

ENVIRONMENTAL ASSESSMENT

for

KEELER CREEK PUBLIC LAND SALE OR 57811

**U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
ASHLAND RESOURCE AREA**

JACKSON COUNTY OREGON

November 2003

EA No. OR116-03-03

**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
ASHLAND RESOURCE AREA**

EA COVER SHEET

EA No. OR-116-03-03

Project Name: Keeler Creek Public Land Sale

Location: T. 38 S., R. 4 W., section 25, lot 7; Willamette Meridian; Jackson County

Interdisciplinary Team

Responsibility

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CHAPTER 1. PURPOSE AND NEED FOR THE PROPOSED ACTION

A. Proposed Action

The Ashland Resource Area of the Medford District Bureau of Land Management (BLM) is proposing to sell, at fair market value, a parcel of BLM administered public domain lands near Applegate, Oregon.

The BLM-administered lands are described as follows: T. 38 S., R. 4 W., section 25, lot 7, Willamette Meridian, Jackson County, Oregon (Map 1). The land parcel proposed for sale is about 9.26 acres in size. A cadastral survey and subdivision plat of the parcel was done in January 1997.

B. Purpose and Need

The BLM does not have a legal easement to access the land parcel described above; therefore, this parcel is legally inaccessible to BLM making the management of this parcel difficult. The BLM parcel is small (9.26 acres), “L” shaped, and narrow (74 to 246 feet across) and is surrounded on all sides by private landowners.

The parcel was identified in the Medford District Resource Management Plan (amended August 2, 2002) as Land Tenure Zone 3 lands, which are suitable for sale or exchange. Land Tenure Zone 3 lands meet the criteria for disposal as outlined in section 203 of the Federal Land Policy and Management Act (FLMPA). Due to the lack of legal access and the small size and irregular shape of the land parcel, federal management of this parcel would be difficult, uneconomical, and would provide minimal benefits in the public’s interest. Therefore, there is a need to dispose of this land parcel as identified in the 1995 Medford District RMP (amended August 2, 2002), “Dispose of Land Tenure Zone 3 lands through sale under section 203(a) of FLPMA if no viable exchange proposals can be identified.” The land parcel is surrounded by rural residential property zoned for agricultural use. No suitable land exchange options were identified.

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 1995) 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). The RMP incorporated 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 (Northwest Forest Plan)* (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/>.

On August 2, 2002, the Associate State Director of the Bureau of Land Management’s Oregon State Office approved the Medford Resource Management Plan Amendment for Land Tenure Adjustment (on file at the Medford District BLM). The August 2, 2002 RMP Amendment changed the Land Tenure Zone for seven parcels (including the land parcel identified in this EA) of public domain land from Zone 2, lands available for disposal only through land exchange, to

Zone 3. Land Tenure Zone 3 lands are identified as difficult and uneconomical to manage and suitable for disposal through sale or exchange.

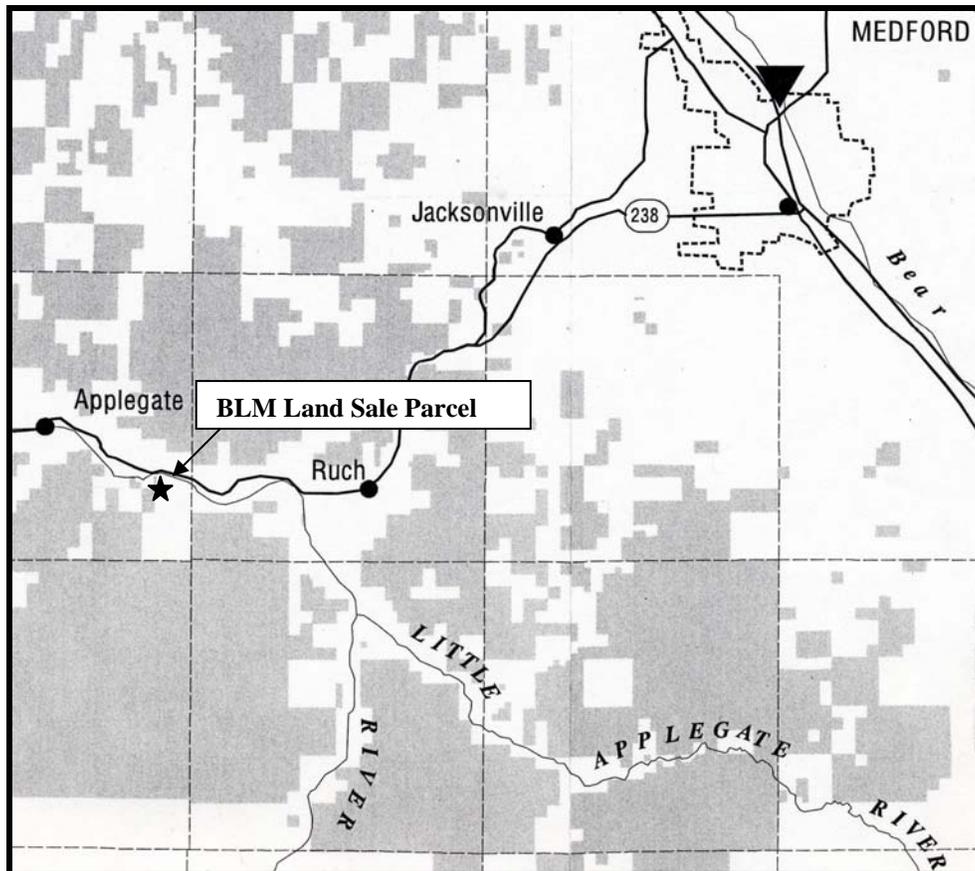
The Medford District RMP Appendix K: Land Ownership and Adjustment Criteria, lists criteria to be used when conducting environmental analyses for site-specific exchange, sale, transfer or acquisition proposals. Application of the criteria may result in retention of some Zone 3 lands (RMP p. 82) if site specific environmental analysis shows any resource values worthy of permanent federal retention (RMP Amendment for Land Tenure Adjustment Environmental Assessment, p. 1).

D. Decisions to be Made

The 2002 RMP Amendment for Land Tenure Adjustment zoned the land sale parcel as Land Tenure Zone 3, land suitable for disposal. This Environmental Assessment documents the site-specific analysis of a proposal to dispose of the land sale parcel. The Ashland Resource Area Field Manager, as the responsible official, must decide whether to implement the Proposed Action as described, or to defer to the No-Action Alternative which would result in federal retention of the land sale parcel.

There will also be a determination on the significance of effects. 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 before the manager makes a decision.

