

### **3.18.3.7 Irreversible and Irretrievable Commitment of Resources**

There would be no irreversible or irretrievable commitment of visual resources. Although there would be short-term impacts to visual resources from vegetation treatments, loss of visual resources would not be irretrievable and could be reversed if restoration treatments were successful (USDOI BLM 2007b:4-253).

### **3.18.3.8 Significance of the Effects under the Alternatives**

3 Bars Project treatments could contribute to scenic degradation in the short term, but this would be negligible in the context of other adverse impacts to visual resources in the CESA and would be in conformance with VRM objectives. By themselves, none of the 3 Bars Project treatments under all alternatives should result in a significant change in Class A scenery from Class A to Class B or to Class C in the long term (greater than 10 years), strong visual contrast in the immediate foreground view from a designated recreation site, historic trail, or residence in the long term (greater than 10 years), or non-compliance with VRM objectives in the long term (greater than 10 years) within the 3 Bars Project area and CESA.

### **3.18.4 Mitigation**

No mitigation measures are proposed for visual resources.

## **3.19 Land Use and Access**

### **3.19.1 Regulatory Framework**

Federal and local planning documents were reviewed to gain an understanding of the regulatory guidelines in effect within the 3 Bars Project area. The Shoshone-Eureka RMP provides a regulatory framework that applies to land use and authorizations within the 3 Bars Project area. The Eureka County Master Plan, although not a regulatory document, also provides policy recommendations for land within the 3 Bars Project area.

The Federal Land Policy and Management Act of 1976 was implemented to establish public land policy and guidelines for its administration; to provide for the management, protection, development, and enhancement of the public lands; and for other purposes (USDOI BLM 1976). Several sections within the Act deal with land use actions, including sections devoted to land use planning, land acquisition, and land disposition; authorizations to grant rights-of-ways; and other administrative actions.

The BLM *Land Use Planning Handbook* (H-1601-1) provides guidance to employees for implementing the BLM land use planning requirements established by Sections 201 and 202 of the Federal Land Policy and Management Act of 1976 (USDOI BLM 2005c). Land use plans and planning decisions are the basis for every on-the-ground action the BLM undertakes. Land use plans include both RMPs and management framework plans.

Land use plans ensure that the public lands are managed in accordance with the intent of Congress as stated in the Federal Land Policy and Management Act, under the principles of multiple use and sustained yield. As required by the Federal Land Policy and Management Act and BLM policy, the public lands must be managed in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition; that will provide food and habitat for fish and wildlife and domestic animals; that will provide for

outdoor recreation and human occupancy and use; and that recognizes the Nation's need for domestic sources of minerals, food, timber, and fiber from the public lands by encouraging collaboration and public participation throughout the planning process.

The *Land Use Planning Handbook* provides guidance for preparing, revising, amending, and maintaining land use plans. This handbook also provides guidance for developing subsequent implementation (activity-level and project-specific) plans and decisions. The BLM 2800 Manual/Handbook/Instructional Memorandum Series provides policy and program direction for issuing, administering, assigning, amending, renewing, and terminating rights-of-way grants under the Federal Land Policy and Management Act and other related authorities in an environmentally, socially, and economically sound manner. The Manual/Handbook/Instructional Memorandum series also provides instructions to the program managers for right-of-way policy and program management (USDOI BLM 2008m).

The Natural Resources and Federal or State Land Use Element of the Eureka County Master Plan (Natural Resource and Land Use Plan) provides policy for natural resource management and land use on federal and state administered lands in Eureka County (Eureka County 2010). The Natural Resource and Land Use Plan was expanded in response to the passing of Senate Bill 40. Senate Bill 40 is intended to give Nevada localities an opportunity to address federal land use management issues directly.

The Natural Resource and Land Use Plan provides land management objectives and describes how the County and the BLM and other land managers can work cooperatively to manage natural resources of interest. Topics covered in the Natural Resource and Land Use Plan include soil, vegetation, and watersheds; forage and livestock grazing; water quality, riparian areas, and aquatic habitats; wildlife and wildlife habitat; land tenure; minerals; cultural, historical, and paleontological resources; hunting, fishing, and outdoor recreation; WSAs; air quality; and law enforcement.

### **3.19.2 Affected Environment**

#### **3.19.2.1 Study Methods and Study Area**

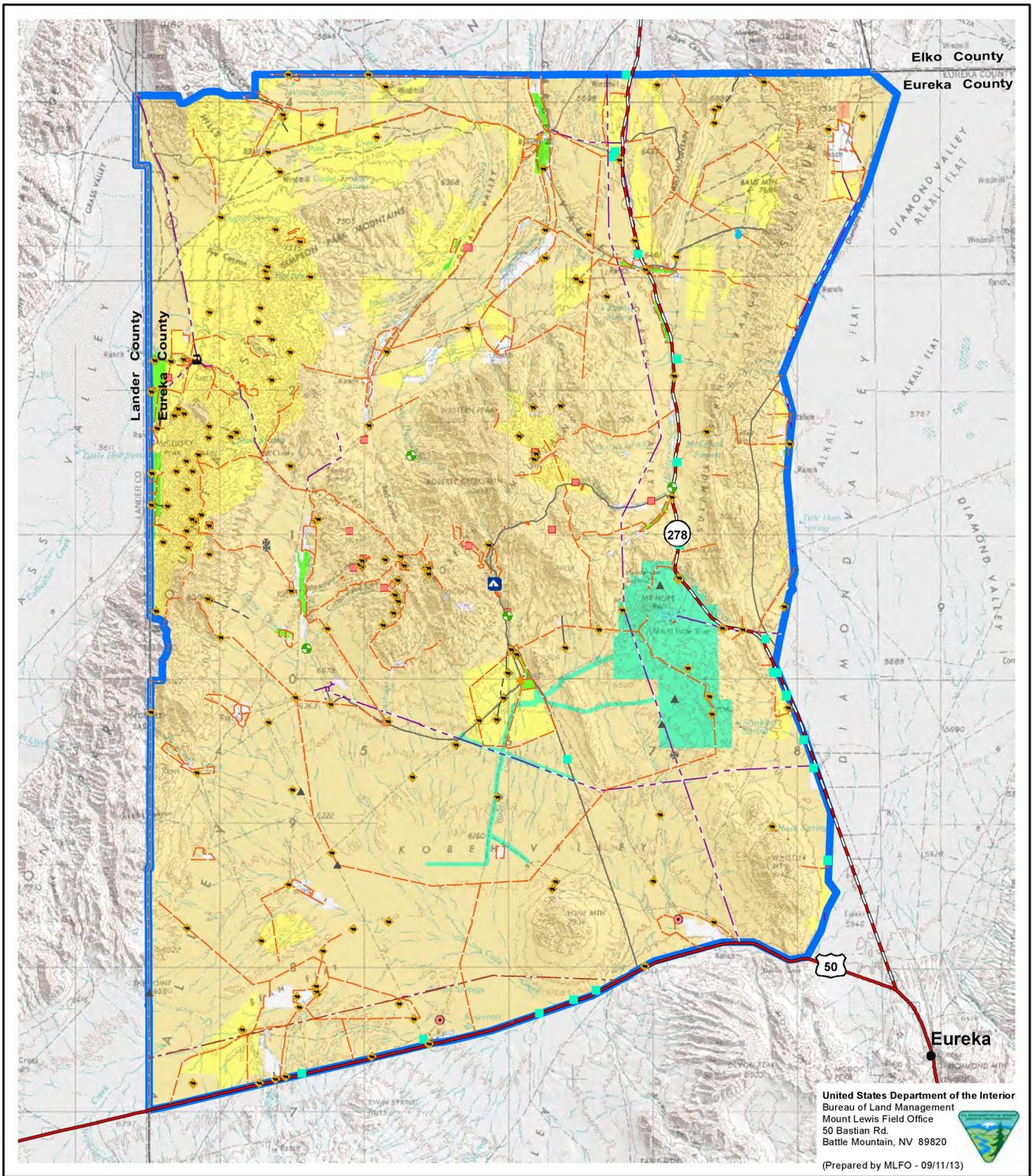
Existing land use plans, such as the Shoshone-Eureka RMP and Eureka County Master Plan, as well BLM Mount Lewis Field Office data, were reviewed to determine land ownership and land uses. Land authorizations and rights-of-way from BLM field office data were also reviewed and summarized. Lastly, the Mount Lewis Field Office provided tables that showed land ownership and land use authorizations.

The study area for the assessment of direct, indirect, and cumulative effects for land use is the 3 Bars Project area (**Figure 3-1**).

#### **3.19.2.2 Land Ownership and Use**

The federal government is the dominant landowner within Eureka County and the project area, followed by private landowners. Federal lands within the project area are administered by the BLM. There are no U.S. Forest Service, state, or county-owned lands within the project area. **Figure 3-51** and **Tables 3-58** and **3-59** detail land ownership as well as land use authorizations within the project area.

Mining and livestock grazing are the two primary land uses within the project area. As described in the Eureka Natural Resources and Land Use Plan, open space agricultural consisting of designated grazing allotments is the single greatest land use within Eureka County (2010). Open space agricultural often consists of ranching with



Legend	
✱	Communication Site
▲	Dump
●	Monitoring Site
▲	Monument
⚡	Power Facilities
⬆	Range Improvement
⬆	Recreation Site
⊕	Stream Gaging Station
⊕	Study Plot
⊕	Water Pumping Plant
—	Road
—	Fence
—	Pipeline
—	Telephone Line
—	Transmission Line
■	Irrigated Crop
■	Land Exchange
■	Land Treatment Area
■	Material Site
Land Owner	
■	Bureau of Land Management
■	Private

**3 Bars Ecosystem and Landscape Restoration Project**

**Figure 3-51**

**Land Ownership and Land-use Authorizations**

0 1 2 3 4 5 10 Miles  
 0 1 2 3 4 5 Kilometers

Source: BLM 2013L

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

**TABLE 3-58**

**Land Ownership within the 3 Bars Project Area and Eureka County**

<b>Land Ownership Within the Project Area</b>	<b>Acreage</b>	<b>Percent</b>
Bureau of Land Management	729,246	97
Private	20,564	3
<b>Total</b>	<b>749,810</b>	<b>100</b>
<b>Land Ownership Within Eureka County</b>	<b>Acreage</b>	<b>Percent</b>
Bureau of Land Management	1,969,762	74
U.S. Forest Service	142,923	5
Private Ownership	554,506	21
Eureka County	1041	<.1
State of Nevada	19	<.1
<b>Total</b>	<b>2,668,251</b>	<b>100</b>

**TABLE 3-59**

**Land Use Authorizations in the Project Area**

<b>Authorization Type</b>	<b>Serial Number</b>	<b>Total Width (feet)</b>
Cattle Guard	NVN-000053	NA
Cattle Guard	NVN-000101	NA
Cattle Guard	NVN-000160	NA
Cattle Guard	NVN-003514	NA
Cattle Guard	NVN-003515	NA
Cattle Guard	NVN-003539	NA
Cattle Guard	NVN-004057	NA
Cattle Guard	NVN-004060	NA
Cattle Guard	NVN-004153	NA
Cattle Guard	NVN-004155	NA
Cattle Guard	NVN-004275	NA
Cattle Guard	NVN-004307	NA
Cattle Guard	NVN-004340	NA
Cattle Guard	NVN-004694	NA
Cattle Guard	NVN-004695	NA
Cattle Guard	NVN-004737	NA
Cattle Guard	NVN-004741	NA
Cattle Guard	NVN-004743	NA
Cattle Guard	NVN-004768	NA
Cattle Guard	NVN-004775	NA
Cattle Guard	NVN-004891	NA
Cattle Guard	NVN-005005	NA
Cattle Guard	NVN-005258	NA
Cattle Guard	NVN-062509	NA

TABLE 3-59 (Cont.)

## Land Use Authorizations in the Project Area

Authorization Type	Serial Number	Total Width (feet)
Cattle Guard	NVN-064776	NA
Cattle Guard	NA	NA
Communication Site	NVN-004049	NA
Communication Site	NVN-051602	NA
Corral	NVN-000671	NA
Corral	NVN-000760	NA
Corral	NVN-000772	NA
Corral	NVN-004223	NA
Corral	NVN-040415	NA
Dump	NVN-048468	NA
Dump	NVN-048603	NA
Emergency Stabilization and Rehabilitation	NVN-004842	NA
Emergency Stabilization and Rehabilitation	NVN-059210	NA
Emergency Stabilization and Rehabilitation	NVN-595086	NA
Emergency Stabilization and Rehabilitation	NVN-595089	NA
Emergency Stabilization and Rehabilitation	NVN-595090	NA
Emergency Stabilization and Rehabilitation	NVN-595091	NA
Emergency Stabilization and Rehabilitation	NVN-595096	NA
Emergency Stabilization and Rehabilitation	NVN-595106	NA
Emergency Stabilization and Rehabilitation	NVN-595139	NA
Emergency Stabilization and Rehabilitation	NVN-595210	NA
Emergency Stabilization and Rehabilitation	NVN-595211	NA
Emergency Stabilization and Rehabilitation	NVN-595212	NA
Emergency Stabilization and Rehabilitation	NVN-595215	NA
Emergency Stabilization and Rehabilitation	NVR-004841	NA
Fence	NVN-000016	NA
Fence	NVN-000166	NA
Fence	NVN-000485	NA
Fence	NVN-004410	NA
Fence	NVR-590004	NA
Fence	NVR-590015	NA
Fence	NVR-590016	NA
Fence	NVR-590021	NA
Fence	NVR-590025	NA
Fence	NVR-590039	NA

**TABLE 3-59 (Cont.)**

**Land Use Authorizations in the Project Area**

<b>Authorization Type</b>	<b>Serial Number</b>	<b>Total Width (feet)</b>
Fence	NVR-590050	NA
Fence	NVR-590053	NA
Fence	NVR-590059	NA
Fence	NVR-590064	NA
Fence	NVR-590065	NA
Fence	NVR-590072	NA
Fence	NVR-590082	NA
Fence	NVR-590083	NA
Fence	NVR-590085	NA
Fence	NVR-590092	NA
Fence	NVR-590101	NA
Fence	NVR-590123	NA
Fence	NVR-590160	NA
Fence	NVR-590166	NA
Fence	NVR-590167	NA
Fence	NVR-590180	NA
Fence	NVR-590187	NA
Fence	NVR-590195	NA
Fence	NVR-590203	NA
Fence	NVR-590243	NA
Fence	NVR-590310	NA
Fence	NVR-590362	NA
Fence	NVR-590364	NA
Fence	NVR-590366	NA
Fence	NVR-590384	NA
Fence	NVR-590443	NA
Fence	NVR-590444	NA
Fence	NVR-590471	NA
Fence	NVR-590482	NA
Fence	NVR-590487	NA
Fence	NVR-590501	NA
Fence	NVR-590521	NA
Fence	NVR-590533	NA
Fence	NVR-590556	NA
Fence	NVR-590628	NA
Fence	NVR-590629	NA
Fence	NVR-590736	NA
Fence	NVR-590739	NA
Fence	NVR-590741	NA
Fence	NVR-590749	NA
Fence	NVR-590753	NA

TABLE 3-59 (Cont.)

## Land Use Authorizations in the Project Area

Authorization Type	Serial Number	Total Width (feet)
Fence	NVR-590754	NA
Fence	NVR-590756	NA
Fence	NVR-590757	NA
Fence	NVR-590758	NA
Fence	NVR-590759	NA
Fence	NVR-590761	NA
Fence	NVR-590764	NA
Fence	NVR-590771	NA
Fence	NVR-590772	NA
Fence	NVR-590779	NA
Fence	NVR-591510	NA
Fence	NVR-593514	NA
Fence	NVR-593516	NA
Fence	NVR-593539	NA
Fence	NVR-593794	NA
Fence	NVR-594057	NA
Fence	NVR-594060	NA
Fence	NVR-594126	NA
Fence	NVR-594136	NA
Fence	NVR-594150	NA
Fence	NVR-594153	NA
Fence	NVR-594155	NA
Fence	NVR-594197	NA
Fence	NVR-594220	NA
Fence	NVR-594224	NA
Fence	NVR-594225	NA
Fence	NVR-594266	NA
Fence	NVR-594267	NA
Fence	NVR-594275	NA
Fence	NVR-594443	NA
Fence	NVR-594561	NA
Fence	NVR-594693	NA
Fence	NVR-594714	NA
Fence	NVR-594715	NA
Fence	NVR-594730	NA
Fence	NVR-594740	NA
Fence	NVR-594742	NA
Fence	NVR-594759	NA
Fence	NVR-594760	NA
Fence	NVR-593794	NA
Fence	NVR-594762	NA







TABLE 3-59 (Cont.)

## Land Use Authorizations in the Project Area

Authorization Type	Serial Number	Total Width (feet)
Land Treatment Area	NVN-594856	NA
Land Treatment Area	NVN-595188	NA
Land Treatment Area	NVR-000182	NA
Land Treatment Area	NVR-590357	NA
Land Treatment Area	NVR-590359	NA
Land Treatment Area	NVR-590360	NA
Land Treatment Area	NA	NA
Land Treatment Area	NA	NA
Land Treatment Area	NA	NA
Land Treatment Area	NA	NA
Land Treatment Area	NA	NA
Local Neighborhood Road, Rural Road, City Street	NVN-052399	NA
Local Neighborhood Road, Rural Road, City Street	NVN-052540	NA
Local Neighborhood Road, Rural Road, City Street	NVN-060918	NA
Material Site	NVN-001472	NA
Material Site	NVN-001473	NA
Material Site	NVN-001962	NA
Material Site	NVN-002186	NA
Material Site	NVN-002187	NA
Material Site	NVN-003420	NA
Material Site	NVN-022487	NA
Material Site	NVN-022489	NA
Material Site	NVN-022492	NA
Material Site	NVN-022499	NA
Material Site	NVN-023080	NA
Material Site	NVN-023082	NA
Material Site	NVN-030013	NA
Material Site	NVN-035593	NA
Material Site	NVN-035595	NA
Material Site	NVN-042799	NA
Material Site	NVN-051858	NA
Material Site	NVN-059954	NA
Material Site	NVN-292803	NA
Monitoring Site	NVN-089351	NA
Other Road	NVN-000005	NA
Other Road	NVN-000006	NA
Other Road	NVN-000009	NA
Other Road	NVN-036707	60

**TABLE 3-59 (Cont.)**

**Land Use Authorizations in the Project Area**

<b>Authorization Type</b>	<b>Serial Number</b>	<b>Total Width (feet)</b>
Other Road	NVN-042812	400
Other Road	NVN-048798	NA
Other Road	NVN-052540	NA
Other Road	NVN-053379	NA
Other Road	NVN-053976	40
Other Road	NVN-078526	NA
Other Road	NA	NA
Pipeline	NVN-000087	NA
Pipeline	NVN-000176	NA
Pipeline	NVN-000239	NA
Pipeline	NVN-000245	NA
Pipeline	NVN-000326	NA
Pipeline	NVN-003545	NA
Pipeline	NVN-004046	NA
Pipeline	NVN-004093	NA
Pipeline	NVN-035075	NA
Pipeline	NVN-036566	NA
Pipeline	NVN-064738	NA
Pipeline	NVN-064805	NA
Pipeline	NVN-064806	NA
Pipeline	NVR-000107	NA
Pipeline	NVR-000741	NA
Plate Tectonic Study	NA	NA
Private Road for Service Vehicles (logging, oil fields, ranches, etc.)	NVN-052540	NA
Recreation Site	NVN-002474	NA
Reservoir	NVN-000067	NA
Reservoir	NVN-000086	NA
Reservoir	NVN-000145	NA
Reservoir	NVN-000184	NA
Reservoir	NVN-004059	NA
Reservoir	NVN-005264	NA
Reservoir	NVN-048417	NA
Reservoir	NVN-053667	660
Reservoir	NA	NA
Secondary Road	NVCC-022478	NA
Secondary Road	NVN-001471	400
Secondary Road	NVN-003794	NA
Secondary Road	NVN-042812	400
Secondary Road	NVN-043007	400
Secondary Road	NVN-048798	NA

TABLE 3-59 (Cont.)

## Land Use Authorizations in the Project Area

Authorization Type	Serial Number	Total Width (feet)
Secondary Road	NVN-060918	NA
Spring	NVN-000081	NA
Spring	NVN-000083	NA
Spring	NVN-000110	NA
Spring	NVN-000143	NA
Spring	NVN-000235	NA
Spring	NVN-000350	NA
Spring	NVN-000402	NA
Spring	NVN-000403	NA
Spring	NVN-000423	NA
Spring	NVN-000425	NA
Spring	NVN-000432	NA
Spring	NVN-000451	NA
Spring	NVN-000474	NA
Spring	NVN-000492	NA
Spring	NVN-000511	NA
Spring	NVN-000532	NA
Spring	NVN-000548	NA
Spring	NVN-000584	NA
Spring	NVN-000585	NA
Spring	NVN-000586	NA
Spring	NVN-000611	NA
Spring	NVN-000612	NA
Spring	NVN-000613	NA
Spring	NVN-000614	NA
Spring	NVN-000615	NA
Spring	NVN-000616	NA
Spring	NVN-000618	NA
Spring	NVN-000619	NA
Spring	NVN-000620	NA
Spring	NVN-000621	NA
Spring	NVN-000622	NA
Spring	NVN-000737	NA
Spring	NVN-000738	NA
Spring	NVN-000740	NA
Spring	NVN-000755	NA
Spring	NVN-003505	NA
Spring	NVN-003506	NA
Spring	NVN-003507	NA
Spring	NVN-003509	NA
Spring	NVN-003510	NA

**TABLE 3-59 (Cont.)**

**Land Use Authorizations in the Project Area**

<b>Authorization Type</b>	<b>Serial Number</b>	<b>Total Width (feet)</b>
Spring	NVN-003513	NA
Spring	NVN-003542	NA
Spring	NVN-003543	NA
Spring	NVN-003544	NA
Spring	NVN-004094	NA
Spring	NVN-004181	NA
Spring	NVN-004248	NA
Spring	NVN-040748	NA
Spring	NA	NA
Spring	NA	NA
Spring	NA	NA
Stock Tank	NVN-048472	NA
Stream Gaging Station	NVN-088802	NA
Study Plot	NVN-004436	NA
Study Plot	NVN-004443	NA
Study Plot	NVN-004561	NA
Study Plot	NVN-004730	NA
Study Plot	NVN-004760	NA
Study Plot	NVN-004777	NA
Study Plot	NVN-004779	NA
Study Plot	NVN-004849	NA
Study Plot	NVN-004881	NA
Study Plot	NVN-004883	NA
Study Plot	NVN-004885	NA
Study Plot	NVN-004917	NA
Study Plot	NVR-004136	NA
Study Plot	NVR-064714	NA
Study Plot	NVR-064715	NA
Substation	NVN-060092	NA
Telephone Line	NVN-005253	NA
Telephone Line	NVN-007318	20
Telephone Line	NVN-051022	15
Telephone Line	NVN-056120	10
Telephone Line	NVN-058497	NA
Transmission Line	NVN-005638	NA
Transmission Line	NVN-012655	25
Transmission Line	NVN-042324	NA
Transmission Line	NVN-047781	NA
Transmission Line	NVN-048321	30
Transmission Line	NVN-060092	NA
Transmission Line	NVN-063162	NA

TABLE 3-59 (Cont.)

## Land Use Authorizations in the Project Area

Authorization Type	Serial Number	Total Width (feet)
Transmission Line	NVN-088978	45
Trough	NVN-000176	NA
Trough	NVN-000212	NA
Trough	NA	NA
US Mineral Monument	NVN-001758	NA
US Mineral Monument	NVN-001762	NA
US Mineral Monument	NVN-001763	NA
US Mineral Monument	NA	NA
US Mineral Monument	NA	NA
US Mineral Monument	NA	NA
Water Pumping Plant	NVN-000490	NA
Well - Other	NVN-000069	NA
Well - Other	NVN-000307	NA
Well - Other	NVN-000479	NA
Well - Other	NVN-000480	NA
Well - Other	NVN-000543	NA
Well - Other	NVN-000598	NA
Well - Other	NVN-004050	NA
Well - Other	NVN-004120	NA
Well - Other	NVN-004156	NA
Well - Other	NVN-004339	NA
Well - Other	NVN-040116	NA
Well - Other	NVN-040117	NA
Well - Other	NVN-040118	NA
Well - Other	NVN-040119	NA
Well - Other	NVN-040120	NA
Well - Other	NVN-040121	NA
Well - Other	NVN-040122	NA
Well - Other	NA	NA
Well - Other	NA	NA
Windmill	NVN-000040	NA
Windmill	NVN-000617	NA

**TABLE 3-59 (Cont.)**

**Land Use Authorizations in the Project Area**

<b>Authorization Type</b>	<b>Serial Number</b>	<b>Total Width (feet)</b>
Windmill	NVN-000653	NA
Windmill	NVN-000765	NA
Windmill	NVN-004745	NA
Windmill	NA	NA
Windmill	NA	NA
Withdrawal Class Reserves	NA	NA
Withdrawal Class Reserves	NA	NA

<sup>1</sup>Source: USDOJ BLM (2012a, 2013l).

dispersed livestock grazing on non-irrigated rangelands. Section 3.17 contains more information about livestock grazing within the project area. There are no active mines within the project area, but there are six active mines within 30-miles. In addition, the 8,300-acre Mount Hope Project is under construction and is in the southwestern portion of the project area. The Ruby Hill Mine, operated by Homestake Mining Company of California, a subsidiary of Barrick Gold Corporation, is the closest active mine to the project area, located 4 miles southeast of the project boundary, near the town of Eureka. In addition, there are approximately 1,227 abandoned mine sites within the project area. These abandoned sites include mine shafts and quarries. Eureka County has not adopted a zoning ordinance.

There are two WSAs within the project area, Roberts Mountains WSA and Simpson Park WSA (**Figure 3-7**). Information on WSAs is included in Section 3.21. The nearest town is Eureka, located just southeast of the junction of U.S. 50 and State Route 278 and approximately 7 miles from the southeast corner of the project area.

### **3.19.3 Environmental Consequences**

#### **3.19.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Based on the AECC and public scoping comments, two concerns specific to land use and 3 Bars ecosystem restoration were identified and are discussed in this section. These are:

- Encourage the BLM to work to balance the requirements and demands of multiple users of the land, consistent with federal multiple-use policies.
- Ensure the EIS considers the objectives of Eureka County’s plans and policies.

#### **3.19.3.2 Significance Criteria**

Impacts to land use would be considered significant if BLM actions resulted in:

- Substantial conflict with existing land uses, including current land use authorizations.
- Substantial change in land use designations.
- Substantial reduction in opportunity for right-of-way authorizations and development activities.

- Substantial reduction in the opportunity for land tenure adjustments.

### **3.19.3.3 Direct and Indirect Effects**

#### **3.19.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

Adverse effects to land use common to all alternatives include the use of treatments that may result in short-term access limitations to land uses and current land use authorizations within the analysis area.

Treatments that reduce the risk of future catastrophic wildfire through fuels reduction would reduce the risk of loss of life, property, constructed facilities on public land, and resources on the 3 Bars Project area. Collaboration with the affected holders of a right-of-way or other authorizations and any landowners within the vicinity of the project area would be of utmost importance when implementing fire treatments. Open communication between the affected parties would limit possible negative impacts to right-of-way, other authorized development on public land, livestock, and ranch, farm, or other private properties and values (USDOI BLM 2009a).

Treatments would not result in long-term, substantial conflicts with existing land uses, changes in land use designations, or reductions in opportunity for right-of-way authorizations and development activities. Additionally, there would not be a substantial reduction in the opportunity for land tenure adjustments. The BLM would have the ability to issue new authorizations needed to implement treatments, including restricting access to an area and closing treatment areas to livestock and humans for periods of time needed to ensure treatment success.

#### **3.19.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

##### ***Riparian Treatments***

There are 45 land use authorizations within the riparian treatment areas, including a corral, Emergency Stabilization and Rehabilitation areas, fences, irrigated crops, land treatment areas, roads, a pipeline, a recreation site, a reservoir, spring improvements, a stream gauging station, study plots, a telephone line and a transmission line.

Treatments could temporarily limit access to land use authorizations in localized areas. Prescribed fire could be used on a few acres annually within the riparian zone for treatments in the Frazier Creek and Garden Spring groups. Prescribed fire use may temporarily displace land uses as well as access to land use authorizations in localized areas. Fencing could limit access to mineral resources and roads.

Due to the lack of permanent features, exclusion areas, or designations, riparian treatments should not preclude future rights-of-way authorizations, development activities, or land tenure adjustments.

##### ***Aspen Treatments***

There are 26 land use authorizations within the aspen treatment areas, including Emergency Stabilization and Rehabilitation areas, fences, a land treatment area, roads, a pipeline and spring improvements. Should a land use authorization occur within a treatment area, there could be short-term exclusion from use during treatment and post-treatment restoration.

Due to the lack of permanent features, exclusion areas, or designations, aspen treatments should not preclude future right-of-way authorizations, development activities, or land tenure adjustments.

### *Pinyon-juniper Treatments*

There are 134 land use authorizations that are within pinyon-juniper treatment units, including study plots and roads, material sites, cattle guards, pipelines, corrals, Emergency Stabilization and Rehabilitation areas, fences, land treatment areas, reservoirs, spring improvements, a recreation site, a withdrawal area, a stream gauging station, a powerlines, a trough, a water pumping plant, a well and a windmill. Access restrictions may preclude access to mineral, rights-of-way, and land use authorizations during treatment and post-treatment restoration, but this preclusion would be temporary and would constitute a negligible impact.

### *Sagebrush Treatments*

There are 83 land use authorizations within the sagebrush treatment areas, including a study plot and roads, material sites, cattle guards, pipelines, a withdrawal area, a stream gauging station, powerlines, Emergency Stabilization and Rehabilitation areas, fences, cropland, land treatment areas, a reservoir, spring improvements, a telephone line, a waterhaul, wells and windmills . Fencing and other exclusion methods associated with this treatment area may preclude access to mineral resources, rights-of-way, and land use authorizations during treatment and post-treatment restoration, but this restriction would be temporary and would constitute a negligible impact.

Due to the lack of permanent features, exclusion areas, or designations, sagebrush treatments should not preclude future right-of-way authorizations, development activities, or land tenure adjustments.

Due to the lack of permanent features, exclusion areas, or designations, sagebrush treatments should not preclude future right-of-way authorizations, development activities, or land tenure adjustments.

