regime.

Repair of the dam would maintain a sport fishery in this reservoir for anglers and recreationists and may reduce the potential for hatchery fish and non-native species to expand further within a watershed that supports two sensitive fish species: redband trout (*Oncorhynchus mykiss ssp.*) and Klamath small scale suckers (*Catostomus rimiculus*). However, the potential for invasion of non-native species into Keene Creek and Jenny Creek would continue, since there are no measures in place that would prevent these non-native species from making their way into the stream system below the dams, especially during high flows when water may overtop the dam.

E. IMPACTS TO FISH SPECIES LISTED AS THREATENED, ENDANGERED OR SENSITIVE

This project was determined to have "No Affect" on any listed fishes. Iron Gate Reservoir, located approximately 25 miles downstream of the project area is considered the end of Critical Habitat for SONC coho salmon (50 CFR Part 226). None of the activities proposed in this project could impact listed fishes or their habitat.

F. IMPACTS TO WILDLIFE

No Action

Under the No-Action Alternative the dam would deteriorate and collapse over time resulting in the long-term loss of the existing lacustrine habitat. Species associated with the lake habitat would likely either be displaced to other nearby lakes, or utilize the riverine and riparian habitat provided by Keene Creek. Until the dam collapses, wildlife would continue to use the reservoir as they presently do. This alternative would have a minimal impact to terrestrial wildlife species.

Action Alternatives (Rebuild or Repair the Dam)

Impacts of the two action alternatives to wildlife would be the same.

Terrestrial wildlife would be affected primarily by the short-term draining of Little Hyatt Reservoir while the dam is being repaired. Impacts from the actual repair of the dam, i.e., sediment removal, sandblasting, quarry work and rock placement would be limited to short-term disturbance to species using habitat near the dam, quarry and waste sites.

The reservoir is expected to be drained from July through December of the year the repairs would take place. Lacustrine habitat would be unavailable during this period for species that use the reservoir for breeding, feeding and/or resting, e.g., mallard, osprey, and wood duck. Most species (e.g., birds) using the reservoir are mobile and would likely shift their use to Hyatt Lake or possibly to Howard Prairie Reservoir. Other species associated with the lake (e.g. muskrat) are somewhat riparian habitat generalists and would likely use the riverine/riparian habitat provided by Keene Creek while the reservoir is drained. The impact to the terrestrial wildlife species associated with the reservoir would be minimal.

Threatened Species

Impact of the proposed project to bald eagles, a federally threatened species, would stem from a quantitative change in the food supply, not from disturbance or vegetative modification. The Hyatt Lake bald eagle nest is approximately 2.3, 2.5 and 0.8 miles air miles from the dam, quarry and disposal site, respectively. Removal of key vegetative habitat features, such as large trees, is not planned.

Ospreys with fish going from Little Hyatt Reservoir to their nests on Hyatt Lake seem to be more susceptible to kleptoparasitism by eagles because they are climbing (Hyatt Lake is approximately 400 feet higher than Little Hyatt Reservoir) and less maneuverable (Kaiser, pers. comm.). Ospreys are generally gone from the lakes (Hyatt and Little Hyatt) by late September/early October. Therefore, Little Hyatt Reservoir would be drained and unavailable for fishing by ospreys for approximately a 3-month period (July through September). During this period the ospreys that fish Little Hyatt Reservoir would have to fish Hyatt Lake to compensate for the lost foraging opportunity at Little Hyatt Reservoir. The attack advantage the eagles have over ospreys fishing Little Hyatt Reservoir would be lost, and, overall, the eagles may be less efficient

at obtaining fish from ospreys. The slight decrease in foraging efficiency for the three month period would be insignificant from the total food supply perspective.

Because the proposed project may affect, but is not likely to adversely affect the Hyatt Lake bald eagles, informal consultation, as required by the Endangered Species Act of 1973 (as amended), was conducted with U.S. Fish and Wildlife Service, and a letter from them concurred with the effects determination of the proposed project on bald eagles.

Cumulative effects of the two action alternatives to terrestrial wildlife would be inconsequential since the change from the existing conditions would be very short term.

G. AQUATIC CONSERVATION STRATEGY (ACS) OBJECTIVES

For the purposes of this ACS analysis, the "project level" is defined as the drainage area from Hyatt Reservoir to Keene Creek Reservoir. Because 100 percent of the Keene Creek flow is captured at the Keene Creek Reservoir, the section of Keene Creek downstream of the Keene Creek Reservoir is treated separately and only referred to in reference to dam over flow events and subsequent downstream fish passage.

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.