Map 1. Vicinity Map



CHAPTER 2. ALTERNATIVES

A. Alternatives Considered in Detail

Two potential alternatives were considered in detail by the IDT. The Proposed Action represents BLM's proposal to dispose of the public domain land parcel described in Chapter 1. A No-Action Alternative is also considered.

1. Proposed Action Alternative – Modified Competitive Sale of Public Domain Land

The 9.26 acres parcel of land Public Domain land would be sold using a modified competitive sale. The parcel is L-shaped, with one leg approximately 1,320 feet in length by 74 feet wide, and the second leg approximately 1,070 feet in length by 246 feet wide (Fig. 1).

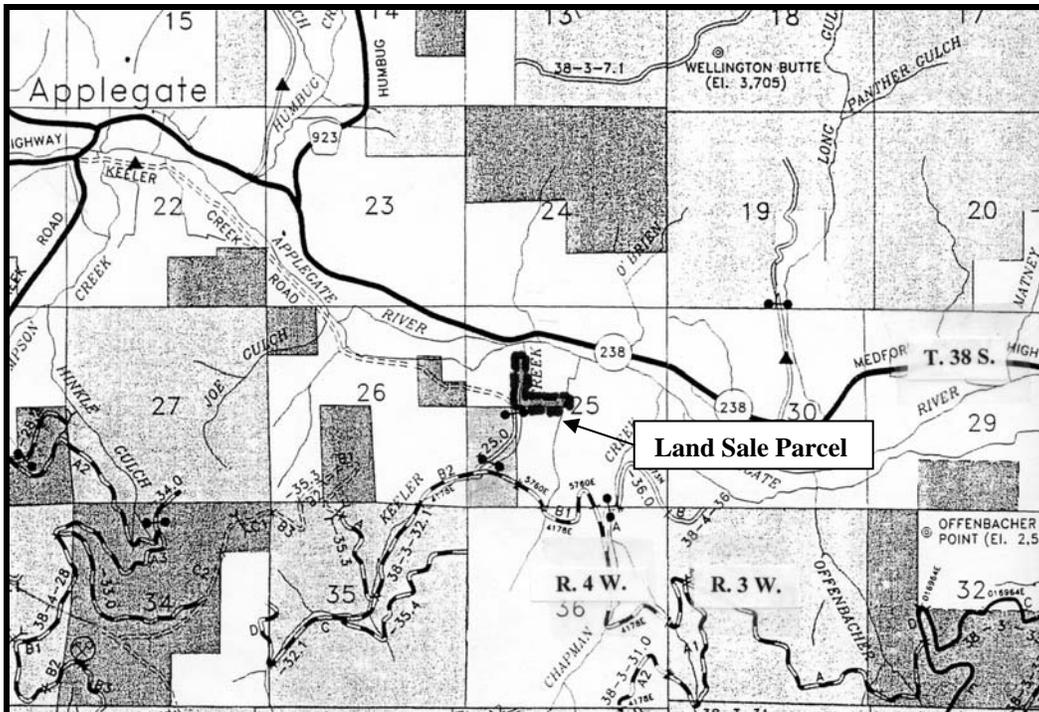
The modified competitive bidding process allows the agency to designate the actual bidders that would be allowed to bid on the parcel. Only adjacent landowners would be allowed to bid on this parcel since there is no legal access for others to access the land. In no case will the parcel be sold at less than fair market value as determined by the qualified appraiser. The fair market value of the parcel will be public information and will be considered the minimum bid.

The parcel is currently zoned Exclusive Farm Use. The county land use zone of this parcel will most likely not change after the sale. The minimum lot size for Exclusive Farm Use is currently 80 acres. Although requests for partitioning of the parcel may occur through Jackson County Planning, the parcel, or portions thereof, would need to be incorporated into existing adjoining land parcels.

2. 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 the 9.26-acre parcel would remain public domain lands to be administered by the BLM. The BLM would continue to be without legal access, and could not effectively manage this parcel of land.

Figure 1. BLM Land Sale Parcel



B. Alternatives Considered But Eliminated from Detailed Study

1. Alternative – Sell the land with an imposed conservation easement to protect the riparian area.

Rationale for Elimination: The State of Oregon and Jackson County provide land use regulations for the protection of riparian areas and water quality (in compliance with the Clean Water Act) on private lands. BLM has determined that management of this parcel of land is difficult due to its small size (9.6 acres) and lack of legal access to the land. This is the reason for identifying the parcel for disposal. Imposing a conservation easement would require management in the way of enforcement of current management direction and possible maintenance of vegetation, large wood, restoration following flood, fire, etc. This would not meet BLM's purpose and need to dispose of land that is inaccessible for management.

2. Alternative – Sell part but not all of the land; retain Keeler Creek section.

Rationale for Elimination: BLM has determined that management of this parcel of land is difficult due to its small size (9.6 acres) and lack of legal access to the land. This is the reason for identifying the parcel for disposal. This would ***not*** meet BLMs need to dispose of land that is inaccessible for management.

3. Alternative – Obtain Access to the Land Parcel

Rationale for Elimination: BLM has determined that management of this parcel of land is difficult due to its physical characteristics; it is small (9.6 acres), L-shaped, and narrow (74 feet wide on one leg and about 246 feet wide on the second leg). Therefore, the acquisition of an easement for long-term BLM access has not been pursued.

CHAPTER 3. AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This chapter briefly describes the environment that would be affected by the Proposed Action or No Action Alternative, and discusses the environmental consequences of implementing each alternative considered in detail, in terms of the direct, indirect, and cumulative effects on the human environment. The analysis documented in this chapter provides the scientific and analytic basis for comparison of alternatives.

Since the Proposed Action would not involve authorizing development on the BLM-administered land parcel proposed for sale, the sale of the land sale in of itself would have no direct effects to resources associated with the land sale parcel; direct effects would be limited to changes in inventory of public land resources.

The reasonably foreseeable activities considered for the assessment of indirect and cumulative effects are those that could be associated with private land ownership zoned as Exclusive Farm Use by Jackson County such as livestock grazing, farm development, etc. The estimated effects are described below.

A. LANDS & REALTY

Affected Environment

There are no FLPMA land use authorizations (rights-of-way, leases or permits) for use of the BLM-administered lands within the Keeler Creek sale parcel.