#### **3.19.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

Because fire would not be available to reduce hazardous fuel loads and improve habitat, Alternative B may pose a greater long-term risk for wildfire than Alternative A due to the accumulation of fuels that could lead to loss of life and property. Without the use of prescribed fire treatments could take longer, especially those needed to thin and remove Phase II and III pinyon-juniper stands, and the public may be restricted from accessing treatment sites for longer periods than if fire could be used.

There could be temporary access restrictions from treatments, but treatments would not preclude future land use authorizations within the project area, and would not conflict with county and BLM land use objectives. Because up to 6,350 acres could be treated annually, the BLM would have to closely coordinate activities with landowners within the project area and the public to ensure that landowner property and the public are not harmed by treatments.

#### **3.19.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

Because fire and mechanical methods would not be available to reduce hazardous fuel loads and improve habitat, Alternative C would pose a greater long-term risk for wildfire than Alternatives A and B due to the accumulation of fuels that could lead to loss of life and property. Without the use of fire and mechanical methods, treatments would take longer, especially those needed to thin and remove Phase II and III pinyon-juniper stands, thin sagebrush, restore lands dominated by cheatgrass and other noxious weeds and other invasive non-native vegetation, or to restore stream channels. Thus, the public may be restricted from accessing treatment sites for longer periods than if fire and mechanical methods could be used.

There could be temporary access restrictions from treatments. Treatments would not preclude future land use authorizations within the project area, and would not conflict with county and BLM land use objectives. Because about 3,250 acres could be treated annually, the BLM would have to closely coordinate activities with landowners within the project area and the public to ensure that landowner property and the public are not harmed by treatments.

#### **3.19.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct effects to land use and access from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM would not take actions to reduce wildfire risk, so there would be no short-term access restrictions.

#### **3.19.3.4 Cumulative Effects**

The CESA for land uses is the 3 Bars Project area (**Figure 3-1**). Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

##### **3.19.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

Permanent features or exclusion areas associated with the Mount Hope Project and future land development actions, in combination with 3 Bars Project activities, could impact future right-of-way authorizations, development activities, and land tenure adjustments, and conflict with Eureka County and BLM land use objectives. These effects would be greatest under Alternative A.

Catastrophic wildfire can cause extensive burns in existing vegetation, particularly during drought conditions when soils and vegetation are dry. Treatments should reduce the incidence and severity of wildfires. Based on past acreage burned by wildfire, an estimated 84,000 acres would burn in the CESA during the next 20 years. Wildfires could adversely affect life and property, access, and resource use, on or near the 3 Bars Project area.

The BLM is proposing to treat about 127,000 acres on the 3 Bars Project area, and about 15,000 acres under current and future authorizations to restore ecosystem health. 3 Bars Project treatments, and potential short-term access restrictions, could occur on about 17 percent of the CESA under Alternative A. There would be no permanent features or exclusion areas associated with 3 Bars Project actions.

##### **3.19.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

Under Alternative B, effects from non-3 Bars Project reasonably foreseeable future actions on land use and access would be similar to those described under Alternative A. By not using fire on the 3 Bars Project area, there would be no land access restrictions associated with use of prescribed fire and wildland fire for resource benefit on several thousand acres annually within the 3 Bars Project area. However, by not conducting fire treatments to reduce the risk of wildfire, the potential for wildfire to adversely affect life and property, access, and resource use on or near the 3 Bars Project area would be greater than for Alternative A.

3 Bars Project treatments and potential short-term access restrictions would occur on about 63,000 acres, or about 8 percent of the CESA under Alternative B. There would be no permanent features or exclusion areas associated with 3 Bars Project actions.

### **3.19.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on land use and access would be similar to those described under Alternative A. Under Alternative C, less effort would be spent by the BLM on treatments to conduct hazardous fuels and habitat improvement projects to reduce wildfire risk and improve the health and resiliency of the vegetation than would occur under Alternatives A and B. By not being able to use mechanical methods and fire, the BLM would treat fewer acres to reduce hazardous fuels, create fire and fuel breaks, remove downed wood and slash, control noxious weeds and other invasive non-native vegetation, and improve vegetation health and condition to make it more resilient to wildfire. Thus, the potential for wildfire to adversely affect life and property, access, and resource use on or near the 3 Bars Project area would be greater than for Alternatives A and B.

3 Bars Project treatments, and potential short-term access restrictions, would occur on about 32,000 acres, or 4 percent of the CESA under Alternative C. There would be no permanent features or exclusion areas associated with 3 Bars Project actions.

### **3.19.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, there would be no cumulative effects on land use and access from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually), under existing and likely future authorizations. Any future authorizations would undergo environmental review before authorization.

3 Bars Project treatments, and potential short-term access restrictions, would occur on about 2 percent of the CESA under Alternative D. There would be no permanent features or exclusion areas associated with 3 Bars Project actions.

### **3.19.3.5 Unavoidable Adverse Effects**

There could be temporary access restrictions from treatments. Treatments would not preclude future land use authorizations within the project area, and would not conflict with BLM land use objectives. The BLM would closely coordinate activities with landowners within the project area and the public to ensure that they are not harmed by treatments.

### **3.19.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

There could be temporary access restrictions from treatments. Treatments that reduce the risk of future catastrophic wildfire through fuels reduction, however, would improve ecosystem resilience and sustainability and reduce the risk of life and property and public resources on or near the 3 Bars Project area from catastrophic wildfire.

### **3.19.3.7 Irreversible and Irretrievable Commitment of Resources**

There would be no irreversible or irretrievable commitment of resources associated with land use and access.

### **3.19.3.8 Significance of the Effects under the Alternatives**

Impacts to land use and access from actions under all the alternatives, including the construction and operation of the Mount Hope Project and other oil, gas, geothermal, and other potential development projects within the CESA, would not be significant. Under the Federal Land Policy and Management Act, public lands are managed for multiple resources, including livestock grazing, recreation and other public uses, and mining and other resource development. As noted in the Shoshone-Eureka RMP Record of Decision, livestock grazing, mineral development, land disposal, and utility corridor designations are authorized on lands within the CESA. Thus, the 3 Bars Project and other reasonably foreseeable future actions within the CESA 1) would not conflict with existing land uses and current land use authorizations; 2) would not cause a substantial change in land use designations; 3) would not cause a substantial reduction in opportunity for rights-of-way authorizations and development activities; and 4) would not cause a substantial reduction in the opportunity for land tenure adjustments.

### **3.19.4 Mitigation**

No mitigation measures are recommended for land use and access.

## **3.20 Recreation**

### **3.20.1 Regulatory Framework**

The BLM's Shoshone-Eureka RMP provides the primary regulatory framework for management of recreation opportunities within the project area since nearly all lands within the area are administered by the BLM (USDOI BLM 1987). The Battle Mountain District Office is in the process of updating its RMP, and the updated RMP will combine the Shoshone-Eureka and Tonopah planning areas. BLM lands within the project area are managed "to encourage safe, public access and recreational use of public lands while ensuring protection of important resource values."

There are two WSAs in the study area, Roberts Mountains WSA and Simpson Park WSA. These WSAs are discussed in more detail in Section 3.21, Wilderness Study Areas and other Special Management Areas. There are no Special Recreation Management Areas designated within the project area.

All BLM lands and recreation uses are managed as Extensive Recreation Management Areas. Extensive Recreation Management Areas are areas where management consists primarily of providing basic information and access. Dispersed recreation occurs in Extensive Recreation Management Areas, and visitors have the freedom of recreational choice with minimal regulatory constraints. Significant public recreation issues or management concerns are limited in these areas, and nominal management suffices (USDOI BLM 2007c:3-72). The Shoshone-Eureka RMP indicates that the BLM should "provide dispersed recreation opportunities" (with minimal facilities to support such activities and protect sensitive resources) within Extensive Recreation Management Areas.

In addition to recreation guidance provided in the BLM RMP, BLM Manual 6280, *Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation*, provides guidance on management of the Pony Express National Historic Trail, and both Eureka County and the Nevada Statewide Comprehensive Outdoor Recreation Plan provides information, recommendations, and guidance related to the provision and management of statewide recreation opportunities (Eureka County 2010, Nevada Division of State Parks 2010, USDOI BLM 2012n).

## 3.20.2 Affected Environment

### 3.20.2.1 Study Methods and Study Area

Sources of recreation-related information used in this EIS include federal, state, and local land management plans (with recreation elements), visitor and activity-specific use estimates, published literature and studies, including the Mount Hope Project EIS (USDOI BLM 2012c), and personal communications with BLM staff. The proposed action and alternatives were then compared to these existing conditions to determine the potential for and expected severity of conflict with existing and planned recreational uses of the project area.

The study area for the assessment of direct and indirect effects for recreation is the 3 Bars Project area. The cumulative effects study area extends 15 miles from the project area boundary (**Figure 3-1**).

### 3.20.2.2 Recreation Activities and Use Levels

From October 2009 through September 2011, the BLM estimated that recreation use in the Mount Lewis Field Office planning area accounted for approximately 229,000 visitor days, of which dispersed use accounted for about 164,000 days (72 percent; USDOI BLM 2012n). Developed recreation generally occurs at constructed and/or specifically designated recreation sites and areas, while dispersed recreation use occurs away from these constructed/designated recreation sites and areas. It is unknown how much of this use occurred within the study area, though BLM staff describe project area use levels as low (around 100 visitors on a typical day across the study area, though the number of visitors can frequently be much lower and occasionally higher) and typical of more remote, rural areas. While most of this use is likely from locals, a portion is also from visitors from other parts of the state, as well as from out-of-state visitors.

The most common recreation activities in the project area include hunting, fishing, wildlife viewing, off-highway vehicle use, horseback riding, sightseeing, mountain biking, hiking, and rock collecting, among others (Arky and Foree 2012, USDOI BLM 2012n, o). This range of recreation opportunities is possible because most BLM lands within the project area are open and accessible to public use via roads and trails. In most cases, activity-specific use estimates are not available for the study area.

There are a variety of hunting opportunities within the study area and region. Common species hunted include mule deer, pronghorn antelope, mountain lion, rabbits, greater sage-grouse, chukar partridge, quail, mourning dove, and waterfowl. Big game hunt statistics for desert bighorn sheep, pronghorn antelope, and mule deer for the hunt units that are within or that overlap the analysis area are shown in **Table 3-60**. The hunt unit statistics reflect the average number of animals harvested in each unit. This is a result of the statistics being divided by multiple hunt unit groups provided in the NDOW harvest data. In addition, 172 elk hunting tags were issued and 72 elk were killed in 2011, for hunt units 161, 162, 164, 171, and 173 combined (NDOW 2012f).

Fishing use within the 3 Bars Project area occurs primarily along Pete Hanson Creek, Birch Creek, Roberts Creek, and in the Tonkin Reservoir. The Roberts Creek Reservoir and Vinini Creek are no longer fishable and JD Ponds and Denay Creek are on private lands with restricted access. These creeks and other water bodies have trout and other sport fisheries that are popular with locals and visitors. **Table 3-61** displays annual average use estimates for creeks and water bodies in the study area (NDOW 2012f).

There are very few special recreation permits given out by the Mount Lewis Field Office for recreation activities within the project area. While the BLM permits occasional hunting related outfitting/guiding services that may occur in the project area, the primary annual permit is for XP Rides to conduct an organized ride on the Pony Express National Historic Trail. This annual event, typically conducted in June, involves re-riding the entire, multi-state length of the Pony Express National Historic Trail. Additionally, there is informal recreational use of the Pony Express National Historic Trail through visits by individual users or small groups (Kreutzer 2013).

**TABLE 3-60**  
**2011 Harvest by Hunt Unit and Group**

Desert Bighorn Sheet				Pronghorn Antelope				Mule Deer				
Hunt Unit / Group	Tags	Number Killed	Percent Success	Hunt Unit / Group	Tags	Number Killed	Percent Success	Hunt Unit / Group	Tags	Number Killed	Percent Success	
161	11	9	82	065	41	24	59	065	58	43	74	
162-163	4	4	100	142				69				
				144	151	105	70	142	554	19	43	
				141				143		34		
				143				144		90		
				151				145		26		
				152				Management Area 14		238		
				154	151	77						
				155	152	70						
				131	154	41						
				145	155	47						
				163	76	52	68	Management Area 15	548	235	43	
				164				161				97
				161	27	24	89	162	501	206	41	
				162				163				26
								164				10
									Management Area 16			

Source: NDOW (2012f).

**TABLE 3-61**  
**Annual Average Fishing Use in the Study Area (1980-2010)**

Creek/Water Body	Annual Average Number of Anglers (minimum/maximum)	Annual Average Angler Days (minimum/maximum)
Roberts Creek	42 (0 / 106)	126 (0 / 606)
Roberts Creek Reservoir	3 (0 / 71)	3 (0 / 71)
Pete Hanson Creek	4 (0 / 30)	7 (0 / 60)
Vinini Creek	1 (0 / 20)	1 (0 / 20)
JD Ponds	10 (0 / 56)	24 (0 / 184)
Denay Creek	3 (0 / 46)	7 (0 / 184)
Tonkin Reservoir	90 (11 / 463)	220 (11 / 1,246)

Source: NDOW (2012g).

### **3.20.2.3 Recreation Management and Use Areas**

BLM lands without special designations within the project area are currently managed as an Extensive Recreation Management Area. Dispersed types of recreation are the predominate uses within the project area, as well as the surrounding rural region. Since dispersed uses tend to require minimal constructed or developed facilities, there are few developed or designated recreation sites within the project area. There is an existing network of roads and trails that provide access to dispersed recreation opportunities throughout the study area (Arky and Foree 2012, USDO I BLM 2012n, o).

Roberts Mountains are one of the primary recreation destinations within the project area. The Roberts Mountains have several creeks (Roberts, Pete Hanson, and Tonkin Springs) that are popular fishing spots for both locals and visitors. Other recreation opportunities in the Roberts Mountains include hiking, camping, wildlife viewing, and hunting. This area and its diverse opportunities serve as an important local recreation asset given the proximity of the Roberts Mountains to nearby towns in Eureka County and the existing network of access roads and trails throughout the study area (Arky and Foree 2012, USDO I BLM 2012n, o).

The Pony Express National Historic Trail crosses the project area (**Figure 3-52**). This national trail follows the historic route used by the Pony Express and links St. Joseph, Missouri, to Sacramento, California. While the Pony Express was only in operation for 18 months (April 1860 through October 1861), it has come to represent the Old West in each of the eight states (California, Colorado, Kansas, Missouri, Nebraska, Nevada, Utah, and Wyoming) it passes through. The section of the trail that passes through the project area is part of the Overland Canyon to Simpson Park Station High Potential Segment of the Pony Express National Historic Trail. The National Trails System Act defines a High Potential Segment as “those segments of a trail which would afford high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.” The BLM has direct management responsibility and authority for the trail within its jurisdictional boundaries, and the USDO I National Park Service is the trailwide administrator for programmatic, planning, and co-ordination purposes (USDO I National Park Service 1999, 2012, Kreutzer 2013).

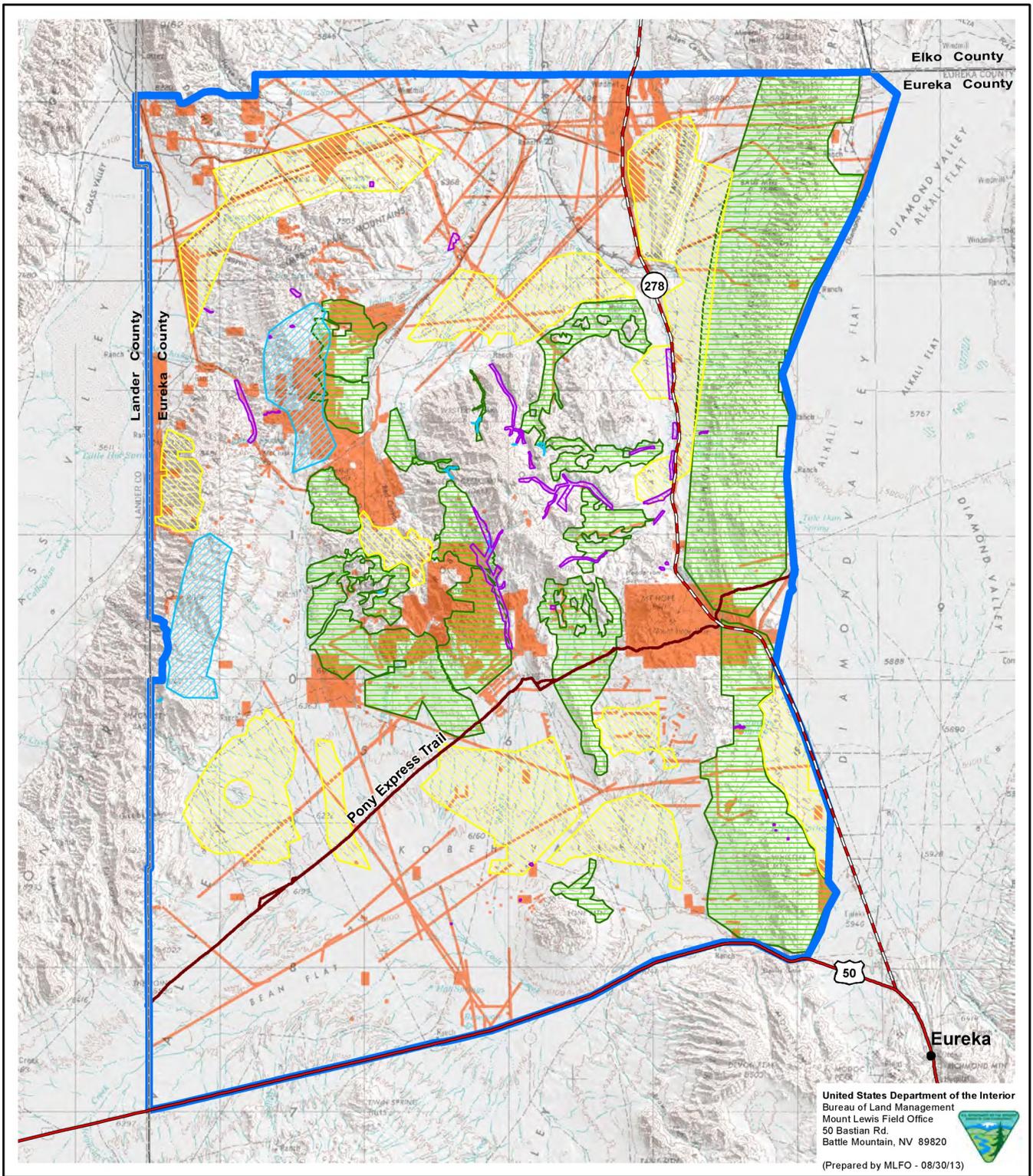
## **3.20.3 Environmental Consequences**

### **3.20.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Based on information in the AECC and public scoping comments the following concerns regarding recreation were identified and are discussed in this impact analysis.

- Off-highway vehicle use could damage and/or jeopardize completed restoration work.
- Treatments could promote additional off-highway vehicle use and new routes.
- If recreation opportunities are lost as a result of restoration efforts, there could be associated impacts to the local and regional economy.
- Roads and livestock facilities near roads are contributors to fire.

These and other recreation-related issues (e.g., access, visitor experiences, etc.) were considered during the evaluation of consequences that could reasonably be anticipated under the proposed restoration effort.



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- Legend**
- Pony Express Trail
  - Cultural Resource Inventory
  - 3 Bars Project Area
  - Pinyon-juniper Treatment Area
  - Sage Treatment Area
  - Aspen Treatment Area
  - Riparian Treatment Area

**3 Bars Ecosystem and Landscape Restoration Project**

**Figure 3-52**

**Cultural Resource Inventory**

0 1 2 3 4 5 10 Miles  
 0 1 2 3 4 5 10 Kilometers

Source: BLM 2012g.

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

### **3.20.3.2 Significance Criteria**

The proposed action and alternatives were assessed within the existing recreation management frameworks that guide recreation opportunities in the 3 Bars ecosystem and vicinity, including the Shoshone-Eureka RMP, Eureka County, Nevada Division of State Parks, and other relevant plans. For purposes of this assessment, the proposed action and alternatives are considered to have a significant effect on recreation if they meet one or more of the following significance criteria:

1. The action conflicts with formally established recreation and other appropriate public uses (i.e., would the action limit and/or restrict existing and/or future recreation and public use?).
2. The action substantially degrades or reduces the quantity or quality of the area available for existing or future recreational opportunities (i.e., would the action degrade visitor satisfaction with and/or overall quality of the recreation experience?).
3. The action results in the permanent damage or impairment of a unique, nationally significant recreation resource (i.e., would the action result in the loss of a recreation resource of regional and/or national importance?).

Impacts to historic trails would be considered significant if the Proposed Action or alternatives resulted in any of the following:

1. Changes to the landscape adjacent to a historic trail that cannot be mitigated to a BLM Class II Visual Resource Management objective, as outline in BLM Instructional Memorandum NV-2004-004.
2. Permanent or long-term limitation of use of an identified portion of a national historic trail.

### **3.20.3.3 Direct and Indirect Effects**

#### **3.20.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

In general, the potentially affected lands in the 3 Bars ecosystem do not offer unique recreational opportunities (WSAs are addressed separately in Section 3.21). There are no recreation resources of regional and/or national importance. However, these lands do play an important role in the local provision of recreation opportunities, with a focus on dispersed uses (e.g., off-highway vehicle use, hunting, fishing, wildlife observation, etc.). As such, the restoration actions proposed under each of the alternatives would not affect developed or other areas of highly concentrated recreational use. Instead, the proposed actions would primarily influence undeveloped recreation opportunities and the users of those areas. Given the size of the 3 Bars Project area (about 750,000 acres) and relatively low levels of use (about 100 visitors on a typical day), the proposed restoration treatments would affect only a small number of visitors.

The 3 Bars ecosystem area is managed as an Extensive Recreation Management Area and open to multiple types of dispersed recreation activities. Per the proposed restoration actions, recreation and specifically off-highway vehicle use would continue to be allowed throughout the 3 Bars Project area, though periodic closures of specific areas are anticipated to help the restoration effort and minimize human health risks. Under all treatment methods, the size of closed areas and duration of the temporary closures would be the most pronounced and potentially significant effects on recreation.

### *Adverse Effects*

There would be some short-term scenic degradation, as well as distractions to users (e.g., noise from machinery), from treatments. Some areas would be off-limits to recreation activities as a result of treatments, for periods ranging from a few hours to days, or even 1 full growing season or longer, depending on the treatment. In most cases, recreationists would be able to find alternative sites offering the same amenities, although a lessened experience could result from more concentrated use in these alternative sites.

In the short-term (less than 3 years) general recreation impacts would be negative and include the following:

- Temporary closure and loss of recreational uses of dispersed areas during treatment implementation.
- Disturbance from workers, equipment, and/or movement of people and equipment associated with treatments.
- Temporary displacement of wildlife for both consumptive (e.g., hunting, fishing, etc.) and non-consumptive (e.g., wildlife viewing, photography, etc.) users.

The temporary closure of specific areas would be the most direct effect on recreation during the implementation actions proposed under each of the alternatives. Visitors would be restricted from accessing the treatment areas during active implementation and likely for an appropriate establishment period post-implementation. This would generally degrade the visitor experience (in particular for those visitors who intended to visit an area closed for treatment) and displace visitors to other dispersed use areas within the 3 Bars ecosystem and/or other regional areas.

In addition to displacing visitors, the proposed treatments could also temporarily displace wildlife. However, this could increase the availability of wildlife in adjacent areas that do not have access or public use restrictions. While both visitors and wildlife could be displaced during the proposed treatments, there could also be more wildlife-related opportunities in areas not affected by closures (e.g., a higher density of game animals in non-treatment areas). So, while temporary displacement of visitors and wildlife could be considered a negative effect, there could also be a related beneficial impact to wildlife-dependent recreation opportunities and experiences in nearby areas not affected by the treatments.

Recreational users of the Pony Express National Historic Trail could potentially be impacted by treatment activity and noise during implementation of the treatments and the visual aspects of the recreational experience of the trail may be affected in the short term until vegetation recovers to the point where it no longer appears that it has been manipulated.

### *Beneficial Effects*

Long term, the effects of treatments on recreation would be positive and would include the following:

- Restoration of the historic landscape that would be beneficial to the visitor experience, including the Pony Express National Historic Trail retrace experience.
- Improved habitat and associated wildlife.
- A reduction in the presence and number of noxious weeds and invasive non-native vegetation.
- A reduction in the risk of a large-scale, catastrophic wildfire.

Improved habitat and associated wildlife and a reduction in noxious weeds and invasive non-native vegetation should contribute to an enhanced recreation experience in the 3 Bars ecosystem. Improved fish and game habitat and populations should provide additional and/or improved hunting and fishing opportunities. Improved habitat should enhance the overall scenic quality of the area, while removal of noxious weeds and invasive non-native vegetation would reduce the likelihood of visitors being harmed or inconvenienced by these plants, and could influence the visitor experience. Additionally, a reduction in wildfire risk should lead to fewer temporary closures to protect human safety (i.e., fewer public access constraints from fires).

### **3.20.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

#### ***Riparian Treatments***

##### **Adverse Effects**

Short-term effects would generally be negative, and include temporary closures or lack of access to fishing sites, visitor displacement (to other fishing sites), and potential degradation in the visitor experience, both from the temporary closures and visual disturbances associated with the various treatment methods.

While temporary closures would be likely during manual treatments, this type of treatment would result in the fewest impacts to recreation. Since manual treatments tend to be most feasible on smaller-scales, only small areas would be subject to temporary recreation and public use closures. During manual treatments, there could be some distractions from additional staff and equipment, though given the scale of these efforts, these distractions would not likely overly degrade scenic quality.

Mechanical treatments would be used to restore stream channel functionality. Activities at treatment sites could distract visitors, and large equipment used to restore stream channels could be heard for several miles. Direct habitat alteration or loss of habitat could occur in Lahontan cutthroat trout and other game fish streams (Birch, Pete Hanson, and Willow Creeks) and cause reduced fishing opportunities for fishermen.

Fire could be used on a few acres annually within the riparian zone for treatments in the Frazier Creek and Garden Spring groups. Prescribed burns may require public notices and temporary closure of areas within the 3 Bars Project area during the burn.

Temporary fencing could be used to exclude livestock, wild horses, and wild ungulates from riparian zone treatment areas for at least 2 years. Although visitors could likely scale fences to access treatment sites, if desired, fences could discourage recreation use of the area.

##### **Beneficial Effects**

Treatments would improve the aesthetic and visual qualities of recreation areas for hikers, birdwatchers, and other public land users; reduce the risk of recreationists coming into contact with noxious weeds and other invasive non-native vegetation; increase the abundance and quality of plants harvested from public lands; and improve habitat for fish and wildlife sought after by fishermen and hunters.

Given the location of proposed riparian treatments along stream corridors and along other waterbodies, in particular in several areas that are popular for fishing, the effects of riparian projects on recreation would likely be more pronounced for anglers compared to other visitors. The enhancements to riparian zones and game fish habitat would

also improve the recreation experience (e.g., cohesive visual landscape, healthier fish populations and potential catch rates, etc.).

Removal of pinyon-juniper in the riparian zone for all treatments groups, except the Black Spring and Denay Pond groups, would enhance its capabilities to function as a fire or fuel break. These treatments would reduce the spread of future wildfires on public lands used for recreation. As a result, recreationists would be provided with safer conditions, and there would be less of a chance that a wildfire would destroy a large acreage of lands used for recreation. Severe wildfires are capable of causing damage to recreational resources over large areas that subsequently require long periods of time for recovery. In addition, treatments that reduce the risk of wildfire would reduce the likelihood of recreationists being displaced from their favorite hunting, fishing, and camping sites by wildfires.

### ***Aspen Treatments***

Aspen treatments could result in wildlife habitat enhancements that have the potential to beneficially influence the recreation experience in the long-term in these areas. Aspen stands are unique, and quite beautiful in the fall when the leaves change colors, and efforts to preserve and enhance these stands would benefit sightseers.

Most pinyon-juniper removal would occur near roads to promote development of fire breaks near aspen stands. Fire breaks would help to protect aspen stands, and other woodland and rangeland habitat from wildfire. Protection of 3 Bars Project resources would be beneficial to users of these resources, and reduce the amount of area that would be closed to livestock and recreational users due to emergency stabilization and rehabilitation of burned areas.

### ***Pinyon-juniper Treatments***

#### **Adverse Effects**

Pinyon-juniper treatment projects would affect off-highway vehicle use, hunting, and other dispersed uses that occur in the 3 Bars ecosystem. Additionally, several of the pinyon-juniper treatment projects are proposed along creeks that provide fishing opportunities. Anglers who use these creeks would be affected by the treatments. In the short-term, temporary closures, distractions and changes in the scenic integrity of the landscape, and degradation of the experience would negatively affect recreational users.

Recreationists likely would not be excluded from Phase I areas where pinyon-juniper removal is primarily done using manual or mechanical methods, especially if the treatments do not result in substantial soil disturbance and reseeded is not necessary. Low intensity treatments such as thinning would generally be less restrictive to recreational uses than treatments such as chaining or disking. People recreating in nearby areas would be able to hear the motorized equipment and could be exposed to some exhaust smells, but these effects would last only as long as the treatment itself. After the completion of treatments, vegetation would be absent from large portions of the landscape and bare soil would be exposed, making the site less desirable for recreation. The use of heavy machinery would disrupt the treatment area, breaking limbs and disturbing soil. It is also likely that some large debris would be left behind, creating obstacles for certain types of recreational uses (USDOI BLM 2007c:4-120).

Prescribed burns would require the closure of burn areas to visitors during burn activities. People recreating in nearby areas would be able to see and perhaps smell smoke. The potential for smoke inhalation could result in some health risks to these users (see Section 3.25, Human Health and Safety), depending on their vicinity and position (i.e., upwind or downwind) in relation to the fire. Because smoke impairs visibility, views of the landscape could be blocked during burning. These effects would reduce the recreation experience, but would typically last only as long as

the burn treatment itself. After a fire, the burned area would appear blackened, and some residual vegetation would be charred, making the area undesirable for most recreational uses for a period of 1 or more years. Four-wheel drive vehicles and other off-highway vehicles could be excluded from areas treated with fire to minimize damage to these sites while they revegetate. Low impact uses such as camping and hiking would generally not be restricted, but it is likely that burned areas would be avoided by users engaging in these types of activities. Visitation to a prescribed burn area would decline drastically or cease altogether in the short term (USDOI BLM 2007c:4-120).