Alternative 1 & 2: Implementation of these alternatives would maintain an existing barrier within the Keene Creek system with no change in current condition. Due to the presence of non-native fish species within Little Hyatt Reservoir and downstream sections, which compete with resident fish stocks, there would be little to no ecological benefit at the project or watershed scale in removing this instream barrier.

Alternative 3: In the short term, there will be no change in current condition. The long-term effect of this alternative would be to restore connectivity at the small spatial scale within a small portion of the Keene Creek Subwatershed. At the larger spatial scale, there will be no effect as this stream section is located between Hyatt and Keene Creek Reservoirs, a distance of just over 4 miles. The overall function of this stream would continue to be influenced heavily by the Keene Creek Reservoir and Hyatt Reservoir dams, which are barriers to upstream movement of fish.

2. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.

Alternative 1 & 2: No change in current condition. ***See ACS Objective 1.***

Alternative 3: Spatial and temporal connectivity within the aquatic system has largely been interrupted in this portion of the Jenny Creek watershed. At present, connectivity only occurs in a downstream direction, as there are no fish passage facilities at the dams. Infrequent overflow events are the only factor contributing to this limited downstream connectivity. In this portion of Keene Creek, the flow regime is currently managed solely for the purposes of irrigation and power generation, and no facilities are in place to prevent non-native aquatic species from making their way into the stream system below the dams. Selection of the No Action alternative would lead to eventual failure of the dam, reducing the current physical barrier between reaches of Keene Creek above and below the dam.

Also see ACS Objective 1.

3. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.

Alternative 1 & 2: The action alternatives would cause some temporary disturbance to bank and bottom configurations at several locations within the lake/wetland. Restoration activities are included as Project Design Features to recover these disturbed areas.

Alternative 3: Physical integrity of the shoreline, bank and bottom configurations of this portion of Keene Creek cannot be maintained in a natural state, due to flow regulation and the sediment-capture function of the reservoirs. Little Hyatt has a minimal effect on flows or sediment capture. The sediment capture impact would be much more significant if natural sediment loads were not already being captured upstream at Hyatt Reservoir. The No Action alternative, while having no immediate impact, could result in severe degradation of down stream shorelines, banks and bottoms should a catastrophic failure of the dam occur.

4. Maintain and restore water quality necessary to support healthy riparian, aquatic and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.

Alternative 1 & 2: Water quality would remain unchanged as a result of this project. Keene Creek has severe stream temperature problems, and is on the Oregon 303(d) list for stream temperature. Little Hyatt Reservoir appears to increase water temperature of Keene Creek by 1.5° F. over what would be expected if the reservoir were not present.

Alternative 3: The No Action alternative could result in a slight decrease in stream temperature once the reservoir drained and Keene Creek reestablished a functioning channel and riparian area. However, even with a decrease, water temperatures would still remain above desired temperatures desired for optimal cold water fish habitat.

5. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of

sediment input, storage, and transport.

The natural sediment regime of Keene Creek has been disrupted due to capture of bedload by the dams on Keene Creek. Reduced quantities of sediment are moving through the system, sufficient deposition of fine sediments on the floodplain and riparian areas during flood events is not occurring, and unnaturally high summer flows maintained at a relatively steady level year after year, have likely been scoured banks and adjacent floodplains, resulting in a wider, shallower stream than occurred naturally.

Alternative 1 & 2: The current conditions related to sediment would remain unchanged over the long term. Maintenance and restoration of the sediment regime under which aquatic ecosystems evolved is probably not a possibility given the presence of Hyatt Reservoir upstream and Keene Creek Reservoir downstream.

Alternative 3: A catastrophic failure of the dam resulting from implementation of the No Action Alternative would result in a temporary increase in sediment due to release of accumulated sediments behind Little Hyatt dam as well as bank and floodplain erosion resulting from the ensuing flood. These effects would probably reach no further downstream than the Keene Creek Reservoir. Since the stream would continue to be influenced by the Hyatt Reservoir Dam, conditions related to the sediment regime would return to similar conditions occurring prior to dam failure. Restoration of the sediment regime under which aquatic ecosystems evolved could not be achieved with the presence of other reservoirs.

6. Maintain and restore instream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.

Alternative 1 & 2: In-stream flows are highly modified. Due to management of the system for the delivery of irrigation water and for power generation, the timing, magnitude, duration and spatial distribution of peak, high, and low flows cannot be protected or restored. The presence of Little Hyatt Reservoir has a minimal impact to the flow regime through this reach of Keene Creek. Because reservoir levels are not managed, Little Hyatt contributes to the maintenance of wetland habitats in the vicinity.

Alternative 3: Because of the presence of Hyatt Reservoir upstream and the current management of this system, the in-stream flows would continue to be highly modified even if the dam were removed.

7. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.

Alternative 1 & 2: Flows between Hyatt Reservoir and Keene Creek Reservoir are managed for irrigation needs. This flow management regime does not maintain the timing, variability,

or duration of floodplain inundation. Water table elevation in meadows and wetlands is somewhat enhanced by the high summer flows in the creek. The downside is that due to the high instream water levels during the summer, vegetation is unable to take hold low on the streambanks, over time aggravating already wide, shallow channel conditions. However, because of relatively stable year-round water levels in Little Hyatt Reservoir (more similar to a natural lake), the reservoir contributes significantly to water table elevation in the adjacent meadows and wetlands, and over time is developing increasingly desirable aquatic and wetland habitat, unlike the reservoirs above and below it. The alternatives considered would have no impact on the flow regime in Keene Creek.

Alternative 3*:* No change in current condition. Because of the presence of Hyatt Reservoir upstream and the current management of this system, the in-stream flows would continue to be highly modified even if the dam were removed.

8. Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distributions of coarse woody debris sufficient to sustain physical complexity and stability.

Alternative 1 & 2: Species composition and structural diversity of plant communities would be largely unaffected by implementation of the alternatives. Under the action alternatives, some wetland habitats would be temporarily set back during the dewatering period, but would bounce back within a year or so upon refilling of the reservoir. The impact would not be unlike impacts to wetlands experiencing severe drought.

Alternative 3: Under the No Action alternative, eventual failure of the dam would result in a reduction or loss of wetlands around the periphery of the reservoir; however, there would be a corresponding increase in riparian area along the banks of the reestablished channels through the reservoir bottom. Development of riparian vegetation along a reestablished stream channel would be a more natural condition.

9. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Alternative 1 & 2: Structural diversity of plant communities would be largely unaffected by implementation of any of the alternatives. Under the action alternatives, some wetland habitats would be temporarily set back during the dewatering period, but would bounce back within a year or so upon refilling of the reservoir. The impact would not be unlike impacts to wetlands experiencing severe drought. Impacts to invertebrate riparian dependent species would occur during the short-term while dewatering occurs but no long-term impacts are expected. Fish in this system would be removed during the dewatering period to get an accurate population count and to remove any unwanted species from this regularly stocked recreational reservoir.

Alternative 3: Failure of the dam would result in the reestablishment of a flowing stream where a wetland/lake existed and corresponding growth of riparian vegetation along the stream corridor. Even though the stream system would be highly regulated it would provide stream habitat and improve riparian connectivity for stream dependent species. Wetland associated species that have become established since the dam was built (birds and western pond turtles) could be negatively effected by loss of the Little Hyatt Reservoir.

H. VISUAL RESOURCES

Effects of Alternative 1- Repair Option

Under this alternative the dam would be repaired, yet remain essentially unchanged. Drainage of the lake would be required for construction, at which time the lakeshore and lakebed would be dry. This would persist throughout the winter and into early spring until snow melt once again fills the lake, at which time the lake and lakeshore should appear much as they do today. The cascading effect of the water over the dam face would continue at the times in which water levels were high enough. However, as the diversion canal would be filled with concrete under this alternative, the sight and sound of the water falling through the notch in the canal spillway would no longer be present. This part of the recreation area's sense of place would be lost.

The dam face would receive a new concrete liner. Compared to the existing pitted, moss-covered, water-stained face, this new concrete patching would result in an Alythincrease in the contrast of the dam to the surrounding environment, the degree of which would be dependent upon the texture and color of the concrete used. Natural discoloration and weathering of the concrete would help reduce the amount of contrast over the long term.

Effects of Alternative 2 - Rebuild Option

Under this alternative, the most significant change to the existing visual appearance would be through the addition of rock armoring placed on either side of the existing dam structure. As with Alternative 2, drainage of the lake would be required for construction, at which time the lakeshore and lakebed would be dry. This would persist throughout the winter and into early spring until snow melt once again fills the lake, at which time the lake and lakeshore should appear much as they do today.

As the diversion canal would be filled with concrete, the sight and sound of the water falling through the notch in the canal spillway would no longer be present under this alternative as well. The cascading effect of the water over the dam face would continue at the times in which water levels were high enough. However, the form of the water would change into a more irregular, dispersed waterfall as the flow made its way over the placed rock below the dam. This might actually enhance the more natural feel to the dam structure, similar to the effect already present in the water flowing over the basalt toe of the existing dam.