There appear to be several ongoing unauthorized uses occurring within the BLM Keeler Creek sale parcel:

- a. **Unauthorized water diversion and springbox improvement:** this includes a spring box and buried waterline that serves adjacent private property to the west.
- b. **Recreation/volleyball court:** near the area of the unauthorized water diversion the area is cleared and a volleyball court has been constructed. It appeared the area was heavily used the past several years, however, it is grown over with weeds at this time.
- c. **Grazing:** the east portion of the sale parcel has been heavily grazed by the adjacent landowner. In fact, a fence running north/south dissects the BLM parcel as a form of illegal enclosure.
- d. **Road/Access route:** a natural surfaced road has been built crossing the BLM parcel from the private property located immediately to the west of the parcel, running through the private property located immediately east. The access road connects Highway 238.

There is an old timber trespass on the BLM Keeler Creek sale parcel, primarily on the lands to the east of Keeler Creek. The stumps are tagged and the timber trespass was apparently resolved.

There is a portion of a ditch crossing the eastern edge of the sale parcel. The ditch transports water from Keeler Creek to the east, probably used for irrigation on adjacent private lands. The ditch has probably been in place and used for several decades, and likely over 100 years.

Environmental Consequences

No Action

The spring development has a valid water right but would continue to have no BLM authorization for a right-of-way for the pipeline and diversion. Without a right-of-way for the spring development, the pipeline is in trespass, and the Bureau of Land Management technically is not liable for damages that may occur to the facilities in the course of the Bureau's land management activities. Under the No-Action Alternative the landowners could initiate application for, and would likely be granted, a right-of-way for the spring development facilities located on BLM-administered lands since the landowner has a valid existing water right for the water source. If the landowner decided not to pursue the right of way they would be required to remove the improvements.

If this alternative is selected BLM would likewise be obligated to resolve other unauthorized uses occurring on the land sale parcel as described above.

Proposed Action

Because the spring development has a valid water right but no BLM authorization for a right-of-way, the users of the spring development would have no legal access or means of transporting water from the spring to their house in the event that another party purchased the property.

The sale of this land parcel would resolve these unauthorized uses.

B. MINING

Affected Environment

There are two mining claims located on the Keeler Creek sale parcel; adjacent landowners own both claims. The claims are named the Annabebe #1 and #2 claims (ORMC 153027 and 153028). Both claims were filed in 1997. No mining notices or plans have been submitted to the BLM for proposed mining activities on either mining claim.

The mineral report approved on April 28, 2003 summarizes that the mineral potential for the occurrence and development of coal, oil and gas, geothermal and for sodium and potassium, is low. The potential is also low for saleable mineral materials (primarily sand and gravel resources). There is a moderate potential for locatable mineral resources. This report recommends that all mineral interests be conveyed to the purchaser, if a decision is made to sale the land parcel, with no mineral reservation to the United States.

Environmental Consequences

No Action

Under the No-Action Alternative, there would be no changes in existing circumstances associated with the mining claims. The current mining claims (Annabebe #1 and #2) would be retained by the current claimants

Proposed Action Alternative

Current mining claims would be relinquished by the landowners prior to the sale of the land.

C. HYDROLOGY/RIPARIAN RESERVES

Affected Environment

The majority of the BLM-managed parcel proposed for sale (“the parcel”) is located in the Riparian Reserves of five different hydrologic features: A perennial, fish-bearing stream (Keeler Creek, Reaches 2243 [stream on BLM-managed land] and 2241 [stream on non-BLM land]), a long duration intermittent stream (Unnamed tributary, Reach 4831), a perennial spring (Spring 2248), another perennial stream (Reach 2249, consisting of the outflow from Spring 2248), and the Applegate River (Fig. 2). The associated Riparian Reserves for each of these features only apply to federal lands.

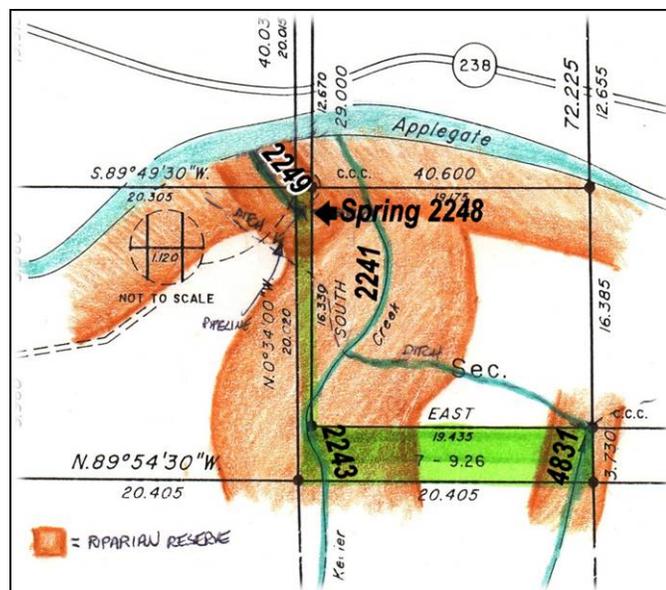


Figure 2: Riparian Reserves (apply only to federal lands)

Stream Reach 2243

Keeler Creek Reach 2243 is within the parcel for 300 feet or so. Keeler Creek Reach 2241 on private land just downstream runs parallel to the north portion of the parcel, such that the Riparian Reserve for Keeler Creek includes most of the BLM parcel. On BLM-managed lands, this Riparian Reserve is 360 feet on each side of the stream. This portion of Keeler Creek is one of only two federally managed fish-bearing perennial stream segments in the Middle Applegate Watershed that are in close proximity to the Applegate River. Because of the parcel’s location at the low elevation end of the Keeler Creek drainage, a healthy riparian area through this parcel would continue to provide a segment of aquatic connectivity between the Applegate River and federal land further up the stream.



Figure 2: Reach 2243 Keeler Creek riparian area

Keeler Creek Reach 2243 was stream surveyed in August 1997. The stream had a bankfull width of approximately 11 feet, maximum bankfull depth of approximately 1.6 feet, with a flood-prone area width of approximately 22 feet. Streambed material was composed of 40 percent cobble, 30 percent bedrock, 15 percent gravel and 15 percent sand.

Stream temperature was monitored at four locations in Keeler Creek during the summer of 2000. The segment of stream in the parcel proposed for sale is Water

Quality Limited as defined by the State of Oregon in OAR 340-041-0006(30)(a), and is proposed for listing as Water Quality Limited for temperature on the 2004 303(d) list. Although riparian vegetation condition is generally excellent along this reach, the 7-day maximum at the lower end of Reach 2243 in the parcel was 67.4° F., more than three degrees above the 64° F. Oregon DEQ State water quality standard. This indicates that riparian conditions at certain locations upstream

of this parcel may be less than optimal. Stream temperature 7-day maximums at locations upstream on Keeler Creek included 65.6° F. at the Section 25/26 line, 61.7° F. at the Section 26/35 line, and 59.0° F. at the Section 34/35 line.