As a result of thinning and removal treatments, the number of pinyon pine and juniper trees within woodland products harvest areas would be reduced. Treatments would affect approximately 26 percent of the total designated woodland products harvest area, including Christmas tree, green wood, and commercial and public pine nut harvest areas. Removal of pinyon pines and juniper from these areas would eliminate or limit the ability to harvest woodland products there, although most of the project area would not be affected.

### **Beneficial Effects**

Pinyon-juniper treatments would improve woodland health, productivity, and functionality; slow the expansion of pinyon-juniper into sagebrush and riparian plant communities; increase pine nut production; and reduce the risk of catastrophic wildfire, to the benefit of recreational users. Treatments could also lead to increased forage for wildlife, and water for fish, and increase the capacity of the land to support game fish and wildlife and increased hunting and fishing opportunities. However, these gains may not be realized for a decade or more, or until treated areas have fully recovered.

The BLM allows firewood and Christmas tree harvesting, greenwood cutting, and pine nut gathering on the 3 Bars Project area, and would continue to do so in the future in treatment and non-treatment areas. The BLM would also allow the public to cut live pinyon-juniper trees in areas where pinyon-juniper trees are tightly spaced and harming the growth of herbaceous vegetation and sagebrush, in order to help slow pinyon-juniper encroachment into riparian, aspen, and sagebrush habitats. These actions would promote recreation, by promoting a healthier woodland and rangeland that in turn would promote woodland recreational activities, healthy populations of fish and game, and an enhanced scenic quality. By thinning and removing pinyon-juniper, competition among remaining trees for water and other resources would decline, and the remaining pinyon pines should be able to produce more nuts for use by the public. Downed logs would also be placed in streams to benefit game fish habitat.

Fuels reduction treatments would reduce the severity of future wildfires on public lands used for recreation. As a result, recreationists would be provided with safer conditions, and there would be less of a chance that a wildfire would destroy a large acreage of lands used for recreation. Wildfires are capable of causing damage to recreational resources over large areas that subsequently require long periods of time for recovery. In addition, treatments that reduce the risk of wildfire would reduce the likelihood of recreationists being displaced from their favorite hunting, fishing, and camping sites by wildfires (USDOI BLM 2007c:4-122).

### ***Sagebrush Treatments***

#### **Adverse Effects**

Recreationists likely would not be excluded from areas such as those in the Alpha Unit group and Table Mountain 1 and Three Corners units, where sagebrush is thinned to promote forb and grass development, and in historic sagebrush communities with Phase I and II pinyon-juniper, using chainsaws, roller choppers, mowers, smooth chains, or other manual and mechanical equipment.

Prescribed fire could be used on a few acres annually in mountain big sagebrush communities, primarily the Three Corners Unit. Prescribed fire, along with other treatment methods could also be used to manage noxious weeds and other invasive non-native vegetation on the Rocky Hills, Table Mountain, and West Simpson units. Recreationists would be excluded from prescribed fire areas during the burn, but would be allowed into the burn area when the BLM deems it is safe for re-entry. Treatment sites would be posted to inform the public of any access restrictions. During treatments, there would be some scenic degradation and distractions to users (noise from machinery and crews), but given the small amount of area treated annually, these effects should be minor.

Biological control has been identified for use in the Table Mountain 1 and 2, Rocky Hills, and West Simpson Park units. Grazing may be used to maintain firebreaks and to help reduce wildfire risk in these areas. Grazing can contribute to the spread of noxious weeds and other invasive non-native vegetation through preferential grazing of native vegetation over weeds, and by movement of noxious weeds and other invasive non-native vegetation into uninfested areas in livestock feces (USDOI BLM 2009b). The spread of noxious weeds and other invasive non-native vegetation by livestock could degrade recreation resources on the 3 Bars Project area.

Much of the focus of treatments in sagebrush is to improve habitat for fish and game species of importance to sportsmen. Manual and mechanical treatments could result in increased water runoff and erosion, and spills of fuels and lubricants, to the possible detriment of game fish populations in these creeks.

### **Beneficial Effects**

Treatments that restore native vegetation and natural fire regimes and ecosystem processes would be beneficial to recreationists. Treatments would reduce the risk of recreationists coming into contact with noxious weeds and other invasive non-native vegetation; increase the abundance and quality of plants harvested from public lands; and improve habitat for fish and wildlife sought after by fishermen and hunters and the recreational experience through improved scenery and increased populations of fish and game species.

Over 85 percent of the acres treated would occur where the BLM has determined that pronghorn antelope habitat is declining, nearly 65 percent of acres treated would occur where greater sage-grouse habitat is declining, and 45 percent of the acres treated would occur where mule deer habitat is declining. Manual and mechanical treatments would create a grass-shrub mosaic favored by greater sage-grouse, pronghorn antelope, mule deer, and other wildlife that could be harvested by hunters.

Removal of pinyon-juniper and sagebrush through thinning and prescribed fire would create a mosaic of vegetation ages (young and old stands of sagebrush) and types (shrub, grass, forb) that should enhance the visitor experience. By opening up dense stands of sagebrush and removing pinyon-juniper to promote the reestablishment of grasses, forbs, and sagebrush, habitat for wildlife and game species would improve. Fire has been shown to increase grass production in sagebrush habitats, which benefits mule deer (Lauer and Peek 1976, Willms et al. 1981, Payne and Bryant 1998).

Efforts to restore areas dominated by non-native vegetation would make these areas more visually appealing and better suited for fish and wildlife, and would reduce the risk of future wildfires, all of which benefit the recreationist.

#### **3.20.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

The types and magnitude of effects for manual, mechanical, and biological control treatments would be similar between Alternatives A and B. Because the BLM would not be able to use fire, however, there would be none of the

adverse effects associated with this treatment type. In particular, there would be no harm to recreationists from prescribed fire and wildland fire for resource benefit. However, with greater reliance on mechanical methods, there may be greater disturbance to the public from the use of mechanical equipment than would occur under Alternative A.

Acres and types of wetland and riparian habitat treated would be similar to Alternative B, and the BLM would use temporary fencing to protect treatment areas. However, the BLM would not use fire to slow pinyon-juniper encroachment into sagebrush and riparian communities, or treat Phase II and III pinyon-juniper to improve woodland health and reduce hazardous fuel. Thus, there would be fewer gains in wildlife forage production outside of riparian zones, and greater risk of habitat loss from catastrophic wildfire, under this alternative than under Alternative A, to the detriment of recreational resources and the public.

Some treatments to improve historic pinyon-juniper communities would occur, which could benefit future pine nut harvest in these areas long term, but the acreage benefiting from these treatments would be substantially lower than under Alternative A.

### **3.20.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, the BLM would only be able to use manual and classical biological control methods to treat vegetation. The consequences of not using fire under Alternative C would be the same as those discussed under Alternative B.

Effects to visitors from noise and disturbance associated with mechanical treatment equipment would not occur under this alternative. By not being able to use mechanical equipment, however, the BLM would also not be able to conduct stream engineering and restoration, except on a limited basis on only a few stream miles; control noxious weeds and other invasive non-native vegetation, except on very small areas where this vegetation can be hand pulled or controlled using hand tools; reseed and replant restoration sites, except for small areas where shrubs and other vegetation would be planted by hand; or create fire and fuel breaks to reduce the risk of fire spread, except near existing roads or aspen stands, or along a few miles of stream. As a result, there would be less improvement in vegetation and water quantity and quality, and more risk of catastrophic wildfire, than under Alternatives A and B, to the detriment of the recreational user.

The BLM has not identified areas where it would use classical biological control on the 3 Bars Project area. The use of biological control agents would have few effects on recreation areas and visitors to public lands since they would be used on a limited number of acres and to specifically control undesirable species without disturbing desirable vegetation or the land. During the release of biological control agents, there would be some workers present that could cause a minor distraction to visitors in the area.

Under Alternative C, the BLM would not substantially improve the native vegetation community nor stop the loss of important ecosystem components. As a result, the visitor use experience could decline long term.

### **3.20.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct or indirect effects on recreation from 3 Bars Project treatments as no treatments would be authorized under this alternative. Thus, long-term loss of recreational opportunities and deterioration in the visitor experience would be greatest under Alternative D.

### **3.20.3.4 Cumulative Effects**

The CESA for recreation is approximately 2,599,851 acres and includes the 3 Bars Project area and the BLM visual resource management background distance zone (15 miles; **Figure 3-1**). This area was selected based on the anticipated increase in population and corresponding demand for recreation opportunities by residents in the project vicinity (e.g., Eureka, Battle Mountain, etc.), as well as the location of other nearby recreation resources (e.g., Hickison Petroglyph Recreation Site). Approximately 94 percent of the area is administered by the BLM and 6 percent is privately owned. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

#### **3.20.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

In general, while there are locally important recreation resources in the CESA, the types of dispersed recreation resources available in the area are not of regional or national significance except the Pony Express National Historic Trail, which has been Congressionally designated as a recreation resource. Recreational use within the CESA is thus likely to increase proportionally to changes in the regional population. As recreational use increases over time, there tends to be an inevitable increase in public demand for recreation opportunities and a corresponding increase in expectations about the quality of the recreation experience. The cumulative effects from the proposed 3 Bars Project, as well as past, present, and reasonably foreseeable future actions are considered within this context of increasing population and recreation demand, including potential changes in recreation resources and experiences.

The BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact forage and other rangeland resources. The BLM would also conduct wild horse gathers, conduct AML reviews and adjustments, remove excess animals and use fertility control, adjust HMA boundaries, remove fencing that hinders wild horse movement, improve water developments, and implement habitat projects that help to distribute wild horses more evenly across the rangeland. Efforts to better distribute livestock and wild horses across the rangeland should provide for a more natural visitor experience and reduce the potential for livestock/wild horse/visitor conflicts.

The BLM could apply herbicides using ground-based methods under existing authorizations. These treatments would be small and have few visitor impacts. The BLM could also use aerial herbicide applications to control cheatgrass on several hundred or more acres annually on the Table Mountain and West Simpson Park units. There could be short-term visitor access restrictions in treatment areas. However, the units consist of degraded lands of low recreational value.

The population within southern Eureka County is projected to increase by 50 percent during construction and operation of the Mount Hope Project. With an increase in population in the CESA due to population growth, and employment opportunities such as the Mount Hope Project, the number of recreational users in the CESA should increase. Recreational users in the 3 Bars analysis area can spread noxious weeds and other invasive non-native vegetation that attaches itself to vehicles or to clothing or shoes, and can later cause new noxious weeds and other invasive non-native vegetation infestations, possibly impacting other land uses within the CESA.

Land, mineral, oil, gas, geothermal, and other development would increase levels of land disturbance and spread of noxious weeds and other invasive non-native vegetation within the 3 Bars Project and nearby areas. Development would lead to additional human activity in the area, and possible degradation of other land uses within the analysis area. Past mining activities associated with the Atlas Gold Bar Mine degraded rangeland resources on about 1,300

acres within the CESA. The proposed Mount Hope Project would disturb about 8,300 acres, and fencing would be used to restrict public access on an additional 6,000 acres. As noted in the Mount Hope Project EIS, mining could substantially alter the groundwater level near the mine pit, causing a drawdown in water that could affect surface water flows, groundwater levels, and vegetation on Roberts Mountains and in Kobeh Valley and Diamond Valley, to the detriment of native vegetation and fish and wildlife habitat (USDOI BLM 2012c:3-74 to 3-90). In addition, removal of Mount Hope would have an impact on the historic setting of the Pony Express National Historic Trail. The mountain is visible for miles and its removal will alter the character of the trail and the ability of recreationists to experience the trail as it existed in 1860-61. In addition, access would be virtually eliminated for a segment of the trail that passes within the mine boundary. The 3 Bars Project would not significantly add to this impact since none of the proposed treatments would further limit access to any portion of the trail within the 3 Bars Project Area. These effects could degrade the recreational experience within the CESA.

Catastrophic wildfire can burn extensive areas of vegetation. Based on acreage burned by wildfires since 1985, an estimated 140,000 acres would be burned by wildfires in the CESA during the next 20 years. To reduce the risk of catastrophic wildfire and to restore the health and resiliency of native vegetation, the BLM would treat up to 127,000 acres to reduce hazardous fuels. The BLM also proposes to treat hazardous fuels on an additional 15,000 acres under current authorizations in high to very high fire risk areas within the CESA. Recreational access to treatment areas could be restricted during the treatment period, and it is likely that the treated area would have few recreation values, for several years after treatments. Over time, this reduction in fuels, however, would allow for more natural forage within the project area, benefiting game populations and hunting opportunities, and improve the health of pinyon-juniper stands, which could benefit nut production. In addition, treatments would reduce the risk of catastrophic wildfire, which would benefit native plant communities and fish and game.

3 Bars Project treatments would occur on only about 5 percent of the CESA. Treatments would result in localized effects and would not substantially alter the availability of dispersed recreation opportunities in the CESA or larger region. However, by nature, many types of dispersed uses (e.g., off-highway vehicle use, hunting, wildlife viewing, etc.) require large tracts of undeveloped or little used natural areas. Actions that permanently alter and fragment the landscape (e.g., energy development, mining, land development, etc.), as well as similar unforeseen future actions, could eventually affect both the availability of dispersed use opportunities and experiences.

### **3.20.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

Under Alternative B, effects from non-3 Bars Project reasonably foreseeable future actions on recreation would be similar to those described under Alternative A. By not using fire, the amount of area disturbed by treatments would generally be smaller, and have less impact on fish and wildlife resources, and scenery, than other treatment methods. However, fewer acres would also be treated to restore landscape health and habitat for fish and game, and reduce the risk of catastrophic wildfire, and would not likely offset the increased potential for more extensive and intense wildfires to occur in place of controlled burns on the 3 Bars Project area.

About 63,000 acres of vegetation and 31 miles of stream would be disturbed from the 3 Bars Project, or only about 2 percent of the CESA. Treatments would result in localized effects and would not substantially alter the availability of dispersed recreation opportunities in the CESA or larger region. Still, there would be a long-term net benefit from BLM treatments that would help to offset some of the adverse effects to recreation resources from other reasonably foreseeable future actions. Actions would provide more recreation opportunities for a growing population, but not to the extent as would occur under Alternative A.

**3.20.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on recreation would be similar to those described under Alternative A. By not being able to use mechanical methods there would be less disturbance to public from treatments compared to Alternatives A and B. Without mechanical methods, however, the BLM would be less able to reduce hazardous fuels, remove noxious weeds and other invasive non-native vegetation, thin and remove vegetation to encourage understory development, create fire and fuel breaks, and remove downed wood and slash. The risk of wildfire and its effects on recreation would likely increase, while there would be few benefits to fish and game, under this alternative compared to Alternatives A and B.

About 32,000 acres of vegetation and 8 miles of stream would be disturbed from the 3 Bars Project, or only about 1 percent of the CESA. Treatments would result in localized effects and would not substantially alter the availability of dispersed recreation opportunities in the CESA or larger region. Still, there would be a minor long-term net benefit from BLM treatments that would help to offset some of the adverse effects to recreational resources from other reasonably foreseeable future actions. Actions would provide more recreational opportunities for a growing population, but not to the extent as would occur under Alternatives A and B.

**3.20.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on recreation would be similar to those described under Alternative A. There would be no cumulative effects on recreation from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually; less than 0.1 percent of the CESA). Thus, benefits to the recreating public would be substantially less under this alternative than under the action alternatives.

**3.20.3.5 Unavoidable Adverse Effects**

There would be some scenic degradation, as well as distractions to users (e.g., noise from machinery), from treatments. In addition, there would be some human health risks to recreationists associated with exposure to smoke from fire. Finally, some areas would be off-limits to recreation activities as a result of treatments. These effects would be localized and short term.

**3.20.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

There would be some scenic degradation, as well as distractions to users (e.g., noise from machinery), from treatments. These effects would be localized and short term. Treatments that restore native vegetation and natural fire regimes and other ecosystem processes would be beneficial to recreationists. Treatments would improve the aesthetic and visual qualities of recreation areas for hikers, bikers, horseback riders, and other public land users; reduce the risk of recreationists coming into contact with noxious weeds and other invasive non-native vegetation; increase the abundance and quality of plants harvested from public lands; and improve habitat for fish and wildlife sought by

fishermen and hunters. These benefits would be long term and improve the productivity of land resources and their ability to provide recreational values. (USDOI BLM 2007c:4-250).

### **3.20.3.7 Irreversible and Irretrievable Commitment of Resources**

There would be no irreversible or irretrievable commitment of recreation resources. Although there would be short-term impacts to recreation resources from vegetation treatments, these impacts would not be irretrievable and could be reversed if restoration treatments were successful (USDOI BLM 2007b:4-253).

### **3.20.3.8 Significance of the Effects under the Alternatives**

Under all the alternatives, direct and indirect effects of 3 Bars Project treatments, along with effects from other actions within the CESA, would not have a significant permanent conflict with formally established recreation and other appropriate public uses over the long term. Public access to the Mount Hope Project would be limited until the mine was reclaimed, and there may be access restrictions in other areas with resource development. As discussed in the Mount Hope Project EIS and ROD, few permanent restrictions are anticipated from the mine project (USDOI BLM 2012c:4-81) and there would be no permanent access restrictions associated with the 3 Bars Project.

Under all the alternatives, direct and indirect effects of 3 Bars Project treatments would not result in long-term changes to the landscape adjacent to the Pony Express National Historic Trail that cannot be mitigated to a BLM Class II Visual Resource Management objective, as outline in BLM Instructional Memorandum NV-2004-004, or in permanent or long-term limitation of use of an identified portion of the trail. The BLM would follow guidance in BLM Manual 6280, *Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation*, to ensure proper management of the Pony Express National Historic Trail (USDOI BLM 2012m).

In the long term, actions that would occur within the CESA would not significantly degrade or reduce the quantity or quality of the area that is available for existing or future recreational opportunities. 3 Bars Project restoration treatments could degrade or reduce recreational opportunities in the short term (< 5 years), but treatments should result in a healthy and functional landscape that provides additional recreational opportunities. Up to 15,000 acres could be off-limits to the public due to mining and other land uses for up to 70 years, but these areas are subject to reclamation requirements and would have minimal long-term effects on recreational opportunities in the CESA (USDOI BLM 2012c:4-81).

### **3.20.4 Mitigation**

No mitigation measures are recommended for recreation.

## **3.21 Wilderness Study Areas and other Special Management Areas**

### **3.21.1 Regulatory Framework**

The BLM manages certain lands under its jurisdiction that possess unique and important historical, anthropological, ecological, biological, geological, and paleontological features. These features include undisturbed wilderness tracts, critical habitat, natural environments, open spaces, scenic landscapes, historic locations, cultural landmarks, and paleontological-rich regions. Special management is administered with the intent to preserve, protect, and evaluate

these significant components of our national heritage. Most special areas are either designated by an Act of Congress or by Presidential Proclamation, or are created under BLM administrative procedures.

The National Landscape Conservation System is the primary management framework for these specially designated lands. The National Landscape Conservation System was created in June 2000 by the BLM to bring into a single system some of the agency's premier areas. National Landscape Conservation System designations include National Monuments, National Conservation Areas, Designated Wilderness and WSAs, National Scenic and Historic Trails, and Wild, Scenic, and Recreational Rivers (USDOJ BLM 2007c:3-70).

The only lands within the National Landscape Conservation System that are on the 3 Bars Project area are the Roberts Mountains WSA and a portion of the Simpson Park WSA, and the Pony Express National Historical Trail.

Wilderness Study Areas have been designated by the BLM as having wilderness characteristics, thus making them worthy of consideration by Congress for wilderness designation. While Congress considers whether to designate a WSA as permanent wilderness, the BLM manages the area to prevent impairment of its suitability for wilderness designation. BLM Manual 6330, *Management of BLM Wilderness Study Areas*, guides management decisions made for specific areas of public lands under wilderness review by Congress (USDOJ BLM 2012p). The policy applies to the following: 1) WSAs identified by the wilderness review required by Section 603 of the Federal Land Policy and Management Act; 2) WSAs established by Congress; and 3) WSAs identified through the land use planning process in Section 202 of Federal Land Policy and Management Act. The purpose of the manual is to prevent impairment of the wilderness values, described in Section 2 (c) of the Wilderness Act of 1964 (Public Law 88/577). The manual allows for actions that clearly benefit a WSA by protecting or enhancing these characteristics even if they are impairing, though they must still be carried out in the manner that is least disturbing to the site. Wilderness Study Areas are managed under the manual until such time as Congress makes a determination regarding wilderness designation; the manual would apply to the WSAs in the project area.

The Eureka County Natural Resource and Land Use Plan is an executable policy for natural resource management and land use on federal- and state-administered lands in Eureka County (Eureka County 2010). The Natural Resource and Land Use Plan was expanded in response to the passing of Nevada Senate Bill 40. Senate Bill 40 is intended to give Nevada localities an opportunity to address federal land use management issues directly. This bill requires that "A Plan or statement of policy must be approved by the governing bodies of the county and cities affected by it, and by the governor before it is put into effect."

As stated in the Natural Resources and Land Use Plan, a goal pertaining to Wilderness Areas, WSAs, and other special management areas is to "Seek immediate Congressional designation action on all WSAs and other restrictive land classifications based on Eureka County policy to release these areas for multiple use management and in the interim prevent, minimize or mitigate impairment or degradation of such areas to the extent that Congressional actions are not pre-empted." Similarly, an objective is to "Develop comprehensive guidance to Congress seeking release of all WSAs deemed by the Department of Interior to be unsuitable for wilderness designation to multiple use management."

Approximately 41 miles of the Pony Express National Historical Trail are within the 3 Bars Project area. This national trail follows the historic route used by the Pony Express and links St. Joseph, Missouri, to Sacramento, California. While the Pony Express was only in operation for 18 months (April 1860 through October 1861), it has come to represent the Old West in each of the eight states (California, Colorado, Kansas, Missouri, Nebraska, Nevada, Utah,

and Wyoming) it passes through. The section of the trail that passes through the project area is part of the Overland Canyon to Simpson Park Station High Potential Segment of the Pony Express National Historic Trail. The National Trails System Act defines a High Potential Segment as “those segments of a trail which would afford high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.” The BLM has direct management responsibility and authority for the trail within its jurisdictional boundaries, and the USDOJ National Park Service is the trailwide administrator for programmatic, planning, and co-ordination purposes (USDOJ National Park Service 1999, 2012, Kreutzer 2013).

In 2009 as part of a National Historic Trail feasibility study under Omnibus Public Land Management Act, Congress identified the Central Overland Trail as a potential National Historic Trail. This trail would occur within the 3 Bars Project area. The National Park Service is currently studying the feasibility, suitability, and desirability of adding this and other routes to the existing California National Historic Trail. The Central Overland Trail largely corresponds to the Pony Express National Historic Trail, but the two trails do vary in places, mostly over short distances.

### **3.21.2 Affected Environment**

#### **3.21.2.1 Study Methods and Study Area**

Land use plans such as the Shoshone-Eureka Resource Management Plan, Eureka County Natural Resources and Land Use Plan, and Mount Hope Project EIS, and online BLM sources were reviewed to determine wilderness and special management areas within the project area.

The study area for the assessment of direct and indirect effects is the 3 Bars Project area, while the cumulative effects study area is the 3 Bars Project area and that portion of the Simpson Park WSA that is outside of the project area (**Figure 3-1**).

#### **3.21.2.2 Special Management Areas**

There are no National Monuments, National Conservation Areas, Designated Wilderness Areas, or Wild, Scenic, and Recreational Rivers on the 3 Bars Project area. The Pony Express National Historic Trail is within the 3 Bars Project area. The route of the Pony Express National Historic Trail crosses the southern portion of the 3 Bars Project area, and three stations and one water source known to have been used by the Pony Express are within or immediately adjacent to the project boundary. From east to west, these are located at Sulphur Spring, Roberts Creek, Goodwin, and Grubbs Well. Additional stops in the project vicinity are Diamond Springs (Diamond City), on the east side of Diamond Valley, and Dry Creek, situated at the base of the Simpson Park Range.

In the 1999 Comprehensive Management Plan/EIS developed for the Pony Express, California, Oregon, and Mormon Pioneer national historic trails, the National Park Service identified the route from the mouth of Overland Canyon at Huntington Valley (Eureka County) to Simpson Park Station, northeast of Austin (Lander County), as a high potential segment of the National Historic Trail. This segment crosses the project area. The National Trails System Act defines a high potential segment to mean “those segments of a trail which would afford a high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.” BLM Manual 6280, *Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation*, which guides management of national historic trails crossing BLM jurisdiction, requires NEPA analyses of “the extent to which the

proposed action would affect the Federal Protection Components, including high-potential historic sites or high-potential route segments located on public land” (USDOI BLM 2012m). No high potential historic sites are identified along the Overland Canyon to Simpson Park Station High Potential Segment (Kreutzer 2013).

There are two WSAs within the project area, Roberts Mountains WSA and Simpson Park WSA (**Figure 3-7**). Roberts Mountains WSA is wholly contained within the project area, while Simpson Park WSA is partially contained within the project area. The Roberts Mountains WSA includes 15,090 acres of public land and consists of rugged mountainous areas and contains three prominent peaks. Vegetation consists of willow, cottonwood, aspen, and birch trees, and dogwood. Mountain mahogany trees and limber pine are found in isolated stands on the barren rock ridges. The Roberts Mountains WSA is generally in a natural state, provides an outstanding opportunity for solitude, and offers opportunities for primitive and unconfined recreation such as cross-country skiing, horseback riding, rock hounding, hiking, and hunting. About 487 people use the Roberts Mountains WSA annually (USDOI BLM 2012c:3-471).

Roberts Mountains are the type locality (the geologic point of first recognition) of the Roberts Mountains Thrust, which is a major geologic structure in western North America. The area has been referred to as “the Window of the World” because of the unique view it gives of the complex geologic structure of the region and has been studied by professional geologists and students from across the nation because of its rare qualities and geologic importance (USDOI BLM 2012c).

The Simpson Park WSA includes 49,119 acres of public land and 147 acres of privately owned in-holdings; 14,872 acres of public lands and 22 acres of private in-holdings are within the 3 Bars Project area. The WSA consists of mountainous country with scattered stands of aspen and mountain mahogany. The Simpson Park WSA is generally in a natural state, provides limited to good opportunities for solitude, and offers outstanding opportunities for hiking, horseback riding, and hunting. About 150 people use the Simpson Park WSA annually (USDOI BLM 2012c:3-476).

### **3.21.3 Environmental Consequences**

#### **3.21.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Based on the AECC and public scoping comments, one concern specific to WSAs and other Special Management Areas and 3 Bars ecosystem restoration was identified and is discussed in this section. This concern was that the expanded ease of livestock movement in cleared country may shift and intensify livestock use on adjacent wilderness lands, which could impair their naturalness characteristics.

#### **3.21.3.2 Significance Criteria**

Impacts to WSAs would be considered significant if BLM actions resulted in nonconformance with BLM Manual 6330, *Management of BLM Wilderness Study Areas* (USDOI BLM 2012p).

Impacts to historic trails would be considered significant if the Proposed Action or alternatives result in any of the following:

- Long-term changes to the landscape adjacent to a historic trail that cannot be mitigated to a BLM Class II VRM objective, as outlined in BLM Instructional Memorandum NV-2004-004.

- Permanent or long-term limitation of use of an identified portion of a national historic trail.

### **3.21.3.3 Direct and Indirect Effects**

#### **3.21.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

The BLM proposes to restore up to 393 acres on the Roberts Mountains WSA and 8 acres on the Simpson Park WSA, or less than 1 percent of the acreage in WSAs on the 3 Bars Project area. The BLM may also treat additional aspen habitat in the Simpson Park WSA in the future after site-specific aspen inventories are completed.

Treatments within the Roberts Mountains and Simpson Park WSAs could temporarily impair the wilderness characteristics of solitude, naturalness, and primitive and unconfined recreation within and adjacent to these areas. The overall effect of treatments on the WSAs would depend on whether the end condition of the treatment site (considering both long-term benefits and short-term effects) was an improvement in wilderness characteristics. In many cases (e.g., an eradication of a small population of an incipient pest, a prescribed fire that mimicked historical fire), communities in the treatment area would quickly recover, and the overall effect would be positive.

Manual treatments would be the least obtrusive method to use in WSAs and the most appropriate. Manual treatment methods are typically focused on small areas, which would have localized impacts on naturalness, solitude, and primitive and unconfined recreation. Manual treatment methods would also result in fewer effects on naturalness from short-term effects from mechanized equipment and intrusions, noise, and other disturbances.

It is possible that treatment activity would be visible or audible to visitors on the WSAs or Pony Express National Historic Trail during the treatment period, but such activity would not significantly adversely affect the visitor's recreational/historical experience. In addition, the treatment would not adversely affect the historical character and scenic value of the trail landscape, or any artifacts or National Register-eligible historic properties associated with the Pony Express National Historic Trail. It is possible that treatment sites could be accessed using roads that overlie the trail, but access would not occur via the historic trail. The BLM cultural resources specialist would evaluate each proposed treatment at the time of implementation and, in coordination with the National Park Service as appropriate, would make a recommendation to the authorized officer for an appropriate buffer width around the trail based on the type of treatment to be used, the integrity of the potentially affected trail segment, and other factors as necessary.

#### **3.21.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

##### ***Riparian Treatments***

Under the proposed action, the BLM would treat up to 9 acres along Roberts Creek within the Roberts Mountains WSA. There would be no riparian treatments within the Simpson Park WSA or on or near the Pony Express National Historic Trail.

##### **Adverse Effects**

Mechanical treatments within WSAs are allowed for the enhancement of wilderness characteristics in accordance with BLM Manual 6330. Thinning and removal of vegetation are allowed in WSAs where prescribed fire in the WSA will inevitably cause unacceptable risks to life, property, or natural resources outside the WSA; or where natural successional processes have been disrupted by past human activity to the extent that intervention is necessary in order

to return the ecosystem to a condition where natural processes can function; or where non-native species have altered the fire regime so that wildfires pose an undue risk to the native ecosystem.

Use of prescribed fires in WSAs is limited to instances where this treatment method meets the non-impairment standard or one of the exceptions, such as to clearly protect or enhance the land's wilderness characteristics. The BLM may utilize prescribed fire in WSAs where the natural role of fire cannot be returned solely by reliance on wildfire or where relying on wildfires might create unacceptable risks to life, property, or natural resources outside the WSA.

Treatment methods would result in ground disturbance, noise, and other disturbances that may temporarily degrade the naturalness of the treatment area, and opportunities for solitude and primitive and unconfined recreation within the area. These effects would occur on a small area (up to 9 acres) over a short period of time (a few months) and would temporarily result in a negligible adverse effect.