The use of native rock to strengthen the dam would also help to blend the resulting structure into

the landscape. Native rock armor on the downstream side would help the visual appearance at low water levels when water is not flowing over the top of the dam and the dam face is clearly visible. The loss of the waterfall through the canal notch is somewhat offset under this alternative as the rock facing would be essentially a larger scale version of this effect.

Effects of Alternative 3 - No Action

Under this alternative, the lake and dam structure would be remain unaltered. If the dam does not accrue additional damage and leakage, the visual quality would remain unchanged, meeting a VRM Class II objective. If dam failure occurred via a slow leak (as described in OTAK 1998), then this would result in a gradual changing of the landscape elements currently contributing to the valued landscape character. The wetland/marsh areas along the northern edge of the lake would begin to dry and no longer support the variety birds and animals. The cascading waterfall effect of the dam face and side canal would eventually disappear as water levels dropped. With lower water levels, the dam would be more visible and the overall lakeshore would begin to exhibit the characteristics typical of most reservoirs. The placid pool and cascading waterfall features that contributed to the sense of place would be diminished. The valued landscape characteristics would no longer be predominant.

I. RECREATION

Both action alternatives would involve maintaining a dam of some kind, which would maintain a lake environment. During the construction period the reservoir would be drained causing a temporary interruption to current recreation use. However, over the long-term the character and values placed on this recreation area, by those who use it, would remain unchanged. The safety of downstream human uses (recreation, roads, and property) would be improved.

Under the no action alternative recreation and public use of the Little Hyatt Reservoir would continue as it has over the last few decades. However, once the dam fails, causing the Reservoir to drain, the recreation use of this area would change. People may still camp in the area for fishing along Keene Creek; however, without the presence of the reservoir, the character of the area would change and would likely lose value as a recreation site to those whose historically recreated in the area. The Hyatt Reservoir would not be managed and maintained and stated in the Medford District RMP.

J. CRITICAL ELEMENTS

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order and must be considered in all EA's.

Critical Element	Affected Yes	Affected No	Critical Element	Affected Yes	Affected No
Air Quality		✔	T & E Species		✔ **
ACECs		✔	Wastes, Hazardous/Solid		✔
Cultural Resources		✔ *	Water Quality		✔ *
Farmlands, Prime/Unique		✔	Wetlands/Riparian Zones		✔
Floodplains		✔	Wild & Scenic Rivers		✔
Nat. Amer. Rel. Concerns		✔	Wilderness		✔
Invasive, Nonnative Species		✔ *	Environmental Justice		✔

*These affected critical elements could be impacted by the implementing the proposed action. Impacts are being avoided by project design.

**These affected critical elements would be impacted by implementing the proposed action. The impacts are being reduced by designing the proposed action with Best Management Practices, Management Action/Direction, Standard and Guidelines as outlined in the Environmental Impact Statements (EIS)/Record of Decisions *(RMP) (USDI BLM 1995)(USDA FS; USDI BLM 1994*) tiered to in Chapter 1. The impacts are not affected beyond those already analyzed by the above mentioned documents.

CHAPTER V
LIST OF AGENCIES AND PERSONS CONSULTED

A. AGENCIES CONSULTED

Federal Agencies

U.S. Fish and Wildlife Service
U.S. National Marine Fisheries Service
Bureau of Reclamation, Pacific Northwest Region

State and Local Agencies

Oregon Water Resources Department
Oregon Department of Fish & Wildlife
Oregon State Historical Preservation Office
Jackson County Commissioners
Talent Irrigation District

Upon completion of this EA, a legal notification was placed in the Medford Mail Tribune offering a 30-day public review and comment period. For additional information, please contact Bill Yocum or Kristi Mastrofini at (541)618-2384.

B. DISTRIBUTION LIST

This EA was distributed to the following agencies and organizations.

Organizations

Save Little Hyatt Lake Committee
Friends of the Greensprings
Soda Mtn. Wilderness Council
Audubon Society
Klamath Siskiyou Wildlands Center
Headwaters
Oregon Natural Resource Council
The Pacific Rivers Council
Rogue Group of Sierra Club
Association of O&C Counties
Southern Oregon University