A visual assessment suggests that apart from summertime stream temperature, water quality in Keeler Creek Reach 2243 is currently excellent, with very clear water, and clean, well-sorted substrate dominated by boulders, cobbles, and gravels. Some embeddedness from fine sediments appears to originate from upstream reaches, as little visible bank erosion or other sources of fine sediment are apparent within this reach. Active sediment deposition is occurring primarily on upper portions of point bars and at elevations above bankfull flow, indicative of a properly functioning stream. Stream banks are well vegetated, with little active erosion from banks and no observable surface erosion contributing sediment to the stream channel.



Figure 3: Keeler Creek – excellent water quality and channel/bank stability.

Riparian vegetation condition is generally excellent, with trees in the Riparian Reserve available to provide future input of large wood to the stream. The riparian vegetation community includes a wide diversity of species and age/size classes. The instream large wood component is currently less than would be expected, suggesting that in the past trees have either been removed from the stream or removed from the surrounding stand prior to falling in. The other noticeable negative factor related to riparian vegetation condition is the presence of Himalayan blackberry (an invasive, non-native species) along portions of the reach. The blackberries are not yet dominating the riparian vegetation at this location as they are at many other low-elevation sites in the Applegate, including Keeler Creek Reach 2341 on non-BLM lands just downstream of the parcel.

Stream Reach 4831

In the eastern portion of the parcel, Stream Reach 4831 is an unnamed long duration intermittent tributary. This stream once flowed directly into the Applegate River, but is now intercepted by an abandoned irrigation ditch and diverted west into Keeler Creek. The stream crosses several hundred feet of BLM-managed lands, entering the ditch just as the stream exits BLM. The Riparian Reserve on BLM-managed land is 160 feet wide on each side of the stream. A private fence through the middle of the BLM parcel places stream reach 4831 within a heavily grazed pasture and location of earlier timber trespass. The reach has severe riparian degradation, with little canopy remaining, and there is virtually no understory or shrub component due to the grazing pressure. There is heavy sedimentation in this stream segment; there are extensive areas of bare soil on stream banks, trampling (cattle hoof prints) are evident throughout, sediment is being routed into stream down cattle trails, and there is very little bank and bottom-stabilizing vegetation. This reach was stream surveyed in October 1997. The stream had a bankfull width of approximately 4.2

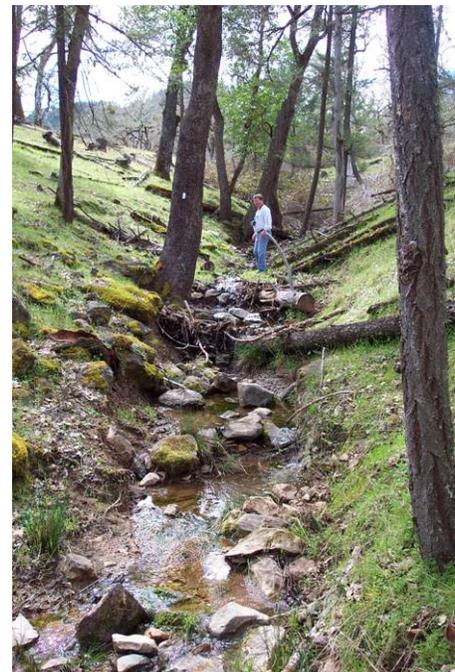


Figure 4: Reach 4831 Unnamed stream riparian area

feet, maximum bankfull depth of approximately 0.6 feet, with a flood-prone area width of approximately 5 feet. Streambed material was composed of 5 percent bedrock, 25 percent boulder, 20 percent cobble, 40 percent gravel, 5 percent sand and 5 percent silt/clay. Fifty percent of the reach was noted to have actively eroding streambanks. Levels of fine sediment have increased dramatically since 1997 in this reach; a visual estimate in April 2003 indicates that the silt/clay component has risen to 30 percent or greater. In spite of good flow, the stream is clogged with algae, a very unusual condition for this time of year (early April). A Properly Functioning Condition (PFC) assessment completed in 1997 rated this stream as Functional-At-Risk with a downward trend. Although not formally assessed again in 2003, this stream has likely moved downward into the Non-Functional category due to factors including lack of structure, lack of stabilizing vegetation, lack of floodplain/channel function, and excessive inputs of sediment. An end to livestock grazing and active restoration (replanting of riparian vegetation) was identified in 1997 as necessary to allow this reach to begin to recover, and this is even more so the case in 2003.

Spring 2248 & Reach 2249

On the northern end of the property, a spring (Spring 2248) and associated outflow channel (Reach 2249) emerge from what appears to be the original Keeler Creek channel. Reach 2249, the outflow channel of this spring, is extremely clear, with no obvious quality problems. The stream bottom below the spring has a heavy concentration of fine sediment and organics, but this is not unusual for springs and their outflows located on valley bottom floodplain-type soils, with little annual fluctuation in flow. Stream banks along this reach are stabilized by vegetation, with little or no bare ground visible.

The lower end of Keeler Creek appears to have long ago been rerouted to the east of this location, confined in a straight channel running directly to the Applegate River. A portion of the old channel was filled and leveled, but from just above the spring down to the Applegate River the original channel is intact, about 25 feet wide and six or seven feet in depth. Where Keeler Creek now flows directly into the River, it appears to have at one time angled into the River several hundred yards downstream of its present location. This would have created a fairly long stretch of very low-gradient channel with significant deposits of gravel in the lower few hundred yards of Keeler Creek, as compared to the “straight-shot” ditch it is now confined to. It is likely that water quality for fisheries would have been excellent in the original channel due to the combination of cool flow from the spring and delivery of flow and nutrients from the watershed above.



Figure 7: Reach 2249 (outflow from Spring 2248) has extremely clear water and well-vegetated, stable banks.

The northernmost portion of the property is part of the Riparian Reserve and floodplain of the Applegate River. A bulldozer-type tracked vehicle has recently been used to clear brush and other vegetation on the BLM parcel, within the floodplain and Riparian Reserve of the Applegate River. This same area includes the Riparian Reserves of Keeler Creek and Reach 2249, as well. Damage to the riparian area has not been quantified, but covers perhaps a thousand square feet. A volleyball court has also been built in the Riparian Reserve of Spring 2248/Reach 2249 (half on private, half in BLM Riparian Reserve).