### **Beneficial Effects**

Beneficial effects would include enhancing the naturalness and primitive and unconfined recreation of the WSAs after restoration was completed. In WSAs, treatments would only be allowed in order to improve the natural condition of these areas. Although stream enhancement could result in substantial ground disturbance on up to 9 acres, treatments would restore native vegetation within the riparian zone and improve stream habitat for Lahontan cutthroat trout and game fish. The reduction of hazardous fuels and noxious weeds and other invasive non-native vegetation on lands adjacent to or near wilderness and special areas would provide long-term benefits by reducing the likelihood that noxious weeds and other invasive non-native vegetation would spread onto these unique areas, or that a catastrophic wildfire would burn through them and degrade their unique qualities.

### ***Aspen Treatments***

The BLM has identified approximately 62 acres within the Roberts Mountains WSA and 8 acres within the Simpson Park WSA for aspen treatments. The BLM may also treat additional aspen habitat in the Simpson Park WSA in the future after site-specific aspen inventories are completed. No aspen treatments would be or near the Pony Express National Historic Trail. Aspen treatments would focus on improving the health of aspen stands by removing pinyon-juniper to reduce tree competition at JD-A4 (23 acres), RM-A2 (11 acres), and RM-A10 (28 acres) within the Roberts Mountains WSA, and constructing exclosure fencing to promote aspen sucker survival at SFF-A1 (8 acres) within the Simpson Park WSA; exclosure fencing could also be used to protect treatment sites within the Roberts Mountains WSA.

### **Adverse Effects**

Treatment methods would result in short-term ground disturbance, noise, and other disturbances that may temporarily degrade the naturalness of the treatment area, and opportunities for solitude and primitive and unconfined recreation within the area. Felling of pinyon-juniper and construction of exclosure fencing would impact the visual qualities of the treatment area. These effects would be lessened by chipping or removing downed pinyon-junipers and using downed logs to create stream habitat, and removing fencing once aspen stands are restored.

### **Beneficial Effects**

Removal of pinyon-juniper trees in aspen stands has the potential to damage or disturb aspen. However, aspen respond well to disturbance, which stimulates suckering. Removal of conifers would allow sunlight to reach the woodland floor and warm the soil, thereby stimulating aspen sprouting, and could also create conditions that allow aspen to expand onto surrounding areas and restore the naturalness of the treatment area. Removal of encroaching pinyon-juniper near roads would enable roads near aspen stands to function as fire breaks, and would help to limit the spread of wildfire, to the benefit of the WSAs.

Protective fencing and changes in livestock season of use would benefit areas that contain aspen sprouts and are currently heavily grazed. Studies have suggested that the downward trend in aspen communities is related to past and present levels of livestock grazing. Fencing should have substantial benefit for aspen, as past studies have observed that aspen stands that are protected from grazing successfully regenerate and form multi-aged stands without using fire or other disturbance (Kay 2001, 2002, 2003). Thus, these actions would benefit the natural qualities of the treatment area.

### ***Pinyon-juniper Treatments***

The BLM has identified approximately 323 acres within the Roberts Mountains WSA for pinyon-juniper treatments. Treatments would occur on the Birch Creek (175 acres), Upper Pete Hanson (126 acres), and Upper Roberts Creek (21 acres) units. The Henderson, Three Bar Ranch, and Sulphur Spring Wildfire Management units overlap the Pony Express National Historic Trail. However, the BLM cultural resources specialist would evaluate each proposed treatment at the time of implementation and, in coordination with the National Park Service as appropriate, would make a recommendation to the authorized officer for an appropriate buffer width around the trail based on the type of treatment to be used, the integrity of the potentially affected trail segment, and other factors as necessary.

### **Adverse Effects**

Treatment methods would result in short-term ground disturbance, noise, and other disturbances that may temporarily degrade the naturalness of the treatment area and opportunities for solitude and primitive and unconfined recreation within the area. Most of the pinyon-juniper on the Upper Roberts Creek unit would be removed from Phase I stands using chainsaws. Because these trees have encroached into sagebrush habitat, and are widely-spaced throughout the area, removal of these trees would restore the natural characters associated with sagebrush habitat and would have a minor visual effect. Manual treatments would be the least obtrusive method for use in the Roberts Mountains WSA. Because this method of vegetation removal is very selective, damage to non-target vegetation would be minimized. Although an appropriate buffer would be applied to minimize impacts to the Pony Express National Historic Trail, users of the trail may still detect activity and noise during project implementation and the effects of the treatments may be visible from the trail until the vegetation no longer shows signs of treatment.

Periodic fires are a natural part of most wilderness ecosystems, and the goal of wilderness fire management is to restore fire as nearly as possible to its natural role. Prescribed fire would be used in WSAs following guidance discussed under Riparian Treatments. Fire influences the species composition of plant communities, interrupts and alters plant succession, influences the scale of the vegetation mosaic, regulates fuel accumulations, and influences ecosystem productivity, all important factors determining the characteristics of wilderness (USDOI BLM 2007c:4-116).

Prescribed fire could be used on all three units. Due to their small size, only a few acres, if any, would be treated on the Birch Creek and Upper Pete Hanson units annually using fire. More acres could be treated on the Upper Roberts Creek unit. Although smoke would be visible to the public on all units, charred vegetation from burning would be difficult for the public to see from the Upper Pete Hanson and Upper Roberts Creek units.

### **Beneficial Effects**

Removal of pinyon-juniper on the Birch Creek, Upper Pete Hanson, and Upper Roberts Creek units would encourage shrub and riparian vegetation growth and restore the natural condition of these units. All but 3 acres within these units are rated “High” for their scenic qualities. By primarily using chainsaws to remove trees, treatments would maintain or improve the wilderness qualities of an area without causing effects that are incompatible with established wilderness principles.

The reduction of hazardous fuels and creation of fuel breaks on or near the Roberts Mountains WSA would provide long-term benefits by reducing the likelihood that a catastrophic wildfire would burn through the WSA and degrade its unique qualities.

### ***Sagebrush Treatments***

No sagebrush treatments are proposed for WSAs. The Roberts Mountain Pasture and Coils Creek units overlap the Pony Express National Historic Trail. However, the BLM cultural resources specialist would evaluate each proposed treatment at the time of implementation and, in coordination with the National Park Service as appropriate, would make a recommendation to the authorized officer for an appropriate buffer width around the trail based on the type of treatment to be used, the integrity of the potentially affected trail segment, and other factors as necessary. Although an appropriate buffer would be applied to minimize impacts to the Pony Express National Historic Trail, users of the trail may still detect activity and noise during project implementation and the effects of the treatments may be visible from the trail until the vegetation no longer shows signs of treatment.

#### **3.21.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

The BLM anticipates treating about half as many acres (about 200 acres) within WSAs under Alternative B as under Alternative A. The types and magnitude of effects for manual and mechanical treatments within WSAs would be similar between Alternatives B and A. Because the BLM would not be able to use fire, there would be none of the adverse effects to the wilderness experience associated with the use of fire. Without the use of fire, there would be no localized deterioration of air quality and reduced visibility caused by smoke, no disturbance, and no blackened appearance that could affect the naturalness of treatment areas. As noted under Alternative A, only a few acres, if any, would be treated using fire so the adverse and beneficial effects of not using fire would be negligible under this alternative.

#### **3.21.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, the BLM would only be able to use manual and classical biological control methods to treat vegetation. The types and magnitude of effects for manual treatments would be similar to those for the other alternatives, although the BLM would likely treat substantially fewer acres in WSAs under this alternative than under Alternatives A and B.

### **3.21.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct or indirect effects on WSAs and the Pony Express Trail from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM, however, would not conduct create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation, especially cheatgrass; restore fire as an integral part of the ecosystem; or reduce the risk of a large-scale wildfire, which could have adverse effects on WSAs and the Pony Express Trail. Long term, there would be less chance of improvement of WSAs under this alternative than under the action alternatives.

### **3.21.3.4 Cumulative Effects**

The CESA for WSAs is approximately 784,182 acres and includes the 3 Bars Project area and that portion of the Simpson Park WSA that is outside the 3 Bars Project boundary (**Figure 3-1**). Approximately 97 percent of the CESA is administered by the BLM and 3 percent is privately owned. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

#### **3.21.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

Historic livestock grazing practices and wild horse use have led to the degradation of riparian and aspen habitat, establishment and spread of noxious weeds and other invasive non-native vegetation, and expansion of pinyon-juniper beyond its historical ranges in portions of the WSAs. To improve forage and water resources for livestock, the BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact forage and other rangeland resources.

The BLM would also conduct wild horse gathers, conduct AML reviews and adjustments, remove excess animals and use fertility control, adjust HMA boundaries, remove fencing that hinders wild horse movement, improve water developments, and implement habitat projects that keep herd numbers near sustainable levels and help to distribute wild horses more evenly across the rangeland. There are no HMAs that overlap with WSAs, but wild horses do move onto the Roberts Mountains during the summer and use the Roberts Mountains WSA. Efforts to distribute wild horses more evenly across the rangeland should help to reduce grazing pressure on the Roberts Mountain WSA. However, the Mount Hope Project would exclude wild horses from about 14,000 acres for up to 70 years, and as a result wild horses may spend more time in the Roberts Mountains WSA in search of food and water. The BLM would provide alternate water sources for wild horses in Kobeh Valley (USDOI BLM 2012c:3-439). By developing additional water sources, wild horses would be able to use foraging areas that are currently underutilized in Kobeh Valley.

The BLM would treat noxious weeds and other invasive non-native vegetation within WSAs under existing authorizations. New infestations would typically be found in newly burned or disturbed areas, and in areas where livestock and wild horses congregate. Treating infestations while they are small, and reducing the amount of area covered by existing large infestations, would result in fewer effects on the WSAs.

The population within southern Eureka County is predicted to increase by 50 percent during construction and operation of the Mount Hope Project. With an increase in population and employment opportunities, the number of users of WSAs should increase. Users could spread noxious weeds and other invasive non-native vegetation that attaches itself to clothing or shoes.

The Mount Hope Project would disturb about 8,300 acres, but would have no direct impact on WSAs, although it will be visible from the WSAs. Potential indirect impacts to the Roberts Mountains WSA could occur if ground

water pumping activities decrease the flows in Roberts Creek or other streams associated with the Roberts Mountains WSA. ). Removal of Mount Hope would have an impact on the historic setting of the Pony Express National Historic Trail. The mountain is visible for miles and its removal will alter the character of the trail and the ability of recreationists to experience the trail as it existed in 1860-61. In addition, access would be virtually eliminated for a segment of the trail that passes within the mine boundary. The 3 Bars Project would not significantly add to this impact since none of the proposed treatments would further limit access to any portion of the trail within the 3 Bars Project Area. These effects could degrade the recreational experience within the CESA.

Wildfire has been relatively uncommon on the Roberts Mountains, but the 106,479-acre Trail Fire in 1999, and several other fires that have burned tens to hundreds of acres, have occurred on or near the Simpson Park WSA (see **Figure 3-34**). An estimated 84,000 acres could burn from wildfires during the next 20 years, based on wildfire occurrence since 1985.

To reduce wildfire risk and improve ecosystem health, approximately 127,000 acres would be treated annually on the 3 Bars Project area, and an additional 15,000 acres could be treated under current and future authorizations within the CESA, or about 16 percent of the CESA, but only on about 1 percent of WSAs. Although the acreage treated within WSAs would be minor, treatments elsewhere in the CESA would help to reduce hazardous fuels and improve ecosystem health, and reduce the potential for catastrophic wildfire that could have substantial adverse effects on WSAs and lands adjacent to the Pony Express Trail.

#### **3.21.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

Under Alternative B, effects from non-3 Bars Project reasonably foreseeable future actions on WSAs and the Pony Express Trail would be similar to those described under Alternative A. Because fire would be used sparingly within WSAs under Alternative A, its lack of use under Alternative B would be insignificant. However, fire could not be used under this alternative on about 78,000 acres elsewhere in the CESA under the 3 Bars Project and current and reasonably foreseeable future authorizations, or about 8 percent of the CESA. Without being able to use fire on other portions of the CESA, the BLM would be less successful in reducing the risk of catastrophic wildfire within the CESA, and would not likely offset the increased potential for more extensive and intense wildfires to occur in place of controlled burns on the 3 Bars Project area compared to Alternative A. As demonstrated by wildfires in 1999, wildfires can have substantial effects on WSAs and could also affect the scenery near the Pony Express Trail.

#### **3.21.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on WSAs and the Pony Express Trail would be similar to those described under Alternative A. Adverse, short-term effects to wilderness characteristics, primarily solitude and visual qualities, associated with the use of fire and mechanized equipment would not occur under Alternative C. However, fire and mechanical treatments would be little used under Alternatives A and B, so the cumulative effects associated with WSA treatments among the alternatives would show few differences.

The BLM would treat only about 10 acres annually in the WSAs, and about 33,000 acres within the remainder of the CESA, or about 4 percent of the CESA. By not being able to use mechanical methods, fire, and livestock to reduce hazardous fuels, create fire and fuel breaks, stimulate development of understory vegetation, and remove downed wood and slash, however, the risk of wildfire and its adverse impacts on WSAs and lands near the Pony Express Trail would likely be greater on the CESA than under Alternatives A and B.

### **3.21.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on WSAs and the Pony Express Trail would be similar to those described under Alternative A. There would be no cumulative effects on WSAs or the Pony Express Trail from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually). Thus, benefits to the WSAs and the Pony Express Trail would be less under this alternative than under the action alternatives.

### **3.21.3.5 Unavoidable Adverse Effects**

Use of fire to treat undesirable vegetation could potentially affect the condition of WSAs by creating smoke and killing non-target native vegetation. Given that few, if any, acres would be treated using fire in the WSAs, effects would be negligible.

### **3.21.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

Impacts to resources within WSAs would begin to disappear within 1 to 2 growing seasons after treatment, regardless of the treatment method. The regrowth of vegetation on the site would eliminate much of the stark appearance of cleared areas, and the site would develop a more natural appearance. The longest lasting impacts would occur in woodlands and other areas where large trees and shrubs were removed. Benefits to plants and animals in terms of ecosystem function and improved forage and cover would occur as the treated area recovered.

Over the long term, vegetation treatments would likely improve resources on WSAs. Treatments that aim to rehabilitate degraded ecosystems would result in plant communities that are dominated by native species (see Section 3.11, Native and Non-invasive Vegetation Resources, for more information). Native-dominated communities often provide better habitat for fish and wildlife, including species of concern, than communities dominated by noxious weeds and invasive non-native vegetation.

### **3.21.3.7 Irreversible and Irretrievable Commitment of Resources**

There would be no irreversible or irretrievable commitment of resources. Although there would be short-term impacts to wilderness and special area resources from vegetation treatments, impacts would not be irretrievable and could be reversed if restoration treatments were successful.

### **3.21.3.8 Significance of the Effects under the Alternatives**

There would be negligible to minor impacts to solitude and other wilderness opportunities from 3 Bars Project treatments under all alternatives, but these actions would affect less than 0.1 percent of WSAs annually, and would last only a few years. The BLM would ensure that treatment actions conform to guidance in BLM Manual 6330, *Management of BLM Wilderness Study Areas* (USDOI BLM 2012p).

Under all the alternatives, direct and indirect effects of 3 Bars Project treatments would not result in long-term changes to the landscape adjacent to the Pony Express National Historic Trail that cannot be mitigated to a BLM Class II Visual Resource Management objective, as outline in BLM Instructional Memorandum NV-2004-004, or in permanent or long-term limitation of use of an identified portion of the trail. Treatments would also not permanently impact the solitude and scenic value of the trail or the ability of visitors to vicariously share the 19<sup>th</sup> century Pony Express experience. The BLM would follow guidance in BLM Manual 6280, *Management of National Scenic and Historic Trails and Trails under Study or Recommended as Suitable for Congressional Designation*, to ensure proper management of the Pony Express National Historic Trail (USDOI BLM 2012m).

### **3.21.4 Mitigation**

No mitigation measures for WSAs are recommended.

## **3.22 Cultural Resources**

The following discussion provides an overview of the cultural resources that have been identified and can be expected to be found on the 3 Bars Project area. A cultural resource is any defined location of past human activity, occupation, or use, identifiable through field investigation, historical documentation, or oral histories. Cultural resources include prehistoric, historic, ethnohistoric, or architectural sites, structures, places, objects, and artifacts (USDOI BLM 1999b). Cultural resources in the 3 Bars Project area are divided into three groups: prehistoric archaeological resources, historic archaeological and architectural resources (discussed in this section), and Traditional Cultural Properties, which are discussed in Section 3.23, Native American Traditional/Cultural Values, Practices, and Resources. Historic properties are those historic or prehistoric cultural resources that, through consultation with the Nevada State Historic Preservation Officer and Advisory Council on Historic Preservation, have been determined to be eligible for inclusion in the National Register of Historic Places (NRHP).

### **3.22.1 Regulatory Framework**

There are several laws and acts that pertain to the protection of historic and cultural resources and the rights of Native American tribes. The Historic Sites Act of 1935 provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance. The National Historic Preservation Act of 1966 (16 USC § 470 et seq.) requires federal agencies to take into account the potential effects of their actions on properties that are listed or are eligible for listing on the NRHP, and to consult with State Historic Preservation Officers, Native American tribes, and local governments regarding the effects of federal actions on historic properties. The Archeological Resources Protection Act of 1979 prohibits the excavation, removal, damage, or other alteration or defacement of archaeological resources on federal or Native American lands without a permit. The American Indian Religious Freedom Act of 1978 (Public Law 95-341) requires federal land managers to include consultation with traditional Native American religious leaders in their management plans. The Native American Graves Protection and Repatriation Act of 1990 recognizes the property rights of Native Americans in certain cultural items, including Native American human remains and sacred objects.

Executive Order 13084, Consultation and Coordination with Indian Tribal Governments, directs federal agencies to respect tribal self-government and sovereignty, tribal rights, and tribal responsibilities whenever they formulate policies that “significantly or uniquely affect Indian tribal governments.”

### **3.22.2 Affected Environment**

#### **3.22.2.1 Study Methods and Study Area**

Mount Lewis Field Office databases consisting of Geographic Information System shapefiles and a Microsoft Access database with information about cultural resources, studies, and investigations that have been conducted within and in the vicinity of the 3 Bars Project area were reviewed. These were supplemented with information from the Nevada Cultural Resources Information System. These baseline data provided the framework for determining the types of cultural resources that are found within the project area, and an assessment of impacts that may result from implementation of the project alternatives. These data were also used to prepare a *Cultural Context 3 Bars Ecosystem and Landscape Restoration Project* (AECOM 2012) report that described the cultural resources and cultural setting of the 3 Bars project area.

The study area for the assessment of direct and indirect effects for cultural resources is the 3 Bars project area. The cumulative effects study area for cultural resources includes the project area and a 5-mile buffer around the project area (**Figure 3-1**).

#### **3.22.2.2 Cultural Setting**

The 3 Bars Project area and its vicinity are known to contain numerous traces of past human activity ranging from early Native American sites and artifacts to the remains of early trails and transportation and communication routes (including the route of the Pony Express), mining, charcoal production, and ranching and agriculture. Such materials can be found at many locations on the landscape and represent the traces of human activities that in some cases extend as far back as 10,000 to 8,000 years before the present (BP).

##### **3.22.2.2.1 Prehistory**

The project area is in central Nevada within the western area of the Great Basin, as defined by Elston (1986). The most pertinent cultural chronology of this portion of the western Great Basin can be derived from data resulting from excavations conducted at the Gatecliff Shelter (Thomas 1983a). Additional information has been provided by d’Azevedo (1986), Jennings (1986), Janetski and Madsen (1990), Grayson (1993), Madsen and Rhode (1994), Beck and Jones (1997), Kelly (1997), Madsen and Simms (1998), and Beck (1999). Additional information from surveys conducted within the Reese River and Monitor Valleys by Thomas and Bettinger (1976) and Thomas (1983b, 1988) are also relevant. Within the broader context defined by the Early, Middle, and Late Archaic Periods, five chronological phases have been defined by Thomas (1983b): Clipper Gap (5500–4500 BP), Devils Gate (4550–3550 BP), Reveille (3550 BP–1300 BP), Underdown (1300–600 BP), and Yankee Blade (600 BP–historic). Elston (1986) postulates a Grass Valley Phase (*circa* [ca.] 10,000–8000 BP) for the Paleoarchaic Period and a hiatus in occupation between 8000 and 5500 BP. These phases are summarized below.

##### ***Paleoarchaic Period (ca. 10,000–8000 BP)***

Paleoarchaic (or “Pre-Archaic”) sites dating to as early as 11,000 years BP are known from eastern Nevada such as those documented at the Ely Airport (BLM Report CRR 8111 [NV 040] 2005-1512), Sunshine Well (Jones et al. 1996), and Giroux Wash (Stoner et al. 2000). One of the main characteristics distinguishing Paleoarchaic sites from other prehistoric cultural manifestations is the presence of fluted implements such as Clovis and Folsom projectile points and distinctive nonfluted Plano projectile point forms, crescent-shaped implements, choppers, graters,

punches, and an assemblage of steep-edged scrapers, which are primarily unifacial. Paleoarchaic assemblages are most often found in surface contexts associated with late Pleistocene and early Holocene pluvial lake and lacustrine environments of the region; therefore, researchers have concluded that they are the remains of a settlement pattern geared toward the exploitation of marsh and lake-edge resources in valley floors or in riparian corridors (Elston et al. 1981, Elston 1982, Madsen 1982, Davis and Rusco 1987, Beck and Jones 1988).

Although Thomas (1982a) postulated a lack of occupation before 8000 BP in the central Great Basin, Elston (1986) indicated that the Pre-Archaic period is marked by the Grass Valley Phase between *ca.* 10,000 and 8000 BP as indicated by the presence of Western Stemmed series and fluted points. The Western Stemmed series is represented by leaf-shaped, Lake Mohave stemmed, and lanceolate projectile points, usually found in surface contexts. Associated constituents consist of flake tools, thick triangular scrapers, bifacially flaked knife-choppers, and steep-sided hafted scrapers.

### ***Early Archaic Period (8000–5000 BP)***

At the end of the Paleoarchaic Period, shifting land-use patterns, subsistence systems, and the emergence of a wide variety of implement types marked the beginning of the Archaic Period (Bryan 1979, Elston et al. 1979, Aikens and Madsen 1986, Jennings 1986, Jones et al. 1996). Site locations from the earlier years of the Archaic Period suggest continued adaptations to lakeshore environments (Madsen 1982, Jones et al. 1996, Stoner et al. 2000), although the variety of implements and types of materials used appears to have increased. Projectile point styles consisted of Stemmed, Pinto, and Lake Mojave types. The people of the Early Archaic Period seem to have inhabited a much more diverse landscape with a more flexible subsistence system than the Paleoarchaic peoples who preceded them. They utilized not only valley floors and lake margins, but cave sites and upland areas as well.

Elston (1986) suggested a hiatus in occupation within central Nevada between 8000 and 5500 BP. Thomas (1982a) indicated that the later portion of the Early Archaic is represented by the Clipper Gap Phase (*ca.* 5500–4500 BP), which is characterized by artifacts similar to those used during the Pre-Archaic. Based on observations from Monitor Valley, this period also appears to be characterized by large, wide, concave-base projectile points called “Triple T.” Limited assemblages of artifacts from this time period suggest that the area was sparsely inhabited, possibly by small groups.

### ***Middle Archaic Period (5000–1300 BP)***

As during the earlier portion of the Archaic Period, remains of larger game tend to be found in archaeological contexts during the Middle Archaic Period, which is divided into the Devils Gate Phase (*ca.* 4500–3500 BP) and the later Reveille Phase (*ca.* 3500–1300 BP). The Middle Archaic Period is marked by the presence of large side-notched Gatecliff and Elko series projectile points, which slowly replaced the earlier Pinto and stemmed point forms. The use and exploitation of upland environments intensified during this time period, possibly in association with the exploitation of pinyon pine, which is postulated to have been introduced in the area around 6000 BP (Thomas 1982a:164).

Evidence from Gatecliff Shelter (Thomas 1983a) and Mount Jefferson (Thomas 1982b) indicates that the hunting of large game remained a dominant subsistence activity, as interpreted from the large numbers of Elko-style projectile points. However, more intense exploitation of a broad range of resources, possibly resulting from increased population, may have caused an increase in the presence of seed processing equipment. Incised stones are present in

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the Monitor Valley assemblages, and the appearance of exotic obsidian and marine shell beads suggests the presence of regional exchange (Thomas 1983a).

Divergence from the Middle and Late Archaic patterns is seen in the emergence in Utah and extreme eastern Nevada of the Fremont “cultures” during the Fremont/Parowan Period, *ca.* 1600 BP (Marwitt 1986). However, the degree of influence of the Fremont cultures with peoples in central Nevada is uncertain.

### ***Late Archaic Period (1300 BP–Contact)***

The Late Archaic Period is represented by the Underdown Phase (*ca.* 1300–600 BP) and the Yankee Blade Phase (600 BP–historic). This period is marked by important technological changes, which included the introduction of bow and arrow technology, as indicated by the presence of small corner-notched and basally notched projectile points designated as part of the Rosegate series (Thomas 1981a). Because of the association of basally notched points with Fremont cultures, Thomas (1997) suggested that these artifacts may indicate a Fremont influence. During this time period occupation appears to be less intense, as marked by a decrease in overall numbers of artifacts and the production of bifaces at Gatecliff Shelter (Thomas 1983a).

The Yankee Blade Phase shows a marked divergence from earlier patterns. Projectile points from this phase are small Desert side-notched and Cottonwood series. Other than at the Alta Toquima residence sites (Thomas 1982b), these point forms are rarer in the Monitor Valley than the earlier Eastgate basally notched, Rose Spring corner-notched, and Elko forms. Resource exploitation intensified during this phase, with an increased focus on seeds, including pinyon pine. The discovery of more permanent habitation sites at higher altitudes indicates that groups became more sedentary, and that residences became established at locations that had served as temporary hunting camps during the preceding periods (Elston 1986). There is an increase in the size of houses and settlements. In the case of the Western Shoshone, large settlements appear in valley floors during the ethnohistoric (contact) period.

As noted above, a shift from the Middle and Late Archaic patterns is seen in the emergence of the Fremont “cultures” described by Marwitt (1986). No evidence of extensive use of the project area exists; however, southeast of the project area, Fremont style ceramics have been found near Cabin Spring, approximately 30 miles south of the project area (Russell 2004).

Small villages, ceramics, and some reliance on horticulture characterized the Parowan Fremont culture. As rainfall (necessary for agriculture) became more unpredictable, the Fremont may have abandoned agriculture in favor of a hunting-gathering adaptive strategy in the pinyon-juniper woodlands of western Utah and eastern Nevada, with a terminal date of *ca.* 650 BP (Wilde and Soper 1999:7). Another scenario proposed by Wilde and Soper (1999:7), based on evidence from Janetski (1994) and Madsen and Simms (1998), suggested that competition from foragers also may have been a factor in the shift to a more hunter-gatherer strategy.

It is also during this period that some see the arrival of *New* (Numic speakers and ancestral Shoshone). This period is marked by the presence of brownware ceramics, twined and coiled basketry, and small side-notched (Desert side-notched) projectile points. This is contrary to ethnographic accounts and oral tradition that indicate that the Western Shoshone have inhabited the region for a much greater period of time. The timing of the arrival of the *Newe* and the area from which they moved is widely debated (see Madsen and Rhode 1994), but current evidence suggests that they may have arrived *ca.* 1000 BP.

#### **3.22.2.2.2 Historic Setting**

The beginning of the historic-era in the Eureka County region is determined using rather arbitrary temporal and cultural markers. Although contact between European and American traders, trappers and explorers and the ethnographic Shoshone had been taking place since at least the early decades of the 19th century, sustained contact between Native and Euro-American populations did not occur until the 1850s and 1860s (Bailey 1966, James 1981).

As the population of Euro-American settlers and entrepreneurs increased in the Eureka County region, particularly following the Ruby Valley Treaty in 1863, several predominant economic patterns and themes of historical development emerged during the middle of the 19th century. The themes of particular relevance to Eureka County in general, and the 3 Bars Project area specifically, consist of early exploration, transportation and communication, early settlement, mining, charcoal production, and ranching and agriculture. Each of these topics is discussed below.

#### **3.22.2.2.3 Early Exploration**

The earliest recorded routes through Nevada were those made by fur trappers and traders. American trapper Jedediah Smith, representing the Rocky Mountain Fur Company, struck out from the Great Salt Lake to Los Angeles in the summer of 1826, a journey that took him south along the Colorado River, then to the Mojave Valley, and finally into California (Elliot 1987, McBride 2002:2-4). In 1826, Peter Skene Ogden of the British-owned Hudson's Bay Company passed through northeastern Nevada in a prelude to his later exploration of the Humboldt River in 1828. In search of beaver hides, Ogden and his men left the Columbia River basin and traveled southeast until they discovered an "unknown" river, later named the Humboldt River, near Winnemucca. This route later became the main emigration corridor across Nevada (McBride 2002:2).

As the fur trading business declined, the U.S. government started taking an active interest in the West and began sponsoring explorations of the area. From 1843 through 1845, John C. Fremont, a lieutenant in the Army Topographical Corps, led several expeditions into Nevada as part of this government-sponsored program of exploration. During the expeditions, Fremont recognized that the area had interior drainage and understood its physiographical features, and thus named it the Great Basin (McBride 2002:7). In 1845, his route continued through the Diamond Mountains and through Diamond and Kobeh Valleys, a path that would have bisected the current project area.

In 1859, James Simpson, who had previously explored the area, led an expedition through central Nevada, from Camp Floyd, Utah, to Genoa, Nevada. Simpson noted that this route was not suitable for a railroad but would work well for wagons (Welch 1979:6, Vlasich 1981:228, McBride 2002:10-11). This route was later called the Central Route (also known as the Central Overland Trail and Egan-Simpson Wagon Route).

#### **3.22.2.2.4 Transportation and Communication**

As with virtually every other economic endeavor in Nevada, industries dealing with transportation and communication activities were established, at least initially, in reaction to the booming California and later Nevada mining industry in the middle 1800s. Emigrant and shipping routes were established early on for settlers and California-bound gold miners, but in large part these were intended only to provide passage through the state, and not to bring or support settlers. As Nevada's mining industry boomed, the state became a destination for travelers to the West.