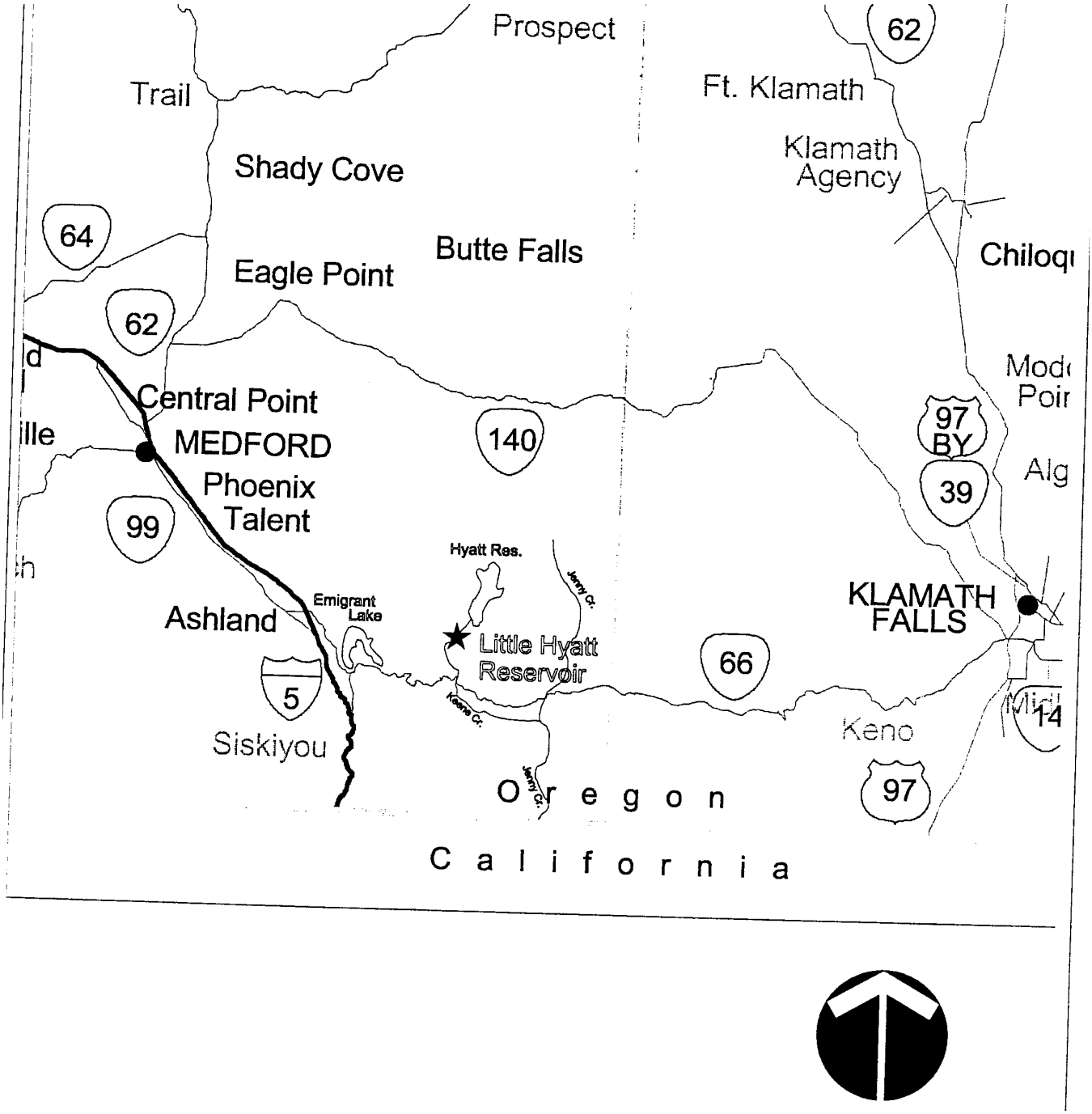
Federally Recognized Tribes

Cow Creek Band of Umpqua Indians
Confederated Tribes of Grand Ronde
Confederated Tribes of Siletz
Klamath Tribe
Quartz Valley Indian Reservation (Shasta Tribe)
Shasta Nation

Other Tribes

Confederated Bands [Shasta]
Shasta Upper Klamath Indians
Confederated Tribes of the Rogue-table Rock and Associated Tribes

Appendix A


Prospect
Trail
Shady Cove
Eagle Point
Butte Falls
Ft. Klamath
Klamath Agency
62
64
62
Central Point
MEDFORD
Phoenix
Talent
99
140
97
BY
39
Hyatt Res.
Jenny Cr.
Emigrant Lake
Ashland
Little Hyatt Reservoir
KLAMATH FALLS
66
5
Siskiyou
Keno
97
Oregon
California

Appendix B - Noxious Weeds and Introduced Plant Species

Scientific Name	Common Name
Bromus hordeaceus	soft brome
Bromus tectorum	cheatgrass
Cirsium vulgare	bull thistle
Crepis capillaris	smooth hawksbeard
Lactuca serriola	prickly lettuce
Sonchus asper	spiny sowthistle
Taraxacum officinale	common dandelion
Tragopogon dubius	yellow salsify
Trifolium dubium	suckling clover
Verbascum thapsus	common mullein