The spring appears to have excellent water quality, with outflow of perhaps 0.25 cubic feet per second. There is extensive coverage of the non-native vinca major (commonly called myrtle or periwinkle) around the spring and outflow channel. A concrete spring box with black plastic pipe, buried in a trench, leads towards a house on private several hundred feet away. The water right on this spring development is Permit No. 34712, Certificate 41319, with a point of diversion listed in the SW1/4 NW1/4 Section 25. This diversion is actually in the SE1/4 NW1/4, on the BLM parcel, but has no authorized Right-of-Way. The water right is not to exceed 0.01 cubic foot per second, for domestic use of one family. The right was issued to with a priority date October 6, 1969, and a certificate date December 20, 1974. Place of use is SW1/4 NW1/4 Section 25.

Environmental Consequences

No Action Alternative: Direct Effects

There would be no change in land ownership or land use regulations governing management of this land parcel. There would be no direct effects resulting from selection of the no-action alternative.

No Action Alternative: Indirect and Cumulative Effects

Under the No Action Alternative, the land sale parcel would continue to be managed by the BLM under the guidance of the 1995 Medford District Management Plan.

Conditions would likely continue the same as at present. However, Keeler Creek would continue to be at risk of riparian, aquatic habitat, and water quality degradation should substantial activity take place in the mining claim on this reach. Degradation to water quality, channel condition, and riparian vegetation would continue along the unnamed intermittent stream if unauthorized livestock grazing were to continue. Because there is no legal access into the parcel, BLM is unlikely to install fencing or replant vegetation that would accelerate riparian recovery in that reach. However, if the No-Action Alternative were selected, BLM would be obligated to resolve unauthorized uses occurring on the land sale parcel including livestock grazing.

In the absence of significant mining activity, the parcel would continue to provide good riparian habitat and water quality protection on Keeler Creek. Summer stream temperatures would continue to exceed Oregon DEQ thresholds as a result of upstream conditions, but there would be no further impact to temperatures as a result of implementing this alternative.

This portion of Keeler Creek would continue to be one of only two federally-owned fish-bearing perennial stream segments in the Middle Applegate Watershed that are in close proximity to the Applegate River. Because of the parcel's location at the low elevation end of the Keeler Creek drainage, a healthy riparian area through this parcel would continue to provide a segment of much-needed aquatic connectivity between the Applegate River and federal land further up the stream (see Fisheries discussion).

Proposed Action Alternative: Direct Effects

Under the Proposed Action Alternative, the disposal of the land sale parcel would result in a change in the proportion Properly Functioning, Functional-at-Risk, and Non-functional riparian areas on BLM-administered lands as a result in the change of land ownership and inventory.

Perennial streams: The land sale would result in the disposal of 300 feet of riparian area in Properly Functioning Condition along a perennial stream. This would result in a decrease of **7.5** percent of the Properly Functioning riparian areas along perennial streams on BLM-administered

lands in the Keeler Creek Watershed. There are **3.6** miles of perennial streams within the Keeler Creek 7th-field Watershed; **2.7** miles across BLM managed lands and **0.9** miles across private lands. Currently, there is **0.76** miles of riparian areas in properly functioning condition along perennial streams on BLM managed lands.

Intermittent streams: There would be no change to the 0.56 mile of riparian areas in properly functioning conditions along intermittent streams on BLM managed lands, as there are no intermittent streams in properly functioning condition in the proposed land sale parcel.

Proposed Action Alternative: Indirect and Cumulative Effects

Over time, riparian area conditions could decline on the land sale parcel. Based on Oregon Forest Practices Act, Jackson County land use regulations, and Oregon Department of Agriculture regulations, timber could be harvested from the riparian areas, landscaping and vegetation removal could be done, and grazing within riparian areas could occur. These activities could adversely impact current riparian area conditions along Keeler Creek in the land sale parcel. While conditions may not deteriorate much further on the intermittent stream in the eastern portion of the parcel (already heavily impacted by timber trespass, vegetation clearing, and intensive grazing), the generally good conditions on Keeler Creek could decline. County regulations restrict ground disturbance or clearing of vegetation within 25 feet of the creek. The 25-foot rule would not prevent grazing activity from removing vegetation from the riparian area, as livestock grazing is an allowed use on Exclusive Farm Use-zoned lands.

Under the Proposed Action Alternative, Water Quality would not be protected to the same extent through state water quality standards with private ownership as it would with federal ownership. State Water Quality Standards and the Memorandum of Understanding between Oregon DEQ and BLM hold BLM-administered lands to a significantly higher standard than private lands. Under federal ownership, forestry and agricultural activities must meet the numeric criteria of Water Quality Standards [OAR 340-041-0028(13)(e) 2003 prop.], while forestry and agricultural activities on private land are not subject to DEQ numeric standards [OAR 340-041-0028(13)(f) 2003 prop.]. Rather than numeric temperature criteria to meet water quality standards, private lands need only apply Best Management Practices for forestry activities [OAR 340-041-0061(10) 2003 prop.], and “Unacceptable Conditions” rules are applied to lands in agricultural use (OAR 603-095-1440). Forestry and Agricultural activities on private lands are not subject to developing and/or implementing temperature management plans to achieve compliance with an applicable load allocation in a TMDL, while on federal lands, the opposite is true [OAR 340-041-0028(13)(h) 2003 prop.]. If vegetation along riparian areas in the land sale parcel were to be removed or modified, it could likely cause measurable increases in stream temperature in a stream that already has temperature problems.

Across all ownerships, there would be no immediate change in cumulative percentages of streams in different functional classes. Over time, while conditions could decline on the affected land sale parcel, riparian conditions on BLM-administered lands should be improving through the continued implementation restoration projects and Riparian Reserves designed to meet the Aquatic Conservation Strategy Objectives. Riparian conditions on other non-BLM lands may improve or decline due to factors outside of BLM’s control.

D. AQUATIC HABITAT & FISHERIES

Affected Environment

Aquatic Habitat

Keeler Creek is a small, north-flowing perennial drainage situated in the Middle Applegate Watershed. It drains steep, forested lands managed primarily for timber by BLM and private landowners. The majority of the Keeler Creek drainage-area is located on BLM managed lands.

Keeler Creek flows for approximately 300 feet through the small parcel of BLM-administered land proposed for sale. This stream-segment is located roughly 1/3 of a mile upstream of the confluence with the Applegate River. Downstream of this stream-segment, Keeler Creek enters private agricultural land, while the BLM parcel continues to incorporate the Riparian Reserve.

The northernmost end of the parcel contains a small spring located within the Riparian Reserves of the Applegate River and Keeler Creek. This spring crosses approximately 30 feet of the BLM parcel as it flows through a historic channel of Keeler Creek. The spring was surveyed for presence of sensitive mollusks (*Fluminicola* spp.) in March of 2003, and none were found.