### 3.22.2.2.5 Early Mail Delivery

Beginning in 1855, Major Howard Egan of the Mormon Battalion first traversed a route through central Nevada; 3 years later he surveyed the route for Major George Chorpenning. In 1859, this route was quickly adopted by Chorpenning's mail line, which used mules. Informally known as the "Jack-ass Mail," the operation was first established along the Humboldt River (Goetzmann 1966:293 *cited in* Bowers and Muessig 1982). By December 1859, Chorpenning had built several stations along the new route (Godfrey 1994). It is not known whether stations had been established within the project area. At the same time, Russell, Majors, and Waddell, owners of the Central Overland California & Pikes Peak Express Company (COC&PP Express Co.), had been actively soliciting the U.S. Congress for the establishment of a 10-day mail service by pony express between Sacramento, California, and St. Joseph, Missouri, while at the same time laying out and establishing stations along the same route used by Chorpenning (Townley 1986:7–8, Godfrey 1994). In the wake of cash flow problems, Chorpenning's mail contract was terminated in May 1860, and was promptly awarded to the COC&PP Express Co. Russell, Majors, and Waddell hoped that by demonstrating "that the central route offered the best opportunity for mail or stage...the firm could inherit the (*proposed route of the*) Pacific Railroad" (Townley 1986:8). This new subsidiary venture, more commonly known as the Pony Express Mail Service, began in April 1860.

Although short-lived (1860–1861), the Pony Express demonstrated the importance of a central route, which became even more important after the seizure of Butterfield's southern route by the Confederate army in January 1861 (Townley 1986:13). Although it was replaced by the telegraph just 18 months after it began, during its brief existence the Pony Express helped to deliver important information during a time of civil unrest.

The route of the Pony Express crosses the southern portion of the 3 Bars Project area, and three stations and one water source known to have been used by the Pony Express are within or immediately adjacent to the project boundary. From east to west, these are located at Sulphur Spring, Roberts Creek, Goodwin, and Grubbs Well. Additional stops in the project vicinity are Diamond Springs (Diamond City), on the east side of Diamond Valley, and Dry Creek, situated at the base of the Simpson Park Range.

### 3.22.2.2.6 Overland Stage

After the disbandment of the Pony Express, competition for government mail and passenger service contracts over the central route ensued between the COC&PP Express Co. and Butterfield's Overland Mail Company. As a compromise, Congress awarded the COC&PP Express Co. the eastern portion of the route from the Missouri River to Salt Lake City, where post and passengers were transferred to the Overland Mail Company (Overland Stage), which completed the first run to San Francisco on July 18, 1861 (Townley 1986:13, Hafen 2004 [1926]).

By the spring of 1862, the COC&PP Express Co. had become financially stressed as a result of difficulties encountered with the management of the eastern end of the route, and its finances were in the hands of the courts. Finally, as a result of heavy indebtedness, the company was sold to Ben Holladay and the name was changed to the Overland Stage (Hafen 2004 [1926]:227–232).

A map of the Overland Stage and Pony Express routes across Nevada (Townley 1986:10–11) indicates that the Overland Stage followed the same route as the Pony Express through the project area. Within the project area, stations were located at Sulphur Spring, Roberts Creek, and Grubbs Well, with a watering stop at Goodwin.

In the latter part of 1866, Holladay disposed of his entire overland mail holdings, which included the Holladay Overland Mail and Express Company, the Overland Mail Company, and the Pioneer Stage Company. These were all

absorbed by Wells, Fargo and Company, which had been founded in 1852 by Henry Wells, William G. Fargo, John Livingston, D. N. Barney, and others to conduct an express and banking business (Hafen 2004 [1926]:232–235).

As the Transcontinental Railroad neared completion, mail and coach service decreased, and even the Overland Telegraph was rerouted along the railroad, following the joining of the Central Pacific and Union Pacific railroads in May 1869. After the completion of the railroad, the central route for mail and passenger service was soon abandoned, with only interconnecting service between railheads remaining.

#### **3.22.2.2.7 Transcontinental Telegraph**

The telegraph line basically followed the route of the Overland Stage. Like the stage, its existence along the central route was short lived. Upon completion of the Transcontinental Railroad, the telegraph was quickly rerouted along the Central Pacific Railroad. Service to southern Eureka County was provided by a line from Palisade along the Eureka & Palisade Railroad (E&PRR) to Eureka with additional service to mining camps surrounding Eureka.

#### **3.22.2.2.8 Eureka & Palisade Railroad**

With the completion of the Transcontinental Railroad through northern Eureka County, overland transportation took a dramatic turn. The largely isolated nature of central and eastern Nevada was rapidly coming to an end, and new markets for the industrial and agricultural/ranch products of the region soon emerged. At first wagon roads connected the area to the railroad. Later the E&PRR linked Palisade (a stop along the Central Pacific) and southern Eureka County, providing easy transportation to other population centers such as Salt Lake City.

As with most transportation development in the 19th century, the E&PRR was established in response to the development of mining. Upon establishment of the town of Eureka in 1870 and the development of mining, the lucrative, high-yielding lead and silver ore was transported by a fast wagon freight operation to the recently established Central Pacific railhead at Palisade (Paher 1970:181).

In 1874, a consortium of Isaac Requa, D.O. Mills, William Sharon, Thomas Bell, and Edgar Mills, who represented the Bank of California, the Virginia and Truckee Railroad, and various Comstock mining operations, took over the railroad (Myrick 1992:90). During the next 10 years the railroad was extremely prosperous, with connecting freight service to Belmont, Hamilton, Austin, Ward, and Pioche, and plans were made to expand the line south. In the late 1880s mining began to fail in the Eureka area (Myrick 1992:107). Mark Requa, the son of Isaac, made a valiant effort to acquire additional business from other mines in the area, including the profitable copper mines near Ely, and at one point even contemplated extending the route east over four mountain ranges. A brief boom period occurred in 1905, however this short period of prosperity suffered a major blow in 1910, when major floods caused extensive damage to the line. In 1921 George Whittle purchased and reorganized the operation under the name of the Eureka-Nevada Railway Company. The line, operated under the leadership of John E. Sexton, made three runs per week. However, revenues began to decline in 1927 as a result of competition from growing highway traffic, and the railroad made its last run in September of 1938 (Myrick 1992:111).

Two sidings and two stations were located within the 3 Bars Project area. The sidings, Cedar and Oak, were used from 1934 to 1938 (Hall 1994). Pine Station is located just outside of Alpha. The Summit Station was a water stop located at the top of Garden Pass Summit.

### **3.22.2.2.9 Highway Development**

As the 20th century progressed, railroads remained the primary means of moving people and goods within and through Nevada, but the automobile was fast becoming a major player on the transportation scene. However, in 1914, only 262 miles of Nevada's 12,812 miles of roadway were paved, and Nevada had a long way to go to provide for the automobile. An exception was the establishment in 1913 of the Lincoln Highway, which was one of America's first transcontinental automobile routes, beginning in Times Square in New York City and ending at the Palace of the Legion of Honor in San Francisco (USDOI National Park Service 2004).

The early route of the Lincoln Highway was determined primarily by the geography of Utah, where the Great Salt Lake Desert blocked the way west from Salt Lake City and limited funds were available for construction of a raised roadway across the barren salt flats. Because of this, the early route was routed around the south end of the desert to Ely, then on to Eureka. However, the popularity of this route began to decline after 1919. The final blow to the route through Eureka County was in 1927, when the Lincoln Highway Association abandoned the route through Ely and Eureka for the Wendover Road. As a result, Nevada built an 80-mile route south to link up with the Lincoln Highway south of County Road 18 north of Ely. By the time the route was completed in 1930, the more direct Victory Highway (U.S. Highway 40) along the Humboldt River Valley had been improved sufficiently to capture most of the traffic traveling across the Great Basin.

### **3.22.2.2.10 Early Settlement**

Early settlement within and in the vicinity of the 3 Bars Project was limited to scattered ranches consisting of Denay, Pennsylvania (currently known as the McClusky Ranch), Grubb Meadows Ranch (currently known as the 3 Bar Ranch), and the Addinton Ranch. Of these early ranches, the 3 Bar and McClusky Ranches were established and are still in the western portion of the project area. The initial operations of these early ranches were geared primarily toward trapping mustangs and driving them to California (Wooley 1999).

### **3.22.2.2.11 Mining**

The economic and social development of central Nevada during the 19th century was more closely associated with the emergence of the mining industry than with any other activity. In fact, the existence of Nevada as an independent state is primarily the result of the wealth of the Comstock Lode, which helped convince the U.S. Congress and President Abraham Lincoln to create this new territory from the western section of Utah in 1861. After the Civil War, and throughout the latter decades of the 19th century, mining continued to be the single most important economic endeavor throughout the state, although the boom-and-bust cycles intrinsic to the industry kept the population of much of Nevada at a very low level until the early 20th century (Hulse 1990).

Roberts and Montgomery (1967) depict five mining districts—Alpha, Lone Mountain, Mount Hope, Antelope, and Roberts—within the project area, and another six to the north and southeast. Several smaller areas of mining activity also existed historically; all are discussed below. Those in the project area vicinity include the Cortez/Mill Canyon, Buckhorn, Mineral Hill, and Union Districts to the north and the Eureka and Fish Creek Districts to the south. Although mining is represented within the project area, historically it does not compare in size and scope to operations at Eureka and Ruby Hill south and southeast of the 3 Bars Project area, and the Mineral Hill and Cortez Districts north of the project area.

### **3.22.2.2.12 Charcoal Production**

The production of charcoal and cordwood was one of the area's most significant industries historically, and it resulted in substantial changes to the environment as it existed before 1850. The furnaces of the Eureka mining district, as well as those at other mines in the area, required tremendous quantities of charcoal. In addition, cordwood and lumber were needed for other mining and industrial purposes such as construction. Pinyon-juniper cordwood was also used for fuel by the E&PRR until 1890, when the railroad switched to coal (Zeier 1985:18).

By far the largest single consumer of charcoal was the Eureka mills. In 1880, at the height of mining within the Eureka District, the mills consumed a total of 1.25 million bushels of charcoal. Young and Budy (1979:117 *cited in* Zeier 1985:18) stated that "the demand for charcoal was so great that deforestation became a severe problem" with 4,000 to 5,000 acres of woodland cut annually. By 1878, the average hauling distance from (charcoal) pit to smelter was 35 miles.

### **3.22.2.2.13 Ranching and Agriculture**

Given the region's generally arid climate and landscape, traditional crop farming was never a major industry in Eureka and surrounding counties, and growing fruits and vegetables never expanded much beyond small-scale local operations. Early settlers in the area were actively engaged in rounding up mustangs, an endeavor that continued into the 20th century. However, cattle and sheep ranching proved to be highly profitable endeavors, especially during the boom periods of the mining industry, when tens of thousands of hungry miners flooded the region during the middle and latter decades of the 19th century.

#### ***Ranching***

Cattle and sheep grazing have long been the mainstays of the agricultural industry in central Nevada. However, they occur within a marginal environment where severe weather conditions, particularly in the winter, and rangeland vegetation that can only support a few head per acre limit the scope and degree to which grazing can be supported (Bowers and Muessig 1982:77). The first domestic cattle documented as having at least passed through eastern Nevada came with the Bartelson-Bidwell party in 1841, but as an industry, cattle ranching did not develop in central Nevada until after the Civil War. By the mid-1860s, stockmen were driving thousands of head into the region (Mack and Sawyer 1965 *cited in* James 1981; Patterson 1965). However, as with mining in Eureka and surrounding counties, cattle-raising went through its own boom-and-bust cycles.

The first sheep to enter Nevada followed the Old Spanish Trail from New Mexico through southern Nevada into California. This drive, consisting of 25,000 head, was organized by Miguel Otero, a rich landowner whose son would later become the governor of New Mexico, and Jose Luna, one of the richest sheep owners in the state. The second sheep drive was organized by "Uncle Dick" Wootton, with 9,000 head that took a northerly route along the Humboldt River in 1852 (Georgetta 1972:7-15).

Beginning in the 1870s, Scandinavian, Irish, and Scottish immigrants became engaged in the raising of sheep, which greatly intensified in the 1890s with the arrival of the Basque, who had moved from California following a period of drought. Because of their competition for grazing land, cattle ranches sought to control sheep grazing through the creation of grazing laws (Creel 1964). The fact that sheep cropped the land so closely caused former ranges to lose their plant growth, thereby rendering areas useless for cattle grazing (James 1981:258–260). It was not until 1934 with the passage of the Taylor Grazing Act that the management problem was adequately addressed. In 1946, the BLM

was organized from the Grazing Service and General Land Office (Clawson 1950:100). Sheep grazing within the 3 Bars Project area specifically was conducted by the Damele Brothers (Georgetta 1972:442).

### ***Agriculture***

Because of the limited availability of water, the remoteness of the area, and harsh winter conditions, agriculture has always been conducted on a limited basis in most areas of Nevada, including Eureka County, and even then has primarily been geared toward serving local markets such as mining camps and towns. Bowers and Muessig (1982) provide numerous examples from the Reese River area, the Monitor and Big Smoky Valleys, and the current project area of crops that met local demands, alleviating the high cost of importing fruits and vegetables from California, Utah, or the valleys of western Nevada. In 1879-1880, the Eureka County Assessor reported production of onions, cabbage, corn, potatoes, carrots, parsnips, tomatoes, beets, and turnips (Nevada Surveyor General and State Land Register 1880:34–35 *cited in* Bowers and Muessig 1982:78). However, this trend in the production of local vegetables decreased during the 1880s as the first mining boom came to an end (Hardman and Mason 1949:24 *cited in* Bowers and Muessig 1982:78–79). Hardman and Mason (1949:24) indicated that as the early boom period in mining declined, so did the acreage used in the production of fruits and vegetables. They attribute this to the lack of irrigation, the remoteness of the area, and the high cost of transportation to markets outside of the area.

### ***Wild Horse Industry***

The trapping of wild horses has been a continuing industry since settlers began arriving in the 1850s, and at first met the large demand for horses in California during the Gold Rush. Those who were engaged in the capture of mustangs became known as mustangers.

In the late 1890s it was estimated that 80,000 wild horses roamed in eastern Nevada within the area encompassed by White Pine, Lander, Elko, Nye, and Eureka counties (Amaral 1976:20). Shortly thereafter, there was a large demand for horses from the Quartermaster Remount Service. Established in 1908 to procure horses for military transportation, the service procured approximately 571,000 horses during World War I. Agents from the Quartermaster Remount Service were stationed in Austin, Battle Mountain, and Elko, as well as other Nevada locations.

After World War I, the demand for horses for use as pet food increased, and large numbers were captured and shipped via rail to the East Coast for processing. Horse meat originally canned for pet food was also known to have been consumed by humans during the Great Depression. After World War II, the pet food industry continued to expand to the point that the wild horse population was decimated. Finally, in 1971 legislation was passed that ended both the legal and the unregulated roundup of wild horses. Since then the BLM has developed a program of range management that is designed to keep the population of wild horses in check.

### **3.22.2.3 Documented Cultural Resources**

#### **3.22.2.3.1 Previous Studies and Surveys**

A total of 345 cultural resource investigations have been conducted within the vicinity of the project area. With the exception of linear cultural resource surveys, these investigations have primarily been focused within the Roberts and Simpson Park Mountains, and constitute approximately 16 percent (121,845 acres) of the project area (**Figure 3-52**).

Cultural remains have been found at many locations on the landscape and demonstrate that people—indigenous peoples followed by European-Americans—have resided in the 3 Bars Project region for at least 8,000 years. A

detailed summary of the documented resources by theme is presented in *Cultural Context 3 Bars Ecosystem and Landscape Restoration Project* (AECOM 2012).

Within the 3 Bars Project area, investigations have resulted in the documentation of 1,109 resources, 354 of which are isolated finds. The remaining 755 cultural resource sites, summarized in **Table 3-62**, have varying characteristics and have been subjected to various levels of significance assessment; approximately 36 percent of the sites have not been evaluated for NRHP eligibility.

- 536 sites reflect early Native American sites and artifacts, including 7 resources that appear to represent ethnohistoric usage including 6 with prehistoric and historic components.
- 219 sites reflect historic-era land use. These sites consist of the remains of early trails, transportation routes, and communication systems; and reminders of historic-era mining and related charcoal production and ranching and shepherding activities.
- 52 sites contain evidence of both prehistoric and historic-era land uses.

**3.22.2.3.2 Documented Prehistoric Sites, Features, and Artifacts**

The area is known to contain evidence of activities that occurred from the Early Archaic Period through the more recent Native American (Western Shoshone) period. Resources identified by prehistoric temporal periods are summarized in **Table 3-63**. The resources are discussed by temporal period; numerous cultural sites contain the remains of prehistoric occupations that span multiple periods of time over several temporal periods.

***Early Archaic***

Based on the presence of Pinto and stemmed projectile points, seven Early Archaic sites or site components have been identified within the project area. With the exception of 26EU1272, which is just north of U.S. Highway 50, all are within or immediately north of Roberts Mountains. Two of these sites have not been evaluated for eligibility for listing in the NRHP, three have been recommended as not eligible, and two appear eligible for inclusion in the NRHP.

**TABLE 3-62**

**Summary of Documented Resources**

Site Type	Eligible Sites	Not-Eligible Sites	Unevaluated Sites	Total
Prehistoric	85	240	152	477
Prehistoric/Historic	27	8	17	52
<b>Total Prehistoric Sites</b>	<b>112</b>	<b>248</b>	<b>169</b>	<b>529</b>
Ethnohistoric/Prehistoric	4	0	0	4
Ethnohistoric/Historic	2	0	0	2
Ethnohistoric	0	0	1	1
<b>Total Ethnohistoric Sites</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>7</b>
Historic	76	54	89	219
<b>Grand Total</b>	<b>194</b>	<b>302</b>	<b>259</b>	<b>755</b>

***Middle Archaic***

Of the sites that can be associated with a particular prehistoric period, the majority (116) contain Middle Archaic markers, Elko and Gatecliff style projectile points. Given the large number of sites dating to this time period, it appears that this time frame shows a large increase in the intensity of prehistoric land use during the Middle Archaic, and most likely an associated increase in population. Almost half of these resources (51) have been recommended as eligible for inclusion in the NRHP, 37 appear not to be eligible, and 28 are unevaluated. With the exception of five sites located in the southern portion of the project area, north of U.S. Highway 50, the remaining sites are distributed along the upper fans and higher elevations within Roberts Mountains and the southern end of the Simpson Park Mountains. Three of these sites also contain Early Archaic components, indicating some reuse of locations from the earlier time period. The vast majority of the 116 sites (97 sites) consist entirely of lithics, 11 sites also contain ground stone, 6 appear to represent at least short-term habitation based on the presence of fire-cracked-rock and/or hearth features, and lithics with rock circles are present at two sites.

***Late Archaic***

A total of 54 Late Archaic sites defined by the presence of Rose Spring and Eastgate style projectile points have been defined primarily within the Roberts Mountains area, although a small number are also located north of U.S. Highway 50 in the southern portion of the project area. More than half of these sites (28) also contain Middle Archaic components, indicating reuse of locations from the earlier period, and the remaining 26 sites represent expansion of land uses and the assumed increase in the intensity of resource procurement. The majority of these sites (27 sites) appear eligible for listing in the NRHP, 9 are unevaluated, and 18 have been recommended as not eligible.

**TABLE 3-63**

**Summary of Documented Prehistoric Cultural Sites**

<b>Site Type</b>	<b>Eligible</b>	<b>Not Eligible</b>	<b>Not Evaluated</b>	<b>Total</b>
<b>Prehistoric Sites</b>				
Early Archaic	2	3	2	7
Middle Archaic	51	37	28	116
Late Archaic	27	18	9	54
Numic Occupation	7	11	14	32
Unknown Prehistoric	39	192	118	349
<b>Total</b>	<b>126</b>	<b>261</b>	<b>171</b>	<b>558<sup>1</sup></b>

<sup>1</sup> Multiple occupations/time periods are represented at 34 sites.

***Numic Occupation***

Numic occupation, implied from the presence of desert series projectile points and/or brownware ceramics, is present at 32 locations. With the exception of site 26EU353, which is at the southern end of the project area, these sites tend to be located within the pinyon-juniper zone of Roberts Mountains. Seven of these sites have been recommended as eligible for listing in the NRHP, 11 as not eligible, and 14 have not been evaluated. Reuse of locations from the Middle Archaic Period and/or earlier part of the Late Archaic Period is documented at 14 of these 32 sites. As with sites from the Middle and Early portions of the Late Archaic Period, 19 of these sites consist of lithic materials only.

Complex constituents including hearths (suggesting campsites) are located at three sites; three resources contain lithics and ground stone, seven contain brownware ceramics, and one site has an associated rock ring.

### ***Unknown Prehistoric***

A total of 353 prehistoric sites or site components lacking temporal markers that would place them within a specific time frame have been identified and documented. The majority (328) contain only flaked stone. Five of these sites appear to be opportunistic quarry locations, and eight sites possess flaked and ground stone artifacts. The remaining 24 sites consist of hunting blinds (4 sites), rock rings or flaked stone with rock ring features (7 sites), lithics and burned bone and/or hearth features (5 sites), lithics and bedrock mortars (1 site), and one complex rock shelter site with flaked stone, fire-cracked rock, and ground stone. Approximately one-third (118) of these sites have not been evaluated, more than half (192) have been recommended as not eligible for listing in the NRHP, 39 resources have been recommended as eligible, with the evaluation pending additional assessment at 4 of these sites. This resource type is primarily clustered within the Roberts Mountains area.

#### **3.22.2.3.3 Documented Historic-era Sites and Features**

Historic-era enterprises in the region have also left their marks on the landscape, such as the routes of the Pony Express, Overland Stage and Transcontinental Telegraph, and the E&PRR, and various mining ventures and associated charcoal production, and ranching operations, some of which date to early settlement of the region (**Table 3-64**). A review of these and other important developments provides a cultural background against which to define the context for the historic-era events that shaped the natural environment into the mosaic that exists today. Cultural resource sites that reflect early exploration have not been identified within the project area.

#### **3.22.2.3.4 Summary of Identified Resources - Transportation and Communication**

This theme is represented by the routes of the Pony Express, Overland Stage, Lincoln Highway/Austin-to-Eureka Stage, Transcontinental Telegraph, and the E&PRR, and historic roads, telegraph and telephone alignments. Seven resources associated with the Pony Express/Overland Stage and Transcontinental Telegraph route have been documented in the southern portion of the project area, and all are classified as unevaluated. The route of the Austin-to-Eureka Stage and Lincoln Highway is immediately north and south of U.S. Highway 50, and has been recommended as not eligible for listing in the NRHP. Three of the four historic road segments are situated on the southwest flank of Roberts Mountains and are also listed as not eligible. An alignment of the Old State Route 21 is near the northern boundary of the project area and is listed as eligible.

As part of the mitigation to offset indirect visual impacts and direct impacts on the remains of the E&PRR resulting from construction of the Falcon transmission line project, Summit EnviroSolutions, Inc., documented nearly the entire length of the E&PRR (McQueen et al. 2009). Within the project area the route is represented by the railroad line, workcamps with historic refuse, an historic structure, and the remains of Chimney's (Alpha) Station, Summit Station, and Deep Wells Station. The historic structure and Chimney's Station have not been evaluated, the Deep Wells site has been recommended as not eligible for listing in the NRHP, and the remaining elements of the route have been recommended as contributing elements. Four additional resources include the remains of telegraph and telephone lines, one of which is unevaluated, and one is the remains of the McClusky Peak toll station line, which along the western project area boundary and has not been evaluated for eligibility. The other two resources include the remains of the telephone line extending to the 3 Bars Ranch, which has been recommended as eligible for listing; the remaining site consists of three unevaluated segments of a telegraph line that parallels the west side of Tonkin Road

near the northern end of the project area. Although no remains of the transcontinental telegraph have been documented, the route most likely paralleled the route of the Pony Express/Overland Stage.

**3.22.2.3.5 Summary of Documented Resources - Early Settlement/Ranching**

The archaeological manifestations of early settlement are represented by signs of early ranching within the project area and consist of 14 resources. Ten sites documented in the project area reflect named early settlements/ranches—the Sadler, Tonkin, and Willow Creek ranches, Walti Hot Springs, Bartine Ranch, Indian Ranch, and Peretti’s, Ferguson, Andrew Louck, and Isaacs ranches. In addition, the remains of four other unnamed resources appear to be the remains of early ranches/settlements. With the exceptions of the dugout with historic refuse and Andrew Louck’s Ranch, which have been recommended as eligible for inclusion in the NRHP, the remaining ranches or remains of ranches have not been evaluated.

**TABLE 3-64  
Summary of Documented Historic-era Cultural Sites**

Site Type	Eligible	Not Eligible	Unevaluated/Incomplete Evaluations	Total
Pony Express/Overland Stage/Telegraph Route	0	0	7 <sup>1</sup>	7
Transportation	6	7	2	15
Communication	2	0	2	4
Early Settlement/Ranching	2	0	12	14
Mining	5	12	1	18
Charcoal Production	81	4	28	113
Ranching and Agriculture	5	6	8	19
Unassociated Historic Sites	0	39	40	79
<b>Totals</b>	<b>101</b>	<b>68</b>	<b>100</b>	<b>269<sup>2</sup></b>

<sup>1</sup> The Pony Express National Historic Trail is considered nationally significant and only segments are unevaluated/incomplete.

<sup>2</sup> Includes 50 sites with prehistoric or ethnohistoric components.

**3.22.2.3.6 Summary of Documented Resources - Mining**

A review of the previously documented sites indicates that the remains of 18 mines or mining-associated cultural resources have been documented within the project area. These resources are somewhat clustered in the vicinity of Mount Hope, with the remainder consisting of one on the southwest flank of Roberts Mountains, one in the Simpson Park Mountains, and another at Lone Mountain. Mines and mining camps, including the remains of the Mount Hope and Keystone Mines, represent ten of the documented resources. The Mount Hope Project and another resource consisting of adits and tailings have been recommended as not eligible for listing in the NRHP; the remaining sites are unevaluated.

The remaining eight sites consist of prospect pits, refuse deposits (one of which appears to be associated with a Chinese occupation), cairns, a quarry, and a trail. With the exception of the trail that has not been evaluated and the

quarry and Chinese occupation site, which have been recommended as eligible, all of the remaining mining resources have been recommended as not eligible for inclusion in the NRHP.

#### **3.22.2.3.7 Summary of Identified Resources - Charcoal Production**

Consisting of 113 resources, the remains of charcoal production are well represented in the 3 Bars Project area. The majority of these resources are in the southern Roberts Mountains, and the remaining sites are scattered in the uplands throughout the northern half of the project area. With the exception of seven resources consisting of associated refuse, a road, a logging skid trail, and piles of ax-cut wood, all of these documented resources contain the remains of charcoal platforms, and 26 sites appear to be the remains of camps. The majority of the sites (81 sites) appear eligible for inclusion in the NRHP, 28 have either not been or are only partially evaluated, and 4 sites remain unevaluated.

A treatment plan was developed and implemented to mitigate adverse effects on 13 historic properties located within the Gold Bar II Mine Project, which were determined by the Nevada State Office of Historic Preservation to be contributing elements to the Roberts Mountains Carbonari District, part of the Eureka Charcoal District. This treatment plan consisted of detailed documentation of 31 charcoal platforms, 9 distinct habitation loci, and 1 trash dump (Reno et al. 1994:i-ii).

#### **3.22.2.3.8 Summary of Cultural Resources - Ranching and Agriculture**

Although ranching, sheepherding, and the wild horse industry are represented by documented cultural resources within the project area, resources specifically associated with agriculture have not been identified. As mentioned above, "Early Settlement" is represented by the ranches or the remains of early ranching settlements at 14 locations. The remaining 15 ranching-related resources consist of fences and rock walls (4 sites), ranching-related refuse (3 sites), 2 roads, and 6 miscellaneous ranching-related features (e.g., depressions, corrals, a well, a sheep camp, and log troughs). Five of these sites have been recommended as not eligible for listing in the NRHP and the remaining ten either have been recommended as not eligible (six) or have not been evaluated (four).

Two sites with aspen tree carvings associated with Basque sheepherding have been documented within the project area. Both sites are located within the Simpson Park Mountains in the western portion of the project area, and have been recommended as not eligible for listing in the NRHP.

Two horse traps or blinds have been documented within the project area. One, located on the northwest flank of Roberts Mountains, appears eligible for listing in the NRHP; the other, in Pine Valley, has not been evaluated.

#### **3.22.2.3.9 Summary of Cultural Resources - Unassociated Historic Sites**

A total of 79 documented historic cultural resources sites are lacking the data necessary to determine their association with historic-era themes. The majority (65) of these 79 sites consists of historic-era refuse; none of these sites have been recommended as eligible for listing in the NRHP, 29 appear not eligible, and 36 are unevaluated. The remaining 14 resources consist of features such as spring improvements, wagon parts, a fence, a boundary line, a historic campsite, rock walls, logging isolates, a rock shelter with stacked rocks, a log building, rock rings, a schoolhouse, a stone dam, a structure of unknown function, and wooden poles. With the exception of the log building, schoolhouse, wooden poles, and the unknown structure that have not been evaluated (4 sites), the remaining ten sites have been recommended as not eligible for listing in the NRHP.

### **3.22.3 Environmental Consequences**

#### **3.22.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Several issues of concern have been identified by the BLM in the AECC and through scoping. These would not be addressed directly by the restoration treatments, but could be dealt with indirectly through surveys and studies conducted on treatment areas prior to treatment. These are:

- Site management is currently “piecemeal,” resulting in fracturing of the historic landscape and loss of integrity of cultural resources.
- Approximately 84 percent of the 3 Bars ecosystem has not been inventoried for the presence of prehistoric and historic-era resources that may be eligible for inclusion in the NRHP or which may be contributing elements to a historic cultural landscape.
- A large number of previously identified cultural resources have not been evaluated for inclusion in the NRHP.
- The physical, historic remnants of the Pony Express Trail have not been fully inventoried or evaluated to identify related segments or sites that may be eligible for the National Register of Historic Places.

#### **3.22.3.2 Significance Criteria**

Federal historic preservation legislation provides a legal environment for the documentation, evaluation, and protection of archaeological and historic sites that may be affected by federal undertakings, by private undertakings operating under federal license, or on federally managed lands. The significance criterion used to evaluate the impacts of the alternatives on cultural resources is whether any action would adversely affect historic properties unevaluated or eligible for inclusion in the NRHP.

The NRHP eligibility of cultural resources is determined by applying the criteria outlined in 36 CFR § 60.4 (see Regulatory Background Section 3.22.1). In addition to having eligibility related to one of the four criteria, a cultural resource must also retain sufficient physical integrity to convey its importance. The National Register has defined seven elements of integrity—Location, Design, Setting, Materials, Workmanship, Feeling, and Association.

For the 3 Bars Project, the NRHP eligibility criteria were further refined into research domains for prehistoric and historic-era sites. Five research themes were defined for the prehistoric period resources and consisted of Paleoenvironment, Geomorphology and Chronology, Lithic Technology, Settlement and Subsistence, and External Relations and Exchange (AECOM 2012). For historic-era properties, the themes consist of Early Exploration, Transportation and Communication, Early Settlement, Mining and Associated Charcoal Production, and Ranching and Agriculture.

Impacts to cultural resources were assessed in light of the degree to which the project may adversely affect cultural resources eligible for listing in the NRHP, or unevaluated resources that may potentially be eligible for listing. Under 36 CFR Part 800 (regulations for implementing the National Historic Preservation Act), “An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s

location, design, setting, materials, workmanship, feeling, or association.” Adverse effects can include physical disturbance or alteration of a property or its setting, visual, atmospheric, and auditory intrusions, removal of a building or structure from its historic location, and deterioration through neglect. Any adverse effect identified under the National Historic Preservation Act criteria is also considered to be a significant adverse impact under NEPA.

### **3.22.3.3 Direct and Indirect Effects**

#### **3.22.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

##### *Adverse Effects*

Historically, there have been potential direct conflicts between land restoration treatments and archaeological/cultural resources, and specific impacts to known and undiscovered cultural resources can be severe. For example, surface-disturbing activities may destroy spatial context as well as damage or destroy individual artifacts, features, and structures. Cultural properties consisting only of surface manifestations could be destroyed or severely affected during surface-disturbing activities.

##### *Beneficial Effects*

Stabilization and restoration of riparian systems would reduce streambank erosion and would ensure that buried cultural and paleontological resources adjacent to streams remained intact. Surveys would be conducted to identify the locations of cultural and traditional lifeway resource values prior to treatment activities to ensure that these resources would be protected.

#### **3.22.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

##### *Riparian Treatments*

Cultural resource investigations have been conducted at the Black Spring, Indian Creek Headwaters Middle, Mud Spring, Garden Spring, Roberts Mountain Spring, Trail Spring, Lower Henderson 1, Vinini Creek, Upper Vinini Creek, Upper Willow, Roberts Creek, Willow Creek, Denay Pond, Lone Spring, and Treasure Well units. Fifteen investigations have resulted in the identification of 23 cultural sites. Seventeen sites have either been determined eligible for inclusion in the NRHP or have not been evaluated for NRHP eligibility. The remaining six sites have been determined not eligible for NRHP listing.

##### **Adverse Effects**

Manual methods would result in general surface disturbance that could disrupt the spatial context of archaeological constituents, mulching with organic materials would compromise radiometric dating, and the use of hard-edged tools could damage artifacts. There is also the potential for unauthorized collection of artifacts by workers. Although the removal of vegetation has the potential to expose archaeological components, thereby increase the possibility of vandalism and/or unauthorized collection of artifacts, monitoring during project implementation would significantly reduce the risk of unauthorized collection. Cultural inventories conducted in accordance with the *Programmatic Agreement between the Mount Lewis Field Office of the Bureau of Land Management and the Nevada State Historic Preservation Officer regarding National Historic Preservation Act Compliance for the 3Bars Ecosystem and Landscape Restoration Project, Eureka County, Nevada* (Programmatic Agreement) would result in the identification of historic properties, thereby allowing avoidance (see **Appendix B**). Because inventory and site assessment would be

conducted prior to project implementation and all eligible or unevaluated resources would be avoided, there would be no direct adverse effects to cultural resources.

Use of chainsaws to remove pinyon-juniper should have little or no effect on cultural resources. Because of the limited scope and small size of the acreage that would be treated with manual methods, however, manual methods may do little to reduce the potential for wildfires that could result in severe impacts to cultural resources either from the fire, fire suppression activities, or the indirect effects associated with the increased potential for erosion as a result of catastrophic wildfire, and which have the potential to more significantly compromise the integrity of archaeological deposits.

The use of a track hoe or back hoe for stream channel restoration would result in surface and shallow subsurface disturbances that would likely introduce organic materials to lower soil layers, thereby contaminating any surface or shallow subsurface cultural resource sites that contain early historic or prehistoric datable organics, such as charcoal, wood, or preserved plant materials. Surface and shallow subsurface impacts would also include horizontal and vertical displacement of the upper portion of soils where archaeological resources could be contained, potentially compromising depositional context and integrity, and damaging or destroying artifacts (USDOI BLM 2007c:4-107).

Prescribed burning could be used on a few acres annually at units within all groups except the Black Spring and Denay Pond groups. The effect of prescribed burning on cultural resources depends on the location of the resource with respect to the ground surface, the proximity to fuels that could provide a source of heat, the material from which artifacts are made, and the temperature to which artifacts are exposed. Surface or near-surface archaeological materials may be damaged, destroyed, or remain essentially unaffected by prescribed burning, depending on the temperatures reached and the duration of exposure to that temperature. Wooden structures or wooden parts of stone structures (such as those within the Roberts Creek Unit) are very susceptible to fire. Combustible artifacts could be destroyed, and the ability to date obsidian artifacts using obsidian hydration also may be affected, depending upon the depth that they are located and the intensity of the fire. Indirect effects may also result from the construction of fire lines. Although heat can damage prehistoric rock art, by causing rock flaking and smoke and soot can increase chemical deterioration or obscure carvings and painted motifs, no rock art panels have been identified within the 3 Bars Project, or within the riparian project areas specifically (USDOI BLM 2007c:4-104). Because only a few acres would be treated annually using fire in riparian zones, risks to historic resources from fire treatments would be negligible.

### **Beneficial Effects**

Stabilization and restoration of riparian systems would reduce streambank erosion and ensure that cultural and paleontological resources buried near streams remained intact. Uncontrolled wildfire, similar to prescribed fire, has the potential to significantly impact cultural resources, and the reduction of fuels that would contribute to such events is one of the goals of the 3 Bars Project. Stream channel restoration and removal of pinyon-juniper and noxious weeds and other invasive non-native vegetation from riparian zones would improve stream functionality and encourage the growth of fire-resilient vegetation, which would enhance the ability of the riparian zone to function as a fuel break.

### ***Aspen Treatments***

An inventory conducted at RM-A2 documented a site with historic features and prehistoric flaked stone that has been recommended as eligible for inclusion in the NRHP.

A Class III cultural resource inventory would be conducted prior to treatment to reduce the potential for treatments to adversely affect historic properties. Inventory, assessments of NRHP eligibility, and avoidance of adverse effects are outlined in the stipulations of the Programmatic Agreement prepared for the 3 Bars Project, and would meet the requirements of Section 106. Improvement in the health of aspen stands, and removal of pinyon-juniper near aspen stands to create fire breaks, would help to reduce the risk of wildfire spread. These treatments, however, would do little to reduce the long-term risk to archaeological and other cultural resources from wildfire as few acres would be treated annually in aspen stands.

### *Pinyon-juniper Treatments*

Twelve cultural resources investigations have been conducted within portions of the Atlas, Cottonwood/Meadow Canyons, Dry Canyon, Gable Corridor, Henderson Corridor, Sulphur Spring Wildfire Management Unit, 3 Bars Ranch, Tonkin North and South, Upper Roberts Creek, Vinini Corridor, and Whistler units. These resulted in the documentation of 189 cultural sites, of which 71 were recommended and/or determined to be not eligible for inclusion in the NRHP, 71 were determined eligible, and 47 were unevaluated. Dominant cultural resources include prehistoric open lithic scatters and historic resources associated with charcoal production. Historic-era resources represent all themes including the built environment consisting of historic structures and ranches. A segment of the Pony Express Trail is within the Henderson Corridor treatment unit.

### **Adverse Effects**

The types of adverse effects from manual, mechanical, and prescribed fire treatment methods, and from the use of fencing, would be similar to those discussed under Effects Common to All Alternatives, and under Riparian Treatments. The greatest risks to cultural resources would be from mechanical and fire treatments.

Chaining, root plowing, tilling and drill seeding, mowing, roller chopping and cutting, blading, grubbing, and feller-bunching could damage surface and subsurface cultural resources if the sites were not avoided. Treatments could compromise depositional context and integrity, and damage or destroy artifacts.

Several thousand acres could be burned annually using prescribed fire and wildland fire for resource benefit. The effects of fire on cultural resources would vary depending on temperature and duration of exposure to heat. Generally, higher temperature and/or longer exposure to heat increases the potential for damage to cultural resources. As a general rule, fire does not affect buried cultural materials. Studies show that even a few inches of soil cover are sufficient to protect cultural materials. However, there are times when conditions do carry heat below the surface, with the potential to affect buried materials.

Stumps that smolder and burn have the potential to affect nearby buried materials. Heavy duff, surface logs, and roots that smolder and burn have the potential to expose subsurface materials to heat over a period of time, and hence have the potential to affect cultural materials. Fires that burn hot and fast through a site may have less of an effect on certain types of cultural materials than fires that smolder in the duff, or than logs that burn for a period of time (USDOI BLM 2007c:4-104). Fire can cause physical damage to sites from snags/trees falling on them, and can indirectly lead to loss of archaeological data due to increased damage from rain, changes in drainage patterns, soil erosion, and flooding (USDOI BLM 2007c:4-107).

Wildfire is generally more destructive to cultural resources than prescribed fire, since it results in effects from both uncontrolled fire and fire suppression. Management decisions may need to balance the potential effects of a prescribed burn with the risk of damage from an uncontrolled wildfire. Because prescribed fire can be controlled,

cultural resource specialists could work with fire managers to determine the predicted temperature and duration of a fire through an area, and possibly to modify burn plans to minimize effects to cultural resources. The emergency nature of wildfires can lessen management's ability to prioritize conservation of cultural resources.

Protecting cultural resources during fire would begin with fire management planning. During planning, the BLM would define vulnerable cultural resources by classes of site-types and specific sites, identify appropriate protection measures for them, and identify appropriate management responses with regard to cultural resources in the event of fire. Consultation with State Historic Preservation Office, Tribes, and other appropriate entities should be part of the project planning process, especially when designing fire-specific protocols for identification and protection of potentially affected cultural resources (USDOI BLM 2007c:4-105).

### **Beneficial Effects**

Cultural inventories conducted in accordance with the Programmatic Agreement established for this project would result in the identification and avoidance of historic properties. This assessment would also include determination of eligibility of a portion of the Pony Express route mentioned above. The Pony Express route is Congressionally designated as a National Historic Trail, thus it is anticipated that the NRHP assessment may include consultation and concurrence with the National Park Service. Because inventory and site assessment would be conducted prior to project implementation and all resources would be avoided, there would be no direct adverse effects to cultural resources. Although the removal of vegetation has the potential to expose archaeological components, and could thereby increase the possibility of vandalism and/or unauthorized collection of artifacts, monitoring during project implementation would significantly reduce the risk of unauthorized collection.

Given the large number of acres that would be subject to treatment, together these methods would significantly reduce hazardous fuels and the risk of an uncontrolled catastrophic wildfire that could adversely affect historic properties. Therefore, pinyon-juniper treatments would result in significant long term benefits and protection of cultural resources from catastrophic wildfire.

### ***Sagebrush Treatments***

Eleven investigations have been conducted on portions of the Alpha, Coils Creek, Kobeh East, Nichols, Roberts Mountain Pasture, Rocky Hills, South Simpson, Table Mountain, Three Corners, West Simpson Peak, and Whistler Sage units. These studies have documented 27 cultural sites, of which 5 have been determined not eligible, 3 have been determined eligible, and 19, including a portion of the Pony Express route, have not been evaluated for NRHP eligibility. Two of the eligible sites are components of the E&PRR, which has been completely documented. These sites will require mitigation if it is not possible to avoid them during project implementation.

### **Adverse Effects**

Manual and mechanical treatments could be used in all areas and the potential for adverse effects would be the same as Effects Common to All Alternatives and effects from pinyon-juniper treatments.

The BLM would not use fire in Wyoming big sagebrush, which is found at lower elevations, but could use prescribed fire in mountain big sagebrush communities. The types of effects to historic properties from fire would be similar to those for pinyon-juniper management, but the magnitude of effects would be substantially less given the limited area of sagebrush that would be burned.

Livestock could be used on the Table Mountain, Rocky Hills, West Simpson Park, and Whistler Sage units to remove cheatgrass. While grazing animals could displace and damage artifacts and generally compromise the integrity of surface archaeological deposits, use of livestock would be limited to small treatment areas and would most likely not affect historic properties.

### **Beneficial Effects**

Adherence to the stipulations outline in the Programmatic Agreement would ensure that historic properties are not subject to adverse effects. The greatest inadvertent threat to cultural resources would be associated with uncontrolled wildfire, and these effects have the potential to be severe. However, treatments would reduce fuel loads and fuel breaks would aid in protecting historic properties from uncontrolled catastrophic wildfire, resulting in long-term beneficial effects.

#### **3.22.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

Mechanical and fire treatments have the greatest potential for harming cultural resources. The number of acres treated using manual and mechanical equipment would be similar to that under Alternative A. Prescribed fire and wildland fire for resource benefits would not be used on several thousand acres annually, as they would under Alternative A. Fire has the potential to cause inadvertent effects to cultural sites. By removing fire under this alternative, these risks would be substantially less under Alternative B than under Alternative A.

Under Alternative B, the BLM would be unable to restore fire as an integral part of the ecosystem. It is unlikely that the BLM would be able to slow the spread of noxious weeds and other invasive non-native vegetation, including cheatgrass. Cheatgrass is a major contributor to providing fuel for wildfire. It is unlikely the trend toward large-sized fires of moderate to high severity in sagebrush and large stand-replacing fires in pinyon-juniper would slow or reverse in the long term, which would continue to be a threat to historic properties.

#### **3.22.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

Given that mechanical and fire treatments, and to a lesser extent biological treatments using livestock, have the greatest potential to harm cultural sites, these risks would be eliminated under this alternative. However, large numbers of workers and their vehicles would be needed to accomplish proposed treatments under this alternative. Vehicle miles traveled would likely be greatest under this alternative and vehicles could crush cultural materials. Increased numbers of workers could increase the potential for looting. Downed trees and slash material from treatments would be difficult to remove without mechanical equipment or pile burning. Some downed wood and slash could be sold, used for biomass, or made available to the public as firewood, but the demand for this wood is unknown.

The number of miles of fire and fuel breaks created under this alternative would be substantially less than for Alternatives A and B as the BLM would not be able to use mechanical equipment, such as bulldozers, mowers, and mulchers, and prescribed fire to create fire and fuel breaks. Fire and fuel break treatments would primarily be limited to stream and aspen habitats, or near roads, where pinyon-juniper would be removed to enhance or create new breaks.

Under Alternative C, it is unlikely the trend toward large-sized fires of moderate to high severity in sagebrush and large stand-replacing fires in pinyon-juniper would slow or reverse long term, and wildfire would continue to be a threat to historic properties.

### **3.22.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct effects on cultural resources from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM would not create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation, especially cheatgrass; restore fire as an integral part of the ecosystem; or reduce the risk of a large-scale wildfire. Thus, long-term threat to historic resources from wildfire would be greatest under Alternative D.

### **3.22.3.4 Cumulative Effects**

The CESA for cultural resources is approximately 1,267,997 acres and includes the 3 Bars Project area and a 5-mile buffer around the 3 Bars Project area that encompasses the viewshed of the Pony Express Trail and Eureka Palisade Stage lines that traverse the entire project area (**Figure 3-1**). Approximately 94 percent of the area is administered by the BLM, 5 percent is privately owned, and 1 percent is administered by the U.S. Forest Service. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

#### **3.22.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

The BLM would treat noxious weeds and other invasive non-native vegetation under existing authorizations. New infestations would typically be found in newly burned or disturbed areas, and in areas where livestock and wild horses congregate. Treating infestations while they are small, and reducing the amount of area covered by existing large infestations, would result in few effects, if any, to historic resources. There could be some risk associated with disking soil to remove cheatgrass, and possibly drill seeding, but these risks would be negligible. Surveys would be conducted prior to treatments to determine whether there are additional cultural sites in these areas which could be impacted by treatment actions. Existing and newly-found sites would be mitigated in accordance with the Programmatic Agreement before restoration work begins.

Road and utility construction, land development, and mineral, oil, gas, and geothermal leasing and development projects could affect cultural resources, but their impacts to these resources would be evaluated based on plans submitted by the developer or lessee. Cultural resources surveys completed for the Mount Hope Project documented 242 cultural sites within the mine project footprint, including 80 prehistoric and 142 historic sites, and an additional 352 sites within the larger area of potential effects, which includes a portion of the 3 Bars Project area. Implementation of the Mount Hope Project would result in adverse impacts to 83 eligible sites, and these impacts would be considered significant. Under the Programmatic Agreement developed between the mine proponent and State Historic Preservation Office, the proponent would develop, and submit to the BLM for approval, a treatment plan to address the potential direct impacts to the 83 officially eligible sites. The proponent would implement the treatment plan prior to any surface disturbance of eligible sites within the area of direct impacts. All adverse effects under the National Historic Preservation Act and direct and indirect impacts under the NEPA to known eligible properties identified within the project area, and properties discovered during construction activities, would be mitigated in accordance with the Programmatic Agreement and the treatment plan prepared for the project (USDOI BLM 2012c:3-604). The BLM concluded that mine activities would not significantly impact cultural areas outside of the mine footprint (USDOI BLM 2012c:4-605). There would also be cumulative short-term visual effects from the Mount Hope Project, but these effects would be somewhat offset by improvement to the visual landscape from the 3 Bars Project.

Since 1985, wildfires have burned an average of about 7,000 acres annually within the CESA. Assuming a similar rate in the future, about 140,000 acres would burn from wildfires during the next 20 years. In addition to the 127,000 acres treated on the 3 Bars Project area to reduce hazardous fuels and improve ecosystem health, an additional 15,000 acres could be treated under current and reasonably foreseeable future authorizations within the CESA, totaling about 11 percent of the CESA. The BLM would conduct surveys prior to treatments to determine whether there are additional cultural sites in these areas that could be impacted by treatment actions; existing and newly-found sites would be mitigated in accordance with the Programmatic Agreement before hazardous fuel treatment work begins.

There could be adverse effects to eligible historic properties from fuels and other vegetation treatments within the CESA. Physical effects to eligible historic properties would be avoided where possible, but visual effects from treatments may not be fully avoided. Long term, the 3 Bars Project and other restoration treatments should result in a landscape that is more fire resilient and similar to the Potential Natural Community. Noxious weeds and other invasive non-native vegetation treatments would remove vegetation that contributes to short return-interval fires and loss of native vegetation and could cause adverse effects to eligible historic sites. In addition, the BLM would conduct stream bioengineering and plantings on about 31 miles of stream to slow stream flow and create pools and wet meadows, and remove encroaching pinyon-juniper to improve wetland and riparian vegetation. These activities would help to reduce the potential for streambank erosion and potential loss of cultural materials.

#### **3.22.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

Under Alternative B, effects from non-3 Bars Project reasonably foreseeable future actions on cultural resources would be similar to those described under Alternative A. Adverse effects to cultural resources within the CESA would generally be the same as described for Alternative A. Although use of fire would not occur within the 3 Bars Project area, the use of fire could occur on several hundred acres annually in the remainder of the CESA. By not using fire to reduce hazardous fuels and improve vegetation resiliency to fire, there would be greater potential for more extensive and intense wildfires to occur in place of controlled burns on the 3 Bars Project area under this alternative compared to Alternative A.

Because 3 Bars Project actions would affect only about 6,350 acres annually, or 1 percent of the CESA, and treatment areas would be surveyed prior to treatment to avoid or reduce impacts to cultural sites, there would be a negligible cumulative effects to cultural resources from 3 Bars Project actions. These effects would be less than for Alternative A, but greater than for Alternative C.

#### **3.22.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on cultural resources would be similar to those described under Alternative A.

Adverse, short-term effects to cultural resources associated with the use of fire and mechanized equipment would not occur under Alternative C. However, fire and mechanized equipment could be used on about 1,500 acres annually in other portions of the CESA and outside of 3 Bars Project areas to improve habitat, remove hazardous fuels, and reduce the risk of wildfire, and could affect cultural resources in those areas.

Because 3 Bars Project actions would affect only about 3,200 acres annually (less than 0.5 percent of the CESA), and the BLM would conduct pre-treatment surveys for cultural resources to reduce the potential for effects to eligible sites, effects to cultural resources within the CESA would be negligible.

### **3.22.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on cultural resources would be similar to those described under Alternative A. There would be no cumulative effects on cultural resources from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually; less than 0.1 percent of the CESA). Thus, adverse effects and benefits to cultural resources would be less under this alternative than under the action alternatives.

### **3.22.3.5 Unavoidable Adverse Effects**

Because cultural resources are nonrenewable and their locations are for the most part unknown, project-related treatments have the potential to adversely impact historic properties, including those eligible for inclusion in the NRHP. Surveys, inventories, assessments of affect, and treatments designed to mitigate adverse effects conducted prior to project implementation would result in avoidance, which is the mitigation measure preferred by the BLM, or some other treatment (e.g., data recovery), that would reduce adverse effects. These measures, however, may only reduce cumulative effects. In addition, adoption of an unanticipated discovery plan would effectively mitigate effects either through avoidance or data recovery. While implementation of archaeological excavation as part of a data recovery plan could result in the partial or total destruction of the site, the recovered data would effectively mitigate for this destruction. Therefore, project implementation under all four alternatives would not result in unavoidable adverse effects under NEPA.

### **3.22.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

Any destruction of cultural resources that are eligible for inclusion in the NRHP would represent long-term loss of data. In the event that avoidance of archaeological resources is not feasible, other mitigation measures may include archaeological data recovery carried out under an approved treatment and data recovery plan. Such a plan could result in the partial or total destruction of the site. However, any investigations of cultural resources made during inventories or investigations required prior to restoration treatments would enhance the knowledge of the historic-era and prehistory of the region and serve to effectively mitigate any adverse effects (USDOI BLM 2007c:4-249).

Due to the build-up of fuels, historic properties within the 3 Bars Project could be compromised either directly or indirectly by catastrophic wildfire. For example, the loss of vegetation would expose archaeological sites to an increased risk from erosion, or direct effects could compromise the vertical and horizontal integrity of historic-era and prehistoric archaeological sites, and obsidian hydration rims for prehistoric resources, thereby limiting the ability to place prehistoric site constituents within a relative chronology. Catastrophic wildfire would also result in substantial damage or complete destruction of wooden buildings and structures that have been determined to be eligible for NRHP listing.

### **3.22.3.7 Irreversible and Irretrievable Commitment of Resources**

Cultural resources are nonrenewable, so any impacts that may result from treatments would be irreversible, and the integrity of the affected resource would be irretrievable. Therefore, impacts to near surface archaeological sites from treatments could result in partial or complete destruction of the resource, and such loss of scientific data would be irreversible and irretrievable. Although archaeological investigation carried out under an approved treatment and data recovery plan could result in partial or complete destruction of the site, the recovered scientific data would effectively mitigate for this destruction. These investigations carried out prior to vegetation treatments would enhance and fill gaps in the body of knowledge as it relates to the history and prehistory of the region, and would serve to effectively mitigate further potential effects of activities in the area (USDOI BLM 2007c:4-249).

### **3.22.3.8 Significance of the Effects under the Alternatives**

The significance criterion used to evaluate the impacts of the alternatives on cultural resources is whether any action would adversely affect historic properties eligible or unevaluated for inclusion in the NRHP. The Mount Hope Project could have direct and indirect impacts to 83 NRHP-eligible sites. Direct and indirect impacts to known eligible properties within the area of potential effects would be mitigated in accordance with the Programmatic Agreement and treatment plan developed cooperatively by the Mount Hope Project proponent, BLM, and State Historic Preservation Office. Any previously unknown eligible properties that may be discovered during construction activities would be mitigated in accordance with the Programmatic Agreement.

For 3 Bars Project treatments, most ground-based equipment would disturb only the upper few inches of soil and in most cases would be confined to previously disturbed areas such as roadways, trails, and rights-of-ways. Cultural resources on the surface should be discovered during pretreatment surveys. All treatment methods could cause indirect loss of cultural resources as a result of erosion and soil disturbance, but these effects should be minimal. Potential effects would be further reduced because the BLM has inventoried, or would conduct inventories for, cultural resources in treatment areas to lessen the chance that they would be inadvertently impacted by BLM vegetation restoration treatments. Thus, there should be a negligible cumulative loss of cultural resources on public lands due to herbicide and other vegetation treatment methods under all alternatives.

The BLM and State Historic Preservation Office have entered into a Programmatic Agreement that outlines the stipulations that will be followed to insure compliance with Section 106 of the National Historic Preservation Act for each phase of the 3 Bars Project. According to the Programmatic Agreement, all treatments shall be conducted in a manner consistent with the BLM and State Historic Preservation Office protocol. The BLM, in consultation with the State Historic Preservation Office, shall ensure that effects to historic properties are avoided through design, or redesign, or by other means in a manner consistent with the BLM and State Historic Preservation Office protocol. When avoidance is not feasible, the BLM, in consultation with the SHPO, Native American tribes, and interested persons, shall develop, or ensure that an appropriate treatment plan is designed to lessen or mitigate project-related effects to historic properties. For properties eligible under criteria (a) through (c) (36 CFR § 60.4), mitigation, other than data recovery, may be considered in the treatment plan (for example, Historic American Buildings Survey/Historic American Engineering Survey recordation, oral history, historic markers, exhibits, interpretive brochures or publications, etc.). Where appropriate, treatment plans shall include provisions (content and number of copies) for a publication intended for dissemination to the general public. When data recovery is required as a condition of approval, the BLM, in consultation with the State Historic Preservation Office, shall develop, or ensure development of a data recovery plan that is consistent with the Secretary of the Interior's Standards and Guidelines for

Archaeology and Historic Preservation (48 CFR § 44716-37) and *Treatment of Historic Properties: A Handbook* (Advisory Council on Historic Preservation 1980). By following the Programmatic Agreement, the BLM would ensure that there are no significant direct, indirect, or cumulative effects to cultural resources under all alternatives from 3 Bars Project actions.

### **3.22.4 Mitigation**

Under all alternatives, the BLM shall implement the following measures in accordance with the Programmatic Agreement prepared for the 3 Bars Project.

- Consult with local Tribes in accordance with Stipulation III (A) of the *Programmatic Agreement between the Mount Lewis Field Office of the Bureau of Land Management and the Nevada State Historic Preservation Officer regarding National Historic Preservation Act Compliance for the 3Bars Ecosystem and Landscape Restoration Project, Eureka County, Nevada (Appendix B)*.
- For each phase of the undertaking, the BLM shall evaluate cultural resources for NRHP eligibility, and consult with local Tribes or tribal members regarding areas of cultural or traditional religious importance, and consult with the State Historic Preservation Office and local Tribes regarding the NRHP determinations per Stipulation III(B) of the Programmatic Agreement.
- Develop and implement appropriate treatment measures to mitigate adverse effects to historic properties, i.e., those resources determined eligible for inclusion in the NRHP, in accordance with Stipulation III(C) of the Programmatic Agreement.
- Monitor treatment implementation according to the protocols outlined in Stipulation VII of the Programmatic Agreement, to insure that there are no inadvertent impacts to plant and wildlife of importance to traditional lifeways,
- Human remains and burial items are sacred to the local Native American tribes. Therefore, the BLM shall provide training to all BLM and contract personnel to insure compliance with the Archaeological Resource Protection Act of 1979 (16 USC § 470), as amended, and insure that the remains and associated grave goods are treated with respect and are handled according to the provisions.

## **3.23 Native American Traditional/Cultural Values, Practices, and Resources**

### **3.23.1 Regulatory Framework**

Federally recognized tribes have a unique legal and political relationship with the government of the United States, as defined by the U.S. Constitution, treaties, statutes, court decisions, and executive orders. These definitive authorities also serve as the basis for the federal government's obligation to acknowledge the status of federally recognized tribes.

The BLM formally consults with federally recognized tribes before making decisions or undertaking activities that will have a substantial direct effect on federally recognized tribes, or their assets, rights, services, or programs.

Laws and Orders that require agency consultation with tribes include the:

- National Environmental Protection Act
- National Historic Preservation Act as amended
- American Indian Religious Freedom Act
- Native American Graves Protection and Repatriation Act
- Archaeological Resource Protection Act
- Executive Order 13007, Indian Sacred Sites
- Executive Order 13175, Consultation and Coordination with Indian Tribal Governments
- Secretarial Order 3317, Consultation with Indian Tribes

The NEPA requires federal agencies to consult with tribes to identify a proposed action's potential to conflict with a tribe's use of the environment for cultural, religious, and economic purposes, and to work with tribes to seek alternatives that would resolve the potential conflicts.

When the National Historic Preservation Act was amended in 1992, Section 101(d)(6)(a) was added stating that "properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined to be eligible for inclusion in the National Register."

The American Indian Religious Freedom Act was passed in 1978 to establish a policy of federal protection for traditional Native American religious freedoms and required a review of agency programs in consultation with Native American religious leaders. Consultation efforts have been directed at identifying the concerns of Native American religious practitioners when considering agency actions. This law requires consultation with the practitioner of the native religion, not political leaders or academicians.

The Native American Graves Repatriation Act requires consultation between federal agencies and tribes to determine affiliation and disposition of the specific kinds of "cultural items" defined in the Act, which include Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony. The Act also provides for inadvertent discoveries. The lead agency must also consult with any affected tribe before issuing a permit to excavate or remove remains and associated funerary objects from public land.

The Archaeological Resource Protection Act provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, defacement, or the attempted unauthorized removal, damage, alteration, or defacement of any archaeological resource, more than 100 years of age, found on public lands or Native American lands. The Act also prohibits the sale, purchase, exchange, transportation, receipt, or offering of any archaeological resource obtained from public lands or Native American lands in violation of any provision, or local law.

Executive Order 13007 requires federal agencies to consult with tribes to determine whether proposed land management actions would restrict practitioners' access to and ceremonial use of Native American sacred sites on federal lands, or adversely affect the physical integrity of Native American sacred sites on federal lands. If such impacts could occur, the agency must then seek alternatives that would resolve potential conflicts.