Riparian habitat conditions of Keeler Creek through the parcel can be characterized as healthy. Intact riparian vegetation (currently over 100 feet on either side of the stream) provides shade, stable stream banks, and a source of coarse large wood for future recruitment to the creek. Clean substrate, a high pool to riffle ratio, and debris jams abound in this section of stream, providing quality spawning and rearing habitat for fish and other aquatic organisms. Douglas-fir, madrone, and big leaf maple dominate the over-story in the Riparian Reserve. In spite of this healthy Riparian Reserve, this section of Keeler Creek still exceeds ODEQ state water quality standards for temperature (see hydrology section above for a more detailed analysis).

There is an active mining claim located in this parcel, and some small piles of old tailings may be observed near the creek bank. This claim does not appear to be heavily worked and currently does not appear to be negatively impacting fisheries or riparian habitat conditions.

Riparian habitat downstream of the BLM parcel has been degraded. An irrigation diversion ditch intersects Keeler Creek, and may contribute sediment to the stream during high-flow events. Furthermore, as Keeler Creek enters the historic Applegate River floodplain, it has wandered or been relocated from its original channel and now flows through a pasture where riparian vegetation is dominated by Himalayan blackberries.

A small intermittent stream crosses the eastern-most portion of the BLM-administered land parcel. The majority of the stream flows through private lands managed for cattle (in the lowlands) and timber (in the uplands). The section of stream on BLM is in poor condition; riparian habitat conditions have been highly degraded by cattle grazing, and very little riparian vegetation is present to provide cover, shade, or stability to stream banks. Substrate is composed of high amounts of fine sediment, reducing habitat quality and complexity for aquatic organisms. Cattle trails and high amounts of algae have been observed in this stream as well.

Flow from this small stream is intercepted by an irrigation diversion ditch located approximately ¼ mile upstream from its historic confluence with the Applegate River. This diversion may act as a sediment trap, helping to keep sediment from directly entering Coho Critical Habitat in the Applegate. However, this same ditch bisects Keeler Creek on private land downstream of the

BLM parcel, and although it does not intercept flow from Keeler Creek, the potential exists for it to contribute sediment to the stream, and on to the Applegate River during high flow events.

Keeler Creek Fish

Steelhead (*Onchorynchus mykiss*), and cutthroat (*Onchorynchus clarki*) trout were found in Keeler Creek in March of 2003 by BLM surveyors. Steelhead distribution extends 1/3 of a mile upstream from the mouth of Keeler Creek, where a recent debris jam appeared to be a temporary barrier to upstream migration. Cutthroat trout distribution was determined to extend up to an impassable culvert located on BLM-administered land on the 38-3-32.1 road (approximately river mile 0.7). This culvert (planned for replacement in the near future) does not allow for any upstream passage of any life-stages of salmonids or other aquatic organisms at any flows.

Both steelhead and cutthroat trout have been confirmed in the section of Keeler Creek bisecting the proposed land sale parcel. Current observed population densities were found to be very low (less than 1 fish per 500 feet of stream surveyed).

The Applegate River, below the Applegate Dam, supports populations of coho salmon (*O. kisutch*) which were listed as threatened by the former National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) in 1997. Chinook salmon (*O. tshawytscha*), Pacific lamprey (*Lamprreta tridentata*), sculpin (*Cottus* spp), and Klamath small-scale sucker (*Catostomus rimiculus*) are among other native species found in the Applegate River.

The unnamed intermittent stream flowing though the eastern end of the parcel does not currently support any populations of fish, and historical presence has not been documented. It is currently inaccessible to fish migrating from the Applegate River due to the irrigation diversion ditch.

Coho Critical and Essential Fish Habitat

On May 5, 1999, the National Marine Fisheries Service (NMFS) designated Coho Critical Habitat (CCH) for the threatened Southern Oregon/Northern California (SONC) Coho salmon. Critical habitat includes “all waterways, substrate, and adjacent riparian zones below longstanding, naturally impassable barriers”. It further includes “those physical or biological features essential to the conservation of the species and which may require special management considerations or protection...”. All waters historically accessible to coho are considered CCH. Although coho have never been documented in Keeler Creek, given its size and low gradient at the mouth, it is likely that they were historically present. The lower 2 miles of Keeler Creek are considered unoccupied CCH.

Essential Fish Habitat (EFH) has been defined by NMFS as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” This definition includes all waters historically used by salmonids. Approximately the lower 2 miles of Keeler Creek main-stem are considered EFH.

The unnamed intermittent creek is not considered CCH or EFH, but it is located within the Riparian Reserve (CCH) of the Applegate River.

Environmental Consequences

No Action Alternative: Direct, Indirect, and Cumulative Effects

The no action alternative would have no direct or indirect effects on federally listed threatened coho salmon populations in the Applegate River. If this parcel of land is not sold, the Riparian Reserve along Keeler Creek would remain in its present, functioning state, providing quality

spawning and rearing habitat for populations of fish and other aquatic organisms. Stream connectivity between upstream and downstream reaches would be retained, and all other objectives of the Aquatic Conservation Strategy (ACS) would be maintained. CCH and EFH would likely be affected only by light and sporadic mining activity, and cutthroat and steelhead trout would continue to migrate, spawn, and rear in Keeler Creek up to the impassable culvert barrier. The intact Riparian Reserve would remain and continue to provide protection to this stream reach and occupied CCH in the Applegate River in the form of natural functioning processes.

The unnamed intermittent stream would continue to exist in its degraded state as well, possibly occasionally contributing sediment to CCH and EFH.

The No-Action Alternative would have no direct or indirect effects to coho, CCH, or EFH. Future actions such as the China/Keeler Landscape Project are not anticipated to have significant cumulative effects on Keeler Creek upstream of and in this stream reach (personal communications with the China/Keeler Interdisciplinary Team).

Determination of Effects to SONC coho and EFH

This alternative has been determined to have “no effect” to SONC coho salmon, CCH or EFH.

Proposed Action Alternative: Direct, Indirect, and Cumulative Effects

No direct effects would occur to Keeler Creek CCH or EFH as a result of selling this parcel of land, as the action to sell the land does not change anything other than the ownership of the parcel. However, indirect and cumulative effects that are interrelated and interdependent to this action may lead to degradation of this site, dependent upon future use of this parcel.

Although the stream segment in question is only 300 feet long, it represents 8 percent of the fish-bearing component of Keeler Creek and 17 percent of the current steelhead distribution. Given the currently healthy riparian conditions and proximity to the Applegate River, it is an important stream segment for aquatic organisms that would live in and migrate through Keeler Creek.