For the 3 Bars Project the BLM and the Nevada State Historic Preservation Officer have signed a Programmatic Agreement that outlines the protocols to be completed as part of Section 106 compliance including Native American consultation, and procedures that will be used to assess both unanticipated discoveries and impacts that may occur during project implementation (**Appendix B**). Seven tribes—the Battle Mountain Band Council, Duckwater Shoshone Tribe, Elko Band Council, Ely Shoshone Tribe, South Fork Band Council, Te-Moak Tribe of Western Shoshone, and the Yomba Shoshone Tribe—are concurring parties to this agreement.

### 3.23.2 Affected Environment

#### 3.23.2.1 Study Methods and Study Area

Information on Native American traditional values is based on the following ethnographic assessments produced for the 3 Bars Project and other projects within and near the project area.

- *A Report on Ethnographic Study Conducted to Assist the Bureau of Land Management in the Evaluation of Traditional Cultural Properties in the Mt. Tenabo Area.* Prepared for Cortez Gold Mines, Inc., Beowawe, Nevada, by Summit Envirosolutions, Inc, Carson City (Rucks 2000).
- *Background Ethnographic Study for Cortez Joint Venture.* Prepared for JBR Environmental, Reno Nevada (Rusco 2000).
- *Report on Ethnographic Study Conducted to Facilitate Consultation with Western Shoshone Tribal Governments of Central Nevada for the Sierra Pacific Power Falcon to Gonder 324kV Transmission Line.* Report Prepared by Summit Envirosolutions, Inc., Carson City, Nevada (Rucks 2011).
- *Northern Paiute and Western Shoshone Land Use in Northern Nevada: A Class I Ethnographic/Ethnohistoric Overview.* Cultural Resource Series No. 12. U.S. Bureau of Land Management, Nevada State Office, Reno, Nevada (Bengston 2003).
- *Ethnographic for Pediment Project.* Report prepared by Summit Envirosolutions, Carson City, Nevada (Rucks 2003).
- *Mount Tenabo Properties of Cultural and Religious Importance Determinations of Eligibility to the National Register of Historic Places.* BLM Report No. 6-2352-1 (Dixon and McGonagle 2004).
- *An Ethnographic Study Completed for the Cortez Gold Mines Pediment Project.* Report prepared by Summit Envirosolutions, Inc., Carson City, Nevada (Rucks 2004).
- *Ethnographic Assessment for the Newe (Western Shoshone): Proposed Ruby Pipeline Project in Nevada.* Report prepared by Bengston Consulting, Inc., Sparks, Nevada (Bengston 2010).
- *3 Bars Ecosystem and Land Restoration Project: Native American Contacts Review.* Report prepared by Bengston Consulting, Inc., Sparks, Nevada (Bengston Consulting 2012).

Information presented in the following sections is based on the results of the ethnographic assessments and the ongoing government-to-government consultation process with interested tribes. BLM consultation to date includes ongoing engagement with the seven tribal entities that have expressed interest in the 3 Bars Project. These are the Duckwater Shoshone Tribe, the South Fork Band Council, the Elko Band Council, the Te-Moak Tribe of Western Shoshone, the Battle Mountain Band Council, the Yomba Shoshone Tribe, and the Ely Shoshone Tribe. In addition, the 3 Bars Project is discussed during regularly scheduled meetings designed to inform the tribes of the project status.

The analysis area for the assessment of direct and indirect effects for Native American Traditional/Cultural Values, Practices, and Resources is the 3 Bars Project area. The analysis area for cumulative effects also includes traditional tribal rounds on or adjacent to the 3 Bars Project area, as shown on **Figure 3-1**.

### **3.23.2.2 Ethnography**

The 3 Bars Project is situated within the traditional homeland of native peoples referred to as the Western Shoshone (*Newe*), who inhabit a region extending from Death Valley in California through the mountainous terrain of central Nevada, and into northwestern Utah and southern Idaho (Thomas et al. 1986:262–264, Sewall 1999). However, the limits of Western Shoshone territory, like those of many early Native American groups, tended to be somewhat variable over time (Kroeber 1925, Driver 1937, Malouf 1950 [1940], Steward 1970 [1938], Grosscup 1977 cited in Thomas et al. 1986:262).

#### **3.23.2.2.1 Social and Political Organization**

According to Steward, the Western Shoshone social structure and practices could best be characterized as “quantitative simplicity” in that the Western Shoshone lacked many of the cultural institutions often typical of the majority of Native American groups. These included an absence of significant and clearly defined linguistic differences between them and neighboring groups, a lack of gender- or age-based societies, or political organization beyond the local village level. Although inferring a certain degree of environmental determinism, Steward posited that the Western Shoshone social system was “...the inevitable response to areas of meager resources, low population density, and an annual cycle of nomadism” (Steward 1970 [1938]:115).

Relatively little appears to be known regarding ethnographic-period groups residing specifically within the 3 Bars Project area. Rucks (2004:3) suggested that this general paucity of information may have resulted because Julian Steward (one of the primary sources of early ethnographic data on the Western Shoshone) avoided some portions of the project area and vicinity because of heavy historic-era mining. One exception consists of the *Pasiatekkaa*. Steward stated that their home district—the Diamond, Pine Creek, and Little Smoky Valleys—was not particularly fertile except at the base of Roberts Mountains and Sulphur Spring Range where various seeds, root vegetables, and especially pinyon nuts were harvested (Steward 1970 [1938]:141–144). Steward documented village sites or groups of encampments, including *Bauwiyoi*, *Tupagandv̄*, and *To:dzanadv̄* that were at the base of the mountains, where water was more abundant than on the valley floors. Steward (1970 [1938]:142) noted that most of the information gathered regarding subsistence activities and the social and political structure was derived from the inhabitants of *To:dzanadv̄*; however, it can be inferred that they were applicable to the other village groups situated at Pine Creek north of Roberts Mountains and in the Diamond Valley.

#### **3.23.2.2.2 Kinship and Marriage**

For the Western Shoshone, kinship terms and status reflect a fundamental division of labor, with men mostly hunting and women almost exclusively gathering floral foodstuffs or smaller animals. Consequently, marriage was a critical economic institution just as much as it was an emotional or spiritual one. In this system, particularly successful hunters could take more than one wife, although the oldest sisters were typically married off first. Bride prices or dowries, although common among many Western Shoshone groups, were quite uncommon or unknown altogether among those peoples residing east of the Humboldt River and west of the Reese River Valley. Marriages typically resulted in strong family bonds; the highest level of Western Shoshone social and political structure was the immediate family or small family groups, and armed conflict was a rare occurrence (Steward 1941:311, Cappannari 1960 cited in Thomas et al. 1986:277).

Although Western Shoshone marriage practices (an important mechanism for regional and intergroup contact and interactions) have been well documented for many regions within their traditional territory, the Kobeh and Diamond

Valleys within and adjacent to the 3 Bars Project area have not been subjected to the kind of intensive ethnographic observations and research characteristic of other regions. Regardless, marriage customs (and other social practices) in the project area were likely similar to those in better-studied areas such as the Reese River, Big Smoky, Spring, Snake, and Little Smoky Valleys, where most marriages were contracted with a “frequency relative to the distance separating groups” (Steward 1970 [1938]). Population density also appears to have played a role in very specific marriage and group interaction practices during the ethnographic period. Although marriages between related kin were prohibited among the Western Shoshone, marriage between cross cousins and “pseudo cross cousins” (mother’s brother’s stepchildren or father’s sister’s stepchildren) was practiced in the nearby Big Smoky and Little Smoky Valley regions (Steward 1970 [1938]). Marriage between cross cousins (a closer familiar relationship) was practiced in the Steptoe, Ruby Valley, and Elko regions (Delacorte et al. 1992:24). Eggan (1980 *cited in* Delacorte et al. 1992:24) noted that cross cousin marriage increased bonds within groups while reducing ties with outside populations. Eggan posits this was a consequence of the ecologically rich setting of places like the Ruby Valley, where there was little need to go outside the local group for marriage purposes, thereby strengthening local bonds and deemphasizing ties with distant groups.

### **3.23.2.2.3 Group Social Interaction**

In the most arid regions of Western Shoshone territory with the least prolific and predictable resources, social groups were residentially mobile and the kinship system functioned more as a social network and communication system than as an economic foundation. However, with subsistence being potentially tenuous in such areas as Death Valley, this networking served the critical function of a communication system broadcasting the locations and value of resource patches in a marginal environment. Conversely, Eggan (1980:177 *cited in* Thomas et al. 1986:278) noted that the unpredictability of resources, particularly in arid regions, resulted in the development of pronounced intergroup sharing restrictions, with women essentially “owning” critical seed harvests. This was especially manifest in winter camps, where the women were responsible for the general welfare of the immediate family but there was no obligation to share often scarce resources with the larger group.

In the more ecologically diverse and resource-rich landscapes of the Western Shoshone territory, social practices tended to differ from those expressed in areas such as Death Valley, Panamint, or Little Smoky Valley situated just southeast of the project area. In the well-watered settings such as those found in the Reese River, Spring, Snake, Antelope, and Ruby Valleys, vast stands of pinyon pine, dense patches of seed-bearing grasses and other plants, and plentiful large game promoted greater social and residential stability and higher population densities than in the more arid regions. In these resource-rich areas, there was less need for the social systems employed in marginal settings to provide networks for monitoring ecological conditions and sharing information about the location and quality of resources (Thomas et al. 1986:279). Groups inhabiting these areas developed social systems designed to increase local group integrity, with a marriage alliance system increasing broader community bonds. In effect, as dense and varied resources allowed for more residential stability, the social system correspondingly shifted away from the immediate family level and toward structures that encouraged and increased the more generalized and widespread group integration.

### **3.23.2.2.4 Subsistence and Resource Management**

Research conducted by Steward (1941, 1943, 1970 [1938]), Fowler (1977, 1982), and Thomas (1981b, 1983a) forms the core of what is presently known regarding the Western Shoshone subsistence economy. A great deal of variation in this economic structure existed within the Western Shoshone territory during ethnographic times; however, common resources, procurement methods, and preparation techniques link the widespread Western Shoshone groups.

The labor often invested in sustaining specific floral and faunal resources clearly indicates that certain areas were subject to repeated visits over long periods of time. Rights to those maintained resources essentially resulted in a claim of control, although not necessarily “ownership” in the present-day sense of the word. Rucks’ (2004) informants agreed that these rights to particular gathering areas and campsites were recognized by outside groups based on evidence of management and consistent use.

As with their exploitation of many important foodstuffs on their lands, the Western Shoshone attached a certain degree of spirituality to their procurement. The harvesting of pinyon nuts, once the most prominent staple among the Western Shoshone and many other tribes in the region, was not only an important subsistence activity but an important cultural event, and to some extent is still today. Harvests were provided with a spiritual leader who arranged and presided over a pinyon nut harvest dance before gathering. This several-day celebration constituted a major social event and included prayers, songs, dances, gaming and sporting events, and feasting. New group leaders were chosen, marriages were arranged, and people exchanged information about resources, harvesting techniques, and political affairs. Plans for subsequent harvests and social alliances were developed. The largest celebrations and harvests in the project area occurred on the Roberts Mountains and Sulphur Spring Range with smaller events in the Mount Tenabo area (Rucks 2004:12). To a great extent, the size of these celebrations was the result of an increased population in these areas, supported by the diverse and dense resources present in them. For example, according to Rucks (2004:6), the present-day Western Shoshone still refer to Roberts Mountains as a resource-rich area (especially pinyon) that Steward (1970 [1938]:141) noted as being capable of supporting up to 60 households, a far larger population than in many surrounding parts of Western Shoshone territory.

The BLM has met with the Western Shoshone on several occasions during the past 3 years to better understand their concerns. The results of these meetings are summarized in the *3 Bars Ecosystem and Land Restoration Project: Native American Contacts Review* (Bengston Consulting 2012). Based on these discussions, several plant and animal species of importance to local tribes were identified. Specific plants and their ethnographic use are:

- Basin wild rye – food source
- Bunchgrass (Indian rice grass) – food source
- Camas (Yomba) – food source
- Indian ricegrass – food source
- Large sage – purifying, medicinal tea, and the manufacture of wooden implements and textiles
- Mint – food source
- Mormon (Indian) tea – medicinal tea
- Mountain mahogany – medicinal, wooden implements, fuel
- Pinyon pine – food source
- Utah juniper - medicinal
- Watercress – food source
- Wild onion – food source
- Willow – basket weaving

In addition, the tribes use fish, sage-grouse, jackrabbit, pygmy rabbit, pronghorn antelope, mule deer, and other wildlife for food.

### 3.23.2.2.5 Ethnobotanical and Ethnoecological Perspective

Cutting live trees for firewood is frowned upon by many present-day Western Shoshone and only dead wood is cut, a practice that does not harm trees or reduce potential future nut harvests. Although pinyon nuts no longer constitute a major staple food for the Western Shoshone, they are consumed on special occasions, such as when a tribal member enlisted in the U.S. armed forces is going overseas or off to war (George 2000:38).

George (2000:39) also noted that her Western Shoshone (Duckwater Reservation) consultants universally expressed disapproval of commercial pinyon nut pickers. To many Western Shoshone maintaining traditional cultural norms, commercial pickers are seen as greedy intruders who strip trees bare of their cones and take an important traditional food source away from their people with no consideration of the ecological or cultural implications of their actions. Comparable situations have developed in Western Shoshone territory where, for strictly commercial purposes, non-native harvesting has nearly eliminated bear grass, an important traditional basketry material.

As part of the Mount Hope ethnographic assessment (Bengston 2007), three culturally significant areas within the 3 Bars project area were identified. These are Kobeh Valley, Roberts Mountains, and the Sulphur Spring Range. Tribal representatives indicated that the northern side of Mount Hope was a favored pine nut gathering area (Bengston Consulting 2012:23). During the current study, tribal representatives stated that Roberts Mountains was and still is used for hunting and plant gathering, and that there are *Newe* who went into the mountains to offer prayers. A tribal elder from Duck Valley mentioned that two types of minerals, *abe* (a white chalk used in ceremonies) and a red mineral, are still collected in the Roberts Mountains, but did not state the specific location.

### 3.23.2.2.6 Hunting

Important faunal species taken by the Western Shoshone included bighorn sheep and pronghorn antelope. Bighorn sheep were hunted during both the winter season and also during the warmer months, when their diurnal movements could be easily tracked, and were sometimes procured through the use of permanent hunting blinds or with dogs assisting in their pursuit (Muir 1894:322., Lowie 1924:195, Steward 1941:220–221 *cited in* Thomas et al. 1986:267). During the winter months, bighorn sheep hunting shifted to higher elevations, with hunters hiding behind previously constructed rock walls, cairns, and blinds. These were particularly common alongside canyons that served to guide the sheep into restricted areas where the kill would be easier. Generally, bighorn sheep procurement among the Western Shoshone was an individual pursuit, with a single hunter typically taking one sheep at a time. However, Steward (1970 [1938]:148) documented communal sheep hunts in the Ruby Valley that were the only ones of their kind among the Western Shoshone.

Pronghorn antelope, although hunted individually as well, were typically procured through the use of large communal drives. Steward (1970 [1938]) and Bengston (2003:Figure 2.5) noted that antelope drives occurred in the Diamond Valley just north of Eureka and in the general vicinity of two winter villages, one at the eastern edge of the Sulphur Spring Range and another just south of present-day Eureka (Egan 1917:240 *cited in* Thomas et al. 1986:267, Steward 1970 [1938]:33).

Rabbits, another important species procured for their meat and skins, were also hunted primarily through the use of communal drives. Just like the antelope hunts, fall rabbit hunts, conducted following the pinyon harvest and in conjunction with the fall festival (Steward 1970 [1938]:105), were significant social occasions, attracting families from a broad geographic area. Rabbit drives certainly occurred with some regularity throughout the project area, although Steward (1970 [1938]) and Bengston (2003:Figure 2.3) noted one such site in the southern Diamond Valley

just north of the town of Eureka. As with the pronghorn antelope hunts, rabbit drives were also accompanied by those with recognized shamanistic abilities. In addition to bighorn sheep, pronghorn antelope, and rabbits, a wide variety of other animal species were also hunted, trapped, or otherwise captured for food, fur, feathers, or other materials.

### **3.23.2.2.7 Spirituality and World View**

According to Miller (1983), three basic principles constitute the foundation of the Western Shoshone world view and are largely common to indigenous cultures throughout the world. The first and foremost, referred to by the Western Shoshone (and their Northern Paiute neighbors) as the *puha*, perceives an all-compassing and ever-present life force or consciousness that animates virtually everything in the universe—rocks, plants, animals, water, people—and is characterized by Miller (1983:73 *cited in* Rucks 2004:22) as “...life-force energy...not static or concrete, but rather kinetic, always moving and flowing through the cosmos, underpinning all facets of the universe...” The second principle is that of the intimate relationship between people and land in which they reside. The third, like the second, is derived from the *puha*, and relates to the personalized nature of spiritual experience and its integration into everyday life.

Western Shoshone spiritual tradition holds that *puha* permeates the world and has been in existence since the “myth-age” when animals were people before the Shoshone became human (Deaver 1993 *cited in* Rucks 2004:24, Rucks 2004:22). Western Shoshone creation myths state that in the beginning the earth was covered with water, but during the “drying time” when the floodwaters receded, the first people moved down-slope from Mount Tenabo to live near the numerous springs found at lower elevations. They were told by the Creator “Anything that comes into the world after the drying up of the water will be your relative” (Tom Austin as told to Lowie [1924] *cited in* Rucks 2004:24). This particularly illustrates the second foundational principle of the Western Shoshone world view—that of the intimate relationship between the Western Shoshone people and their land.

According to Miller (1983:337 *cited in* Rucks 2004:22), although *puha* is universally present, it is concentrated in certain landscape features and natural objects, moving in “web-like currents linked to mountain peaks and water sources.” Such places are known to and accessed by traditional medical practitioners who engage the power through various means for healing and encouraging various natural phenomena.

### **3.23.2.3 Documented Ethnographic Sites and Traditional Cultural Properties**

Seven ethnohistoric resources dating to the protohistoric/ethnographic period have been identified thus far within the project area. The first ethnohistoric site consists of unevaluated stocked logs that could be the remains of a Shoshone structure located in Sheep Corral Canyon, near the western boundary of the project area. The remaining six sites have been recommended eligible for inclusion in the NHRP, and consist of another possible structure located slightly north of Sheep Corral Canyon, two resources in the vicinity of Indian Ranch that appear to be a temporary Shoshone woodcutters’ camps, another camp that may have been associated with ranching, a camp possibly associated with charcoal manufacturing, and two camps associated with springs on the north flank of Roberts Mountains.

Although no Traditional Cultural Properties are situated directly within the project area, the Mount Tenabo Traditional Cultural Property is immediately adjacent to the northwestern corner of the project boundary.

### **3.23.2.4 Native American Consultation**

The BLM continues to engage the seven tribal entities that have expressed interest in the 3 Bars Project. The 3 Bars Project is discussed during regularly scheduled project status meetings with the tribes, and the tribal entities were

consulting parties during the preparation of a *Programmatic Agreement between the Mount Lewis Field Office of the Bureau of Land Management and the Nevada State Historic Preservation Officer regarding National Historic Preservation Act Compliance for the 3Bars Ecosystem and Landscape Restoration Project, Eureka County, Nevada* for the 3 Bars Project (**Appendix B**).

### **3.23.3 Environmental Consequences**

#### **3.23.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Key issues of concern pertaining to Native American traditional/cultural values, practices, and resources were identified in the AECC and during scoping. These are:

- Decline in distribution and abundance of traditional, edible, and medicinal plants.
- Decreased pine nut production and tree vigor.
- Decline in wild game species.

#### **3.23.3.2 Significance Criteria**

The American Indian Religious Freedom Act, as amended, and Executive Order 13007 (Sections 3.6.1.1 and 3.6.1.2) apply to sites used for religious ceremonies and/or documented sacred sites. These statutes do not specify criteria for determining whether a project would affect such places, however for the purposes of analysis in this EIS, sites used for religious ceremonies as referred to in the American Indian Religious Freedom Act and sacred sites referred to in Executive Order 13007, a project effect is considered significant if it restricts access to such sites, in some way impedes the exercise of ceremonies at such sites, or affects the physical integrity of such sites. In addition, effects on Traditional Cultural Properties that are eligible for listing in the NRHP because of their traditional religious or cultural values would be assessed for impacts under 36 CFR § 800.9 of Section 106 of the National Historic Preservation Act.

Implementation of vegetation management practices may result in impacts to traditional plant resources or ceremonial sites. For example, the treatment could result negative health effects or destruction to traditional edible or ceremonial plants and prescribed or wildland fire may destroy traditional edible plants and/or basket weaving materials. A site would be considered susceptible to a significant effect under one (or more) of the following project-related situations:

- Access is reduced or lost (Executive Order 13007).
- Physical destruction or disturbance (Executive Order 13007 and National Historic Preservation Act).
- Alteration of setting (American Indian Religious Freedom Act and National Historic Preservation Act).
- Introduction of visual, noise, or atmospheric elements that are out of character with the religious ceremonies or that compromise the sacred values (American Indian Religious Freedom Act, Executive Order 13007, and National Historic Preservation Act).

### **3.23.3.3 Direct and Indirect Effects**

#### **3.23.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

Historically, there have been direct conflicts between vegetation treatments and resources that are of importance in maintaining Native people's lifeways and/or spiritual values. The following discussion of the various vegetation treatment options and effects on resources that may be of importance in maintaining Native people's lifeways is adapted from the 17-States PER (USDOI BLM 2007c). This section also includes effects unique to the 3 Bars project that have been identified through scoping, consultation between the BLM and the seven tribes, and ethnographic studies conducted by Bengston Consulting for this project and others listed above in Section 3.23.2.1. In addition, the reader is encouraged to read the Native and Non-invasive Vegetation Resources (Section 3.11), Fish and other Aquatic Resources (Section 3.14), Wildlife Resources (Section 3.15), and Human Health (Section 3.25) sections of this EIS for more information on resources and issues of interest to local tribes.

#### ***Adverse Effects***

Treatment activities that remove vegetation or alter the distribution, health, and welfare of plants and animals used by Native peoples would have the greatest potential to harm natural resources with associated traditional values. During treatments, the BLM would have limited ability to avoid plants identified by Native peoples as being important in traditional subsistence, religious, or other cultural practices.

#### ***Beneficial Effects***

Treatments to enhance riparian vegetation and increase the number of miles of BLM-administered streams that are classified as "Proper Functioning" would provide good habitat for fish that are harvested by Native peoples. Improvements in habitat quality would increase the carrying capacity of the landscape and allow it to support larger and healthier wildlife populations. In particular, treatments would benefit mule deer, pronghorn antelope, and greater sage-grouse by removing vegetation (pinyon-juniper) that is degrading habitat or thinning vegetation (pinyon-juniper and sagebrush) to allow more desirable vegetation, such as forbs and grasses, to better compete and thrive. Thinning and removing vegetation would also benefit local and seasonal movement of wildlife, including mule deer and greater sage-grouse. Because water is scarce on the 3 Bars Project area, the BLM would implement stream and riparian restoration projects to improve water availability for fish and wildlife.

Treatments that remove hazardous fuels from public lands would be expected to benefit the health of plant and animal communities in which natural fire cycles have been altered, and to improve accessibility for tribal cultural practices. Treatments that control populations of non-native species on public lands would be expected to aid in the reestablishment of native plant species. Treatments to control non-native species would benefit game species and plants used for traditional lifeway values, including species associated with shrubland habitats (e.g., greater sage-grouse, sharp-tailed grouse, quail), where most treatments would occur (USDOI BLM 2007c:4-109).

**3.23.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

***Riparian Treatments***

**Adverse Effects**

Mechanical methods consisting of a track-hoe, backhoe, and dump trucks, and prescribed fire have the potential to affect a broad range of plant resources, some of which may be of importance to Native peoples. There could be short-term loss of fish habitat and fish resources during stream reconstruction. As opposed to mechanical methods, manual treatment is highly selective and would have less of an effect on plants with traditional lifeway values such as willow, basin wildrye, mint, watercress, wild onions, and bunchgrass that can be found in riparian zones.

Riparian treatments are proposed to occur in areas identified as harvest units for Christmas trees, greenwood, and pine nuts. Within riparian treatment areas, only pinyon-juniper removal would be expected to affect woodland products. Pinyon-juniper removal would occur over a very small portion of designated harvest areas for Christmas trees, pine nuts, and greenwood. These treatments would affect a small percentage of the total woodland products harvest acreage within the 3 Bars Project area, and would not constitute a measurable reduction in special woodland products available for harvest.

The use of temporary fencing to protect treatment sites could limit Native American access to fish and wildlife harvest areas.

**Beneficial Effects**

Treatment activities would include streambank bioengineering, grade stabilization, and vegetation plantings to initiate stream restoration on up to 31 miles of stream. The habitat improvements would be beneficial to macroinvertebrates, which represent an important food source for fish species, and to Lahontan cutthroat trout (occupied and recovery streams) and game fish species used by local tribes. Habitat improvements in the Lahontan cutthroat trout recovery streams may assist in the reintroduction of this species into habitats that were used historically.

Riparian treatments would enhance water quality and quantity for wildlife used by the tribes, while also promoting improved habitat conditions that would lead to higher quality forage and cover. Approximately 85 percent of riparian treatment acreage is within mule deer summer or winter range habitat, while over 80 percent of the riparian treatment acreage is within the summer or winter range for greater sage-grouse. Proposed treatments would help to restore degraded riparian habitat, including about 1,250 acres of mule deer habitat, 177 acres of pronghorn antelope habitat, and 1,300 acres of greater sage-grouse habitat that are degraded due to pinyon-juniper encroachment.

Encroachment of non-native plant species, and displacement of native plant species that serve as important sources of food, reduces the suitability of the habitat for these wildlife species (USDOI BLM 2007b:4-119). Removal of noxious weeds and invasive non-native vegetation would also promote streambank stability and allow native species to recolonize degraded areas and provide fish and wildlife habitat.

Vegetation treatments that reduce hazardous fuels and create fire breaks would benefit Native American resources by reducing the chances that a large, uncontrolled wildfire would destroy a large amount of high quality vegetation and fish and wildlife and their habitats. The restoration of natural fire regimes and native ecosystems would have long-term benefits associated with increasing the presence and abundance of native plant, fish and wildlife resources important to maintaining Native American traditional lifeways.

### *Aspen Treatments*

Plant species of interest to Native Americans within aspen management units would be similar to those found within riparian treatment zones. Adverse and beneficial effects would be the same as Effects Common to All Alternatives and for Riparian Treatments. The initial acreage of aspen identified for treatment is low (151 acres over 10 years). Therefore, potential loss of Native American traditional resources initially would be localized to very small areas in the Roberts Mountain, JD, 3 Bars, and Santa Fe allotments. In later years, a similar acreage could be treated in the Simpson Park East and Northeast areas.

### *Pinyon-juniper Treatments*

With the exception of Sulphur Spring Wildfire Management Unit, Whistler, Lone Mountain, and Tonkin North and South units, all of the proposed treatment units are within the Roberts Mountains. As stated in the Riparian Treatments section, ethnographic documentation indicates that the Roberts Mountains have been identified by Native American consultants as an important hunting and plant gathering area, particularly for pinyon pine nuts. Pinyon nuts played a significant role in the subsistence, resource management, seasonal migration patterns, spiritual practices, and world view of the Western Shoshone. Other ethnographic plant species identified by Bengston Consulting (2012) that may be found within pinyon-juniper woodlands consist of large sagebrush, basin wild rye, Indian ricegrass, and possibly Mormon tea and wild onions. Historically, the base of the Roberts Mountains was important for the Western Shoshone because of the abundance of root vegetables and seeds, especially pinyon pine, that were harvested there. These resources were also abundant at the base of the Sulphur Spring Range, where the BLM proposes to use wildland fire for resource benefits to manage pinyon-juniper. These environments also provide habitat for various species of wildlife that are important to Native Americans, including pygmy rabbit and greater sage-grouse.

### **Adverse Effects**

Because of ground disturbance associated with the use of mechanical treatments and the effects associated with prescribed and wildland fire for resource benefits, the potential inadvertent and short-term adverse effects to traditional plant and fish and wildlife resources would be similar to the Effects Common to All Alternatives and Riparian Treatments.

Dense stands of pinyon-juniper provide habitat for mule deer during severe winter weather because of the reduced snow cover and increased thermal cover in these areas. Removal of pinyon-juniper in Phase II and III stands could mean a loss of this wildlife benefit. Pinyon-juniper woodlands also provide habitat structure that would be lost if woodlands were converted to grasslands (Maser and Gashwiler 1978).

Treatments would reduce fuel loads, and fuel breaks to be constructed around old-growth pinyon-juniper woodlands would reduce the risk from catastrophic wildfire. For example, treatment areas on the west slope of the Roberts Mountains have not experienced a large-scale wildfire in over 100 years. As a result, these units have a high to very high or very high to extreme risk for a catastrophic wildfire.

The BLM does not plan to conduct burns in Phase I stands, but would conduct stand-replacement burns that could cover several thousand acres annually in Phase II and III pinyon-juniper stands. About 60 percent of treatments would occur in Phase II and III stands. Prescribed fires would open up pinyon-juniper stands and stimulate the growth of native forbs and grasses to benefit wildlife, but there could also be a minor loss of Wyoming big sagebrush and of other shrubs desirable for greater sage-grouse, pronghorn antelope, and mule deer hunted by Native Americans. It is likely that large, older pinyon-juniper trees that provide juniper berries and pinyon nuts for mule deer and other

wildlife would also be lost. Fire may top-kill some plants used by Native Americans, including Basin wild rye, camas, Indian ricegrass, and Mormon tea, but fire has been shown to enhance their long-term health and development (Howard 1993, Tirmenstein 1999, Anderson 2002, 2004).

Concerns have been expressed by local tribes regarding traditional pine nut harvesting in general and the removal of pinyon pine. Some seed bearing trees would be destroyed or removed by mechanical or hand treatments and fire, and prescribed and wildland fires would require the construction of fuel breaks, which could also compromise plant species of importance to Native American lifeways. Treatments would affect approximately 26 percent of the total designated woodland products harvest area, including 28 percent of the pine nut harvest area. Removal of pinyon pines and juniper from these areas would eliminate or limit the ability to harvest woodland products there, although a large portion of the project area would not be affected. Additionally, other nearby areas in the Battle Mountain District, which make up a substantial portion of the annual harvest area, would not be affected by treatments under the 3 Bars Project.