Ordinances and regulations for riparian area management on private lands do not provide the same level of stream protection that is provided under federal land management (see Hydrology section above). The Inland Rogue Agricultural Water Quality Management Program outlined by the Oregon Dept. of Agriculture describes certain unacceptable conditions within riparian areas; however, it does allow for agricultural development in these riparian areas including allowing cattle to graze in/near the stream, and clearing of all vegetation outside of the 25 feet stream-side buffer (Bill Meyers, ODEQ personnel comm., 2003). Development of the current Riparian Reserve, such as clearing of trees and riparian vegetation within the Riparian Reserve, and/or allowing access to the stream by cattle, could alter the stream from its present functioning state. Decreased riparian vegetation could lead to slight increases in sun exposure and stream temperatures. Keeler Creek is already temperature limited, and even a slight temperature increase would exacerbate this situation. Reducing the width of the riparian area vegetation from its current condition could potentially lead to decreased opportunities for future wood recruitment and sediment storage in Keeler Creek as well, although healthy Riparian Reserves located upstream of the parcel would still exist to contribute wood.

Cattle use in and around Keeler Creek could lead to decreased bank stability, quality and quantity of riparian vegetation, and increased sediment and nutrient inputs into the stream. If this occurred, it would have negative effects to CCH, EFH, by reducing habitat quality for fish

and other aquatic organisms. Furthermore, indirect effects, such as increased sediment inputs and elevated water temperatures, may extend downstream to occupied CCH in the Applegate River, although such increases would probably be slight. The Inland Rogue Agricultural Water Quality Management Program outlined by the Oregon Department of Agriculture describes certain unacceptable conditions within riparian areas. These rules outline requirements for landowners in the Inland Rogue Agricultural Water Quality Management Area to prevent and control water pollution from agricultural activities and soil erosion (OAR 603-95-1400).

Any effects at the site scale such as small increases in peak temperatures and sediment input has the potential to could contribute to adverse cumulative effects to temperature and sediment in Keeler Creek and the Applegate River. Over time, while conditions could decline on the affected land sale parcel, riparian conditions on BLM-administered lands should be improving through the continued implementation restoration projects and Riparian Reserves designed to meet the Aquatic Conservation Strategy Objectives. Riparian conditions on other non-BLM lands may improve or decline due to factors outside of BLM's control. Future actions such as the China/Keeler Landscape Project are not anticipated to have significant cumulative effects on Keeler Creek upstream of and in this stream reach.

Determination of Effects to SONC coho and EFH

Although any changes to riparian reserves, CCH, and EFH as a result of this action are likely to be negative, the magnitude and spatial scale of these effects is small enough that there is less than a negligible chance of "take" on SONC coho salmon. Therefore, the sale alternative has been determined to be "not likely to adversely affect" SONC coho salmon, CCH and EFH.

E. AQUATIC CONSERVATION STRATEGY

The Aquatic Conservation Strategy (ACS) was developed to restore and maintain ecological health of watersheds and aquatic ecosystems on federal lands. The effects of the proposed action alternative were assessed for each of the nine objectives at the site level (Keeler Creek within proposed land sale area), HUC 7 level (Keeler Creek drainage), and HUC 5 level (Middle Applegate Watershed).

Since the Proposed Action would not involve authorizing development on the BLM-administered land parcel proposed for sale, the sale of the land sale in of itself would have no direct effects to resources associated with each of the Aquatic Conservation Strategy Objectives.

The reasonably foreseeable activities that could be associated with private land ownership zoned as Exclusive Farm Use, such as livestock grazing, farm development, etc. were considered in this assessment. However, the Aquatic Conservation Strategy Objectives apply only to federally managed lands and are not a requirement for privately owned lands. The estimated effects are described below.

Objective 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.

Site level: No effects at this spatial scale.

HUC 7 level: No effects at this spatial scale.

HUC 5 level: No effects at this spatial scale.

Objective 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.

Site level: No direct effects would occur as a result of the land sale.

If development of the riparian areas occurred under private land ownership, development could degrade the currently intact riparian and refuge area, and disrupt connectivity between the Applegate River and upstream reaches of Keeler Creek. Migration and survival of aquatic organisms through this 300-foot reach would be affected by any negative effects associated with development of the riparian area. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as site level.

HUC 5 level: No effects at this spatial scale.

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

Site level: No direct effects would occur as a result of the land sale.

If development of the riparian areas occurred under private land ownership, it could degrade the currently functioning state of the shorelines, banks, and substrate in Keeler Creek. Removal of vegetation and allowing access to the stream by cattle could lead to bank de-stabilization and increased sediment loading, degrading the physical integrity of Keeler Creek. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as site level with effects influencing downstream reaches to the confluence with the Applegate River. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 5 level: Any increases in sediment inputs through this reach of Keeler Creek could contribute to cumulative fine sediment issues in the Applegate River. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

Objective 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.

Site level: No direct effects would occur as a result of the land sale.

If development of the riparian area were to occur under private land ownership, water quality parameters, such as temperature, nutrient, and sediment loads could be negatively impacted. Decreases in riparian vegetation could lead to decreased shade and increased temperatures in Keeler Creek. Cattle grazing in and around the riparian area could increase sediment and nutrient inputs to the stream system, and reduce the amount of dissolved oxygen available for aquatic organisms. Reproduction, survival, growth, and migration of aquatic organisms in and through this reach could be negatively impacted. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as site level with effects influencing downstream reaches to the confluence with the Applegate River. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 5 level: Increased water temperatures, sediment, and nutrient inputs could negatively affect occupied CCH in the Applegate River, downstream of the Keeler Creek confluence. Any effects would likely be very slight. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

Objective 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.

Site level: No direct effects would occur as a result of the land sale.

All elements of this objective could be affected if development or degradation of the riparian area occurred under private land ownership. Timing of sediment inputs could be altered by the presence of cattle in and around Keeler Creek, possibly leading to inputs occurring at any time of year. Volume, rate, and character of sediment input could be affected by cattle, and/or clearing of riparian vegetation near Keeler Creek, with likely increases in the first two parameters. Clearing of riparian vegetation and/or trees could lead to a decrease in coarse large wood inputs to the stream, decreasing opportunities for sediment storage, and increasing transportation rates. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as site level, with effects influencing downstream reaches to the confluence with the Applegate River. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 5 level: Higher frequencies of sediment input and an increased volume of sediment could contribute to cumulative sediment issues in the Applegate River, downstream of the Keeler Creek confluence. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

Objective 6: Maintain and restore in-stream 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.

Site level: No effects at this spatial scale.

HUC 7 level: No effects at this spatial scale.

HUC 5 level: No effects at this spatial scale.

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

Site level: No effects at this spatial scale.

HUC 7 level: No effects at this spatial scale.

HUC 5 level: No effects at this spatial scale.

Objective 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.

Site level: No direct effects would occur as a result of the land sale.

If development of the riparian area of Keeler Creek occurred under private land ownership, the parameters listed above could be adversely affected. Species composition and diversity of plant communities could decline due to clearing of vegetation and/or cattle grazing. Decreased riparian vegetation could increase summer water temperatures, decrease nutrient filtering, and increase rates of surface and bank erosion. Decreased opportunities for recruitment of coarse woody debris could reduce channel complexity, and lead to a decreased potential for channel migration. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as site level with effects influencing downstream reaches to the confluence with the Applegate River. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 5 level: No effects at this spatial scale.

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

Site level: No direct effects would occur as a result of the land sale.

If riparian area development occurred under private land ownership there could be declines in habitat and populations of native plants, invertebrate, and vertebrate species

within the riparian areas. See objectives 1, 2, 3, 4, 5, and 8 for detailed analysis of habitat effects. These negative impacts to stream and riparian habitat could lead to decreases in aquatic organism diversity and densities. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 7 level: Same as above, with effects influencing aquatic organism populations in reaches of Keeler Creek both up and downstream of this site. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

HUC 5 level: Migratory fish populations in the Applegate River that use Keeler Creek could be negatively affected. The intent of the “Unacceptable Conditions” as outlined in OAR 603-095-1440, Oregon Forest Practices Act, and County land use regulations is to reduce these adverse effects.

F. WILDLIFE

Affected Environment

Terrestrial wildlife habitat on the parcel is primarily conifer-hardwood and oak-woodland/grassland. Wildlife/wildlife sign observed on the parcel include black-tailed deer, coyote, black bear, Douglas squirrel, red-tailed hawk, great-horned owl, and a variety of passerine bird species.

No federally listed or proposed threatened/endangered wildlife species or BLM sensitive species are known to occur on the property. The property is not designated critical habitat for listed species. Approximately one acre of the property has the structural characteristics of northern spotted owl habitat, a federally threatened species. However, given the agricultural and rural residential settings of the surrounding area, the habitat is not considered to be functional spotted owl habitat. The nearest known northern spotted owl activity center is approximately 1.5 miles southwest of the parcel.

Environmental Consequences

Under the No-Action Alternative there would be no changes from current conditions.

The Proposed Action would likely result in transferring the ownership of the parcel to adjacent landowners. As a result of past trespass, the easternmost arm of the parcel was, in effect, incorporated into an adjacent landowner’s operations. Sale of this portion of the parcel would not likely result in a change in current habitat conditions and wildlife use would remain relatively unchanged.

Dependent on new-owner prerogative and Oregon riparian zone management requirements, some timber on the north arm of the parcel could be harvested. This would influence future use of the area by the various wildlife species currently present. However, since only approximately two acres is conifer dominated, the overall impact to wildlife in the general area would be relatively insignificant.

G. BOTANY

Affected Environment

Bureau Special Status and Survey and Manage Vascular Plant Species

All of the proposed activity areas were surveyed for Bureau Special Status and Survey and Manage vascular plants as well as the federally listed *Fritillaria gentneri*. Surveys were conducted by qualified botany contractors in the spring of 1998. No Bureau Special Status or Survey and Manage Vascular Plant species were found.

Bureau Special Status and Survey and Manage Nonvascular Plant Species

All of the proposed activity areas were surveyed for Bureau Special Status and Survey and Manage nonvascular plants in the spring of 2002 by qualified botany contractors. Surveys documented the occurrence of one population of the Bureau Assessment Species *Crumia latifolia*.

Crumia latifolia: This species forms dense sods or cushions on wet calcareous rocks and cliff faces. It can be found in both perennial and intermittent streambeds. The one known site occurs in the streambed of Keeler Creek in the SW corner of the proposed land sale area T38S, R4W, Section 25.

Environmental Consequences

The No-Action Alternative would have no affect on the continued persistence of *Crumia latifolia* within the proposed land sale parcel.

Crumia latifolia is a Bureau Assessment Species and state and federal protection is not required but is usually provided according to current BLM policy. The National Heritage ranking system ranks this species as G3 (globally rare) and S2 (state imperiled).

This site represents one of 46 known sites on the Medford BLM District and one of 31 known sites on the Ashland RA. The proposed land sale would have no direct effects to this population of *Crumia latifolia*.

However, there is potential for the area to be grazed if it passes into private ownership. The land sale parcel also borders agricultural areas to the north. The *Crumia latifolia* site is restricted to the streambed but the introduction of cattle could have a negative affect on the persistence of this species because cattle tend to congregate in riparian areas and the plants could be impacted from trampling. If roads were to be constructed across the stream, the effects could be negative. Depending on what happens to the land after it is sold, the direct, indirect, and cumulative effects of this action could range from none to extirpation of the species from this site.

The area contains a mix of young conifers and hardwoods and is bisected by Keeler Creek on the western edge. Part of the area has been thinned in the past. There is very little marketable timber on the site, so it is unlikely that the site will be logged any time in the near future.

H. CULTURAL RESOURCES

Parcels identified for disposal or exchange under land tenure zone 3 were examined for cultural resources as part of the RMP amendment process. Parcels containing known cultural resources were not made available for possible disposal. No known cultural resources were discovered.

CHAPTER 4: CONSULTATION WITH OTHERS

An interdisciplinary team of resource specialists reviewed the proposal and all pertinent information, and identified relevant issues to be addressed during the environmental analysis.

EA Availability and Distribution List

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

This EA was distributed to the following agencies, organizations, and tribes:

Organizations and Agencies

Association of O&C Counties
Audubon Society
Jackson County Stockmen's Association
Headwaters
Jackson County Commissioners
Jackson County Planning Department
Jackson Co. Soil and Water Conservation District
Klamath Siskiyou Wildlands Center
Applegate River Watershed Council
Northwest Environmental Defense Center
Oregon Department Forestry
Oregon Natural Resources Council
Oregon Department of Fish and Wildlife
Oregon Department of Environmental Quality
Rogue River National Forest (RRNF)
The Pacific Rivers Council
Southern Oregon University
Southern Oregon Timber Industries

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

References Cited

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- U.S. Department of Agriculture, Forest Service and U. S. Department of the Interior, Bureau of Land Management. 2001. *Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines*. Portland, OR.
- U.S. Department of the Interior, Bureau of Land Management, Medford District Office. 1994. *Medford District Proposed Resource Management Plan/Environmental Impact Statement*. Medford, OR.
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