### **Beneficial Effects**

A key project goal is to increase the distribution and abundance of traditional, edible, and medicinal plants by improving the relative abundance of desirable plant species in previously identified locations (obtained through Native American consultation). This would include sustaining the regeneration and recruitment of desirable species such as aspen, bitterbrush, and curl-leaf mountain mahogany. Although the majority of pinyon-juniper management is focused on hazardous fuels reduction, treatments associated with the Atlas Unit group would involve removal of pinyon-juniper to encourage shrub and riparian species growth. Plants used by local tribes that could benefit from these treatments include basin wildrye, Indian ricegrass, Mormon tea, and sagebrush.

Manual, mechanical, and fire treatments in pinyon-juniper management areas would improve aquatic habitat by increasing stream flows and using downed logs and other wood in streams to create pools and other fish habitat. These treatments would benefit Lahontan cutthroat trout and game fish habitat in Birch, Pete Hanson, and Willow Creeks.

Treatments would help to improve big game habitat, especially in areas with degraded habitat. All of the pinyon-juniper treatment sites are within mule deer summer or winter range, 60 percent of sites are within pronghorn summer or winter range, while nearly 95 percent of the treatment area is within the summer or winter range for greater sage-grouse. Over 70 percent of acres targeted for treatment occur where the BLM has determined that mule deer or greater sage-grouse habitat is declining, and nearly 60 percent of the treated acreage would be in areas where pronghorn antelope habitat is declining.

Treatments in the Atlas, Frazier, Gable, Henderson, Upper Roberts, and Vinini units would primarily benefit greater sage-grouse, but would also open up pathways in drainages, and provide forage for other wildlife by promoting development of native grasses, forbs, and shrubs through removal of pinyon-juniper. These areas also provide important year-round habitat for pronghorn antelope and crucial summer range for mule deer.

Pinyon-juniper encroachment has adversely impacted pygmy rabbit populations (Grayson 2006). Although pygmy rabbits will use areas with limited pinyon-juniper cover, stands with 40 percent or greater cover provide only marginal habitat for pygmy rabbits (USDOI BLM 2003c). The Atlas and Henderson units provide habitat for pygmy rabbits. Pygmy rabbits forage primarily on sagebrush, so treatments that remove pinyon-juniper and stimulate the growth of shrubs and herbaceous vegetation would benefit pygmy rabbits in the long-term.

A large amount of downed logs and woody debris would result from pinyon-juniper management and could be used for firewood. By thinning and removing pinyon-juniper, competition among remaining trees for water and other resources would decline, and the remaining pinyon pines should be able to produce more nuts.

Although there is the low potential for short-term adverse effects to traditional use resources and Native American health, the restoration of natural fire regimes and native ecosystems would have long-term benefits to the presence and abundance of native plant, fish, and wildlife resources important to maintaining traditional lifeways.

### *Sagebrush Treatments*

#### **Adverse Effects**

Because of ground disturbance associated with the use of manual and mechanical treatments, the potential inadvertent and short-term adverse effects to traditional plant and terrestrial resources would be similar to the Effects Common to All Alternatives and Pinyon-juniper Treatments. The BLM would use manual and mechanical treatments to thin sagebrush and promote understory development on the Coils Creek, Kobeh East, Nichols, Roberts Mountain Pasture, and South Simpson units within Kobeh Valley. Kobeh Valley was identified by Bengston (2007) as a culturally significant area within the 3 Bars Project area.

Prescribed fire would be used sparingly to create a mosaic of habitats in big mountain sagebrush on the Three Corners Unit. Prescribed fire could also be used to remove cheatgrass and other non-native vegetation on the Rocky Hill, Table Mountain, West Simpson Park, and Whistler Sage units. Because of the limited number of acres treated at the Three Corners Unit, and limited likelihood that plants favored by local tribes would be found in areas dominated by non-native vegetation, the effects of prescribed fire on traditional plant and terrestrial resources should be negligible.

Only 1.3 miles of perennial stream habitat are associated exclusively with sagebrush management projects—Rocky Hills (Coils Creek), Table Mountain (Henderson and Vinini Creeks), and West Simpson Park (unnamed streams) units. Lahontan cutthroat trout occurs in Henderson and Vinini Creeks, while native fish (speckled dace) have been reported in Coils Creek. Manual and mechanical treatments could result in increased water runoff and erosion, and spills of fuels and lubricants, to the possible detriment of water quality and aquatic habitat.

#### **Beneficial Effects**

Treatments should lead to improved and increased sagebrush habitat and sagebrush resiliency to fire, and open up the sagebrush canopy to slow wildfire spread and promote the development of an herbaceous understory including those plant species mentioned above and of importance to Native American traditional lifeways. In intact sagebrush communities, only 20 percent of the area would be treated and the BLM would create a mosaic of sagebrush and herbaceous vegetation that would retard the spread of wildfire and provide habitat for greater sage-grouse, another traditionally important species identified in consultation with the Native American community (Bengston Consulting 2012). While there is the potential for short-term adverse effects, the long-term benefits associated with the planting of native perennial vegetation and improved greater sage-grouse habitat would result in substantial long-term benefits by restoring native sagebrush habitat.

The beneficial effects of sagebrush treatments would include improvements in aquatic and riparian habitats and a reduction in wildfire risk. Trees that are removed as part of this treatment could be placed in streams to expand the stream width and help create or expand pool habitats. The woody structures also would provide additional instream cover for game fish and organic material to the stream environment.

The primary focus of 3 Bars Project sagebrush treatment is to improve habitat for nesting greater sage-grouse. Approximately 98 percent of proposed treatment acres are within pronghorn antelope summer or winter range, 65 percent are within summer or winter range for greater sage-grouse, and 55 percent are within mule deer summer or winter range. Loss and degradation of sagebrush habitat has occurred on the 3 Bars Project area, and proposed treatments would focus on restoring sagebrush habitat. Over 85 percent of the acres treated would occur where the BLM has determined that pronghorn antelope habitat is declining, nearly 65 percent of acres treated would occur where greater sage-grouse habitat is declining, and 45 percent of the acres treated would occur where mule deer habitat is declining. These include treatments on the Rocky Hills, Table Mountain, and West Simpson Park units, where the BLM would control non-native vegetation to encourage sagebrush development in areas with active or historic greater sage-grouse leks.

Pygmy rabbits are sagebrush obligates found in the Nichols, Three Corners, and Whistler Sage units, and within 0.7 miles of the Kobeh East, Roberts Mountain Pasture, and West Simpson Park units. Pygmy rabbits live in areas with dense sagebrush cover comprised of clumps of tall sagebrush, lack of noxious weeds and invasive non-native vegetation, and soil that they can burrow into (Larrucea and Brussard 2008). Pygmy rabbits forage almost exclusively on sagebrush during winter and sagebrush is also an important component of their diet during other times of the year. Treatments that thin the sagebrush canopy to enhance forb and grass production would benefit pygmy rabbits, however, large-scale habitat conversion of dense sagebrush cover to more open cover could harm pygmy rabbits. The BLM proposes to treat no more than 20 percent of units, which would reduce this risk to pygmy rabbits, while still providing benefits to greater sage-grouse.

Pinyon-juniper encroachment has also impacted pygmy rabbit populations (Grayson 2006), especially where pinyon-juniper cover exceeds 40 percent. Pinyon-juniper removal projects at the Three Corners and Whistler Sage units could benefit pygmy rabbits, although treatments would occur in Phase I stands, where pinyon-juniper cover is less than 40 percent.

### **3.23.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

The types and magnitude of effects for manual, mechanical, and biological control treatments would be similar between Alternatives A and B. Because the BLM would not be able to use fire, however, there would be none of the adverse or beneficial impacts associated with this treatment method. In particular, there would be no harm to or loss of native vegetation or fish and wildlife habitat from prescribed fire and wildland fire for resource benefit. There would also be no risk of a prescribed fire spreading beyond treatment boundaries and impacting native plants and fauna of interest to the Native American community, which could be the case under Alternative A. The few native plants and wildlife that are found in dense stands of pinyon-juniper may not experience habitat loss under this alternative.

Acres and types of wetland and riparian habitat and miles of stream restored would be similar to Alternative A. However, less effort would be spent by the BLM on slowing pinyon-juniper encroachment into sagebrush and riparian communities, removing Phase II and III pinyon-juniper, restoring historic sagebrush habitat, and controlling noxious weeds and other invasive non-native vegetation that is adversely impacting native vegetation and fish and wildlife habitat.

Under Alternative B, the BLM would be limited to disking and plowing sagebrush and replanting/reseeding to promote the growth of native forbs and grasses. However, the Table Mountain and West Simpson Park units are on rugged terrain, and use of mechanical equipment to control cheatgrass would be difficult.

The inability to use prescribed fire and wildland fire for resource benefits would probably have few short-term effects. By not using fire, risks to non-target vegetation, including plants used by local tribes, from treatments would be negligible. Long term, however, native vegetation and fish and game species would experience fewer of the benefits associated both with creating openings in dense pinyon-juniper habitat and creating a mosaic of pinyon-juniper and sagebrush habitat.

Under Alternative B, riparian restoration treatments would primarily be limited to manual treatments (placing logs and rocks in streams to slow water flows, using fencing streams to exclude livestock, wild horses, and wild ungulates, and stimulating aspen regeneration) that would help to create wet meadows and enhance riparian vegetation and fish and wildlife habitat. Because fire would not be available to reduce hazardous fuel loads, Alternative B may pose a greater long-term risk for wildfire due to the accumulation of fuels. Without the use of prescribed fire and wildland fire for resource benefits, the BLM would be unable to restore fire as an integral part of the ecosystem. It is unlikely the trend toward large-sized fires of moderate to high severity in sagebrush and large stand-replacing fires in pinyon-juniper would slow or reverse in the long term, and catastrophic wildfire would continue to be a threat to traditional pine nut gathering locations, and plants such as basin wild rye and Indian ricegrass that are found in sagebrush and pinyon-juniper habitats.

Under Alternative B, Native American traditional/cultural values, practices, and resources would benefit from treatments, but not to the extent that would occur under Alternative A.

#### **3.23.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

The types and magnitude of effects for manual treatments on Native American resources would be similar to those for the other alternatives. The BLM has not identified areas where it would use classical biological control, but if nematodes, insects, or fungi are used on the 3 Bars Project area, treatments would generally be small in size and effects would be localized, or if used on cheatgrass, could cover large areas of habitat that are support little native vegetation or wildlife. Thus, the effects on Native American resources from classical biological control would be minor and primarily restricted to those species using vegetation treated by these methods.

Most of the treatments under this alternative would be to thin and remove pinyon-juniper using chainsaws where it is encroaching into riparian, aspen, and sagebrush habitats. There would be fewer direct impacts to plants and animals used by Native Americans from treatments under this alternative than the other alternatives, because adverse impacts, such as harm to or death of plants and wildlife, and noise and other disturbance, would be much less with manual methods than with the other methods. Since fewer acres would be treated, there would be fewer benefits to Native American resources under this alternative than under Alternatives A and B. Manual treatments would be small in scale and mostly targeted to pinyon-juniper stands. By not being able to use mechanical equipment, the BLM would have limited capabilities to benefit Native American resources by:

- Conducting stream bioengineering and restoration, except on a limited basis on only a few stream miles, to benefit Lahontan cutthroat trout, other game fish, greater sage-grouse, and native riparian vegetation.
- Controlling noxious weeds and other invasive non-native vegetation, except on very small areas where this vegetation can be hand pulled or controlled using hand tools, to benefit native vegetation and wildlife, including greater sage-grouse, pygmy rabbit, pronghorn antelope, and mule deer.
- Reseeding and replanting restoration sites, except for small areas where shrubs and other vegetation would be planted by hand, to the benefit of a variety of Native American resources.

- Creating fire and fuel breaks to reduce the risk of fire spread, except near existing roads or aspen stands, or along a few miles of stream, and using mechanical, fire, and chemical methods to reduce hazardous fuels and wildfire risk.

Under Alternative C, the BLM would not substantially improve the native vegetation community nor stop the loss of important ecosystem components, including native vegetation and fish and wildlife habitat. As a result, the health and abundance of Native American traditional/cultural resources would be expected to decline from current levels.

### **3.23.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct or indirect effects on Native American traditional/cultural values, practices, and resources from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM would not create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation, especially cheatgrass; restore fire as an integral part of the ecosystem; or reduce the risk of a large-scale wildfire that could be detrimental to Native American resources. Under Alternative D, the BLM would not improve the native vegetation community nor stop the loss of important ecosystem components, including native vegetation and fish and wildlife habitat. As a result, Native American traditional/cultural values, practices, and resources would not see benefits under this alternative.

### **3.23.3.4 Cumulative Effects**

The CESA for Native American traditional/cultural values, practices, and resources is approximately 3,202,529 acres and includes the 3 Bars Project area and an area of north-central Nevada that encompasses the Kobeh Valley on the south, the Tuscarora Mountains on the north, the Shoshone Range on the west, and the Pinon Range on the east, based on consultation with local tribes for the Mount Hope Project and other projects in the region (USDOJ BLM 2012c:4-9; **Figure 3-1**). Approximately 72 percent of the area is administered by the BLM, 27 percent is privately owned, and less than 1 percent is administered by the USDOJ Bureau of Reclamation. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

#### **3.23.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

Historic livestock grazing practices and wild horse overpopulation have contributed to the degradation of riparian and aspen habitat, establishment and spread of noxious weeds and other invasive non-native vegetation, and the expansion of pinyon-juniper beyond its historical ranges, to the detriment of fish and wildlife used by Native Americans on Roberts Mountains and elsewhere in the CESA. To improve forage and water resources for livestock, the BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact forage and other rangeland resources.

The BLM would also conduct wild horse gathers, conduct AML reviews and adjustments, remove excess animals and use fertility control, adjust HMA boundaries, remove fencing that hinders wild horse movement, improve water developments, and implement habitat projects that help to distribute wild horses more evenly across the rangeland. A small portion of the Roberts Mountain HMA is on Roberts Mountains, and wild horses use portions of Roberts Mountains that are outside of the HMA, especially when the wild horse population exceeds the AML. Efforts to distribute wild horses more evenly across the rangeland should help to reduce grazing pressure on Roberts Mountains. However, the Mount Hope Project would exclude wild horses from about 14,000 acres for up to 70 years, and as a

result wild horses may spend more time in the Roberts Mountains in search of food and water, potentially to the detriment of vegetation used by Native Americans.

The BLM would treat noxious weeds and other invasive non-native vegetation on about 1,000 acres annually within the CESA. New infestations would typically be found in newly burned or disturbed areas, and in areas where livestock and wild horses congregate. These areas provide poor habitat for plants and animals used by local tribes. Tribal members could be impacted by herbicides, through indirect contact or consumption of treated foliage, but the BLM would post treatment areas and notify the tribes and public of proposed herbicide treatments to avoid or minimize impacts to human health. The risks to Native Americans are discussed in more detail in the 17-States PEIS (USDOI BLM 2007c: 4-149). Restoration of these areas using a combination of methods should help to restore these lands back toward their Potential Natural Community (primarily sagebrush). As treatment areas recover, native game, including greater sage-grouse, mule deer, pronghorn antelope, and pygmy rabbit, should return to these areas.

Public and private lands are used for a variety of recreation uses. Of most interest to local tribes would be the removal of vegetation that is used by tribes for traditional purposes, and the harvest of fish and game on public lands within the CESA. Recreational activities such as off-road travel could disturb native game and adversely affect Native American traditional practices. Use of public lands within the CESA is expected to increase due to normal population growth and from an influx of workers needed to support the Mount Hope Project and other reasonably foreseeable future projects.

Agriculture, land development, and mineral, oil, gas, and hydrothermal exploration and development could affect about 15,000 acres in the reasonably foreseeable future, including acreage associated with potential land sales (although it is unlikely that all of this land would be developed), new croplands, roads, and rights-of-way for power and telephone lines. These actions would affect traditional/cultural resources and values and would be of concern if they occurred on Roberts Mountains or on the Sulphur Spring Range, or in Kobeh Valley, three culturally significant areas within the 3 Bars Project area (Bengston 2007). In particular, there could be loss of vegetation used by local tribes, and of fish and wildlife and their habitats that are important to local tribes.

Approximately 8,300 acres would be disturbed by the Mount Hope Project, and another 6,000 acres fenced to exclude the public. Thus, about 14,000 acres used by large and small game would be made unavailable for use by local tribes for hunting. In addition, the mine would affect groundwater levels in the vicinity of the mine, potentially impacting vegetation in the Kobeh and Diamond Valleys, and affecting surface water flows on Roberts Mountains; these are culturally important areas to the Western Shoshone (Bengston 2007). These effects could last 70 years or more, and could impact plant, fish, and wildlife resources of importance to local tribes (USDOI BLM 2012c:4-69). The mine project would impact less than 1 percent of pinyon pines in the CESA. The mine site would be reclaimed, but habitat for big game and pygmy rabbit may be inaccessible or unavailable for 40 years or more. The mine proponent, BLM, and State Historic Preservation Office have developed a Programmatic Agreement to address many of these concerns.

The buildup of hazardous fuels and the spread of noxious weeds and other invasive non-native vegetation have increased both the risk of wildfire and the displacement of plants and animals that are important to Native peoples for maintaining their traditional lifeway values. Although fire is being reintroduced to undeveloped areas in the West that were historically burned by Native peoples to maintain early successional plant species and improve habitat for game species, natural disturbance regimes have not been restored over much of the West. Encroachment by non-native species into natural ecosystems continues, to the detriment of many native species of importance to Native peoples.

Since 1985, wildfires have burned about 15,000 acres annually in the CESA, although the acreage burned annually can be quite variable. The risks to Native American traditional/cultural values from wildfire are much greater than for prescribed fires, as wildfires tend to be hotter and burn larger areas. Wildfires kill vegetation, and harm or displace the native fish and wildlife used by local tribes. In addition, it is often difficult to restore burned lands, due to their remote location and uneven terrain, and noxious weeds and other invasive non-native vegetation often out-compete and displace native vegetation, to the long-term detriment of resources used by Native Americans. Treatments that remove hazardous fuels, including decadent and diseased pinyon-juniper and cheatgrass and other non-native vegetation, and construction of fire and fuel breaks, would be expected to reduce the risk of catastrophic wildfire, to the benefit of Native American resources.

In addition to the approximately 127,000 acres that could be treated on the 3 Bars Project area to reduce hazardous fuels and restore ecosystem health, the BLM also proposes to treat hazardous fuels and improve habitat on an additional 15,000 acres under current or reasonably foreseeable future authorizations in high to very high fire risk areas, or collectively on about 4 percent of lands within the CESA. Most of these treatments would occur within pinyon-juniper and sagebrush management areas, including on Roberts Mountains and Sulphur Spring Range, areas with ethnographic significance to the Western Shoshone. As discussed under direct and indirect effects, hazardous fuel treatments could adversely impact traditional/cultural resources and values within the CESA, including singleleaf pinyon pines and Utah juniper that are used for their seeds and berries. Treatments could also impact fish and game resources, including mule deer, pronghorn antelope, and pygmy rabbit, which are used for food by local tribes. As discussed under Native and Non-invasive Vegetation Resources (Section 3.11) and Wildlife Resources (Section 3.15), treatments would have short-term effects on vegetation and wildlife habitat and displace game species, but within a few years conditions within treatment areas should improve and provide improved vegetation and fish and wildlife habitat. The beneficial effects of treatments would be greatest under Alternative A.

### **3.23.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

Under Alternative B, effects from non-3 Bars Project reasonably foreseeable future actions on Native American traditional/cultural values, practices, or resources would be similar to those described under Alternative A. Under Alternative B, less effort would be spent by the BLM on treatments to reduce wildfire risk and its impacts on vegetation and fish and game habitat, including use of fire to restore natural fire regimes.

Adverse effects to Native American traditional/cultural values, practices, and resources within the CESA would generally be the same as described for Alternative A. By not using fire on the 3 Bars Project area, however there would be no risks to vegetation from fire on up to several thousand acres annually within the project area. Fire could be used on a few hundred acres annually outside the 3 Bars Project area.

By not using fire to reduce hazardous fuels and improve vegetation resiliency to fire, there would be greater potential for more extensive and intense wildfires to occur in place of controlled burns on the 3 Bars Project area under this alternative compared to Alternative A. This could lead to loss of vegetation, and fish and wildlife habitat, of importance to local tribes. 3 Bars Project actions would only affect about 63,500 acres, or 2 percent of the CESA. The BLM would consult with local tribes, and treatment areas would be surveyed, prior to treatment to avoid or reduce impacts to Native American traditional/cultural values, practices, and resources. Thus, there should be negligible cumulative effects to these resources from 3 Bars Project actions. These effects would be less than for Alternative A, but greater than for Alternative C.

#### **3.23.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on Native American traditional/cultural values, practices, or resources would be similar to those described under Alternative A. Adverse, short-term effects to vegetation associated with the use of fire and mechanized equipment would not occur under Alternative C. However, fire and mechanized equipment would be used in other portions of the CESA to improve habitat, remove hazardous fuels, and reduce the risk of wildfire.

By not being able to use mechanical methods and fire to reduce hazardous fuels, improve vegetation resiliency to fire, create fire and fuel breaks, and remove downed wood and slash, however, the risk of wildfire and its impacts on Native American traditional/cultural values, practices, or resources would likely increase on the 3 Bars Project area, to the potential detriment of vegetation, and fish and wildlife and their habitats within the CESA.

About 32,000 acres would be treated annually in the 3 Bars Project area, and another 15,000 acres in other portions of the CESA to reduce hazardous fuels and to improve ecosystem health, or only about 1 percent of the CESA. The BLM would consult with local tribes, and treatment areas would be surveyed, prior to treatment to avoid or reduce impacts to Native American traditional/cultural values, practices, and resources. Thus, there should be negligible cumulative effects to these resources from 3 Bars Project actions and effects would be less than for Alternatives A and B.

#### **3.23.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on Native American traditional/cultural values, practices, or resources would be similar to those described under Alternative A. There would be no cumulative effects on Native American traditional/cultural values, practices, and resources from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually; or about 0.03 percent of the CESA annually). Thus, benefits to Native American traditional/cultural values, practices, and resources would be negligible and least among the alternatives.

#### **3.23.3.5 Unavoidable Adverse Effects**

Unavoidable adverse effects could occur through inadvertent actions such as accidental removal of culturally significant plant species during mechanical methods or loss of important game habitat from burning. Treatments could also discourage or prohibit Native peoples from using these areas. However, all of these impacts would be short-term and would be far outweighed by the beneficial effects associated with long-term effects resulting from treatments that result in an increase in the abundance and diversity of native plant, wildlife, and aquatic resources.

#### **3.23.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

Vegetation treatments under all alternatives could have short-term impacts on vegetation used for traditional lifeways. Manual treatment methods have the least potential to impact plant species of importance to traditional lifeways. These methods would be used to thin pinyon groves and, while there could be a short-term adverse effect from treatments,

there would be a long-term benefit in pine nut harvesting associated with increased production; this would far outweigh the short-term effects. Biological treatments would have the least impact on short term use, while prescribed and wildland fire and mechanical treatments have the potential to have the greatest effect on short-term use. Fire treatments could displace Native peoples from traditional use areas until the area is safe to reenter, or desirable vegetation was reestablished. However, the long-term restoration of native plant communities and natural ecosystem processes that benefit traditional plant and animal resources should compensate for the short-term losses in use and access.

### **3.23.3.7 Irreversible and Irretrievable Commitment of Resources**

The use of treatments could inadvertently harm desirable edible plants, fish, and other fauna used for traditional lifeways or basketweaving. Prescribed burning and use of wildland fire for resource benefit would result in short-term habitat degradation and loss of plants and animals. However, these losses would be reversible as habitats would improve (USDOI BLM 2007c:251-252). Inadvertent impacts would only affect a small percentage of the treated acreage, and these impacts would be reversible. Further, the long-term benefits associated with all treatments that reduce the cover of noxious weeds and other invasive non-native vegetation, restore native vegetation, restore natural fire regimes, and restore long-term ecosystem health would substantially improve the diversity and quantity of traditional flora and fauna of importance to maintaining Native American lifeways.

### **3.23.3.8 Significance of the Effects under the Alternatives**

3 Bars Project and other actions in the CESA could have a significant impact on Native American traditional/cultural values, practices, or resources if the action restricts access to sites used for religious ceremonies and/or documented sacred sites, in some way impedes the exercise of ceremonies at such sites, or affects the physical integrity of such sites; impacts traditional plant resources or ceremonial sites; alters the setting of sites; or introduces visual, noise, or atmospheric elements that are out of character with the religious ceremonies or that compromise the sacred values.

The only Traditional Cultural Property within the CESA is the Mount Tenabo Traditional Cultural Property, which is immediately northwest of the 3 Bars Project area. It is probably the single most culturally important landscape feature in the homeland of the Western Shoshone (Fowler 1986). No reasonably foreseeable actions are proposed for this area, thus, effects from reasonably foreseeable future actions within the CESA would not be significant under all alternatives.

Based on the number of acres treated, short-term impacts to plants, as well as habitats used by fish and wildlife, that are important to Native peoples would be greatest under Alternative A and least under Alternative D. However, as the long-term objective of treatments is to restore native plant communities and habitats, including those of traditional importance to Native peoples, these effects to traditional plant resources would not be significant under the alternatives, especially given the likelihood of greater risk of catastrophic wildfire, and loss of plant and animal resources used by local tribes, that would occur without the treatments.

The BLM and State Historic Preservation Office have entered into a Programmatic Agreement that outlines the stipulations that will be followed to ensure compliance with Section 106 of the National Historic Preservation Act for each phase of the 3 Bars Project (see **Appendix B**). According to the Programmatic Agreement, all treatment shall be conducted in a manner consistent with the BLM and State Historic Preservation Office Protocol. The BLM, in consultation with the State Historic Preservation Office, shall ensure that effects to cultural resources and properties of traditional religious and cultural importance are avoided through design, or redesign, or by other means in a manner

consistent with the BLM and State Historic Preservation Office protocol. When avoidance is not feasible, the BLM, in consultation with State Historic Preservation Office, Native American Tribes, and interested persons, shall develop, or ensure that, an appropriate treatment plan is designed to lessen or mitigate project-related effects to these resources and properties. By following the Programmatic Agreement, the BLM would ensure that there are no significant direct, indirect, or cumulative effects to cultural resources and properties of traditional religious and cultural importance under all alternatives from 3 Bars Project actions. A similar Programmatic Agreement was prepared for the Mount Hope Project, and the BLM and other federal agencies with land interests within the CESA would develop similar agreements, if needed, before conducting actions within the CESA that could impact cultural resources and properties of traditional religious and cultural importance.

### **3.23.4 Mitigation**

Under all alternatives, the BLM shall implement the following measures in accordance with the Programmatic Agreement prepared for the 3 Bars Project and as discussed in Section 3.22.4, Cultural Resources, Mitigation.

## **3.24 Social and Economic Values and Environmental Justice**

### **3.24.1 Regulatory Framework**

The NEPA requires consideration of local plans and policies in the assessment of the social and economic effects of proposed activities involving federal lands (43 CFR § 1506.2). Federal, state, and local plans and guidelines that apply to social and economic values within the analysis area include the following: Eureka County 2010 Master Plan, including the updated Natural Resources, Federal or State Land Use, and Economic Development Elements; the Shoshone-Eureka RMP; and the Land and Resource Management Plan for the Toiyabe National Forest.

Chapter 6 of the Eureka County Master Plan, Natural Resource and Land Use Element, is designed to: 1) protect the human and natural environment of Eureka County, 2) facilitate federal agency efforts to resolve inconsistencies between federal land use decisions and County policy, and 3) provide strategies and policies for progressive land and resource management. The updated Growth Management, Public Facilities and Services, Economic Development, Land Use, and Housing Elements of the Eureka County Master Plan, outline specific goals that pertain to the project. Guidance and input for this assessment have also been provided by Eureka County staff, the Board of Eureka County Commissioners, and the Eureka County NEPA Committee (Eureka County 2010).

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Executive Order 12898 tasks “each Federal agency [to] make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks, instructs federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children, and to ensure that their policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks.

### 3.24.2 Affected Environment

#### 3.24.2.1 Study Methods and Study Area

Information for this section is drawn from the Mount Hope Project EIS (USDOI BLM 2012c) and other sources as indicated. Where necessary, baseline socioeconomic data from the Mount Hope Project EIS has been updated, drawing from published sources as cited and from information provided by Eureka County.

Public concerns expressed during scoping included potential effects on the area's agricultural community and effects related to a temporary work force associated with project implementation. These issues and concerns were considered in developing the description of the Affected Environment.

Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (CEQ 1998). The assessment of environmental justice reflects USEPA's Guidance for Incorporating Environmental Justice Concerns in USEPA's NEPA Compliance Analyses (USEPA 1998). That guidance suggests a two-step screening process to identify environmental justice concerns. This two-step process defines criteria for this issue, as follows:

1. Does the potentially affected community include a substantial minority and/or low-income population?
2. Are there potentially high and adverse environmental or human health effects associated with the proposed action?

If either of these criteria are unmet, there is little likelihood of environmental justice effects occurring. If the two-step process indicates a potential exists for environment justice effects to occur, further analyses are conducted to consider the following:

- whether the potential exists for these effects to fall disproportionately on minority or low-income members of the community or on tribal resources;
- whether the affected communities have had the opportunity to be sufficiently involved in the decision-making process; and
- whether communities currently suffer, or have historically suffered, from environmental and health risks and hazards.

The study area for direct, indirect, and cumulative social, economic, and environmental justice effects is the southern portion of Eureka County, from the BLM Elko District boundary to the Nye County line (**Figure 3-1**). Eureka County is long and narrow, approximately 128 miles from north to south, between 22 and 42 miles wide, and contains 4,182 square miles. Eureka County government provides public services throughout the County. There are no incorporated towns in Eureka County. The town of Eureka, the County seat and largest community in the County, and Crescent

Valley, the other town within the County, are unincorporated towns as defined by Nevada statutes.<sup>5</sup> The town of Eureka is approximately 10 miles south of the southeast corner of the 3 Bars project area and the town of Crescent Valley is approximately 10 miles north (via unpaved road) from the project area’s northwest corner. The community of Beowawe is also in the northern part of Eureka County, approximately 14 miles north of Crescent Valley and 6 miles south of Interstate 80.

**3.24.2.2 Minority Populations and Poverty**

The number of residents in Eureka County that describe themselves as a member of a racial or ethnic minority and the incidence of poverty are both a lower percentage of the total population than comparable statewide and national levels (Table 3-65). No tribally owned lands, or mineral resources or lands or minerals held in trust for Native American Tribes by the federal government, are within or near the project area.

**TABLE 3-65**

**Minority Population and the Incidence of Poverty in Eureka County, 2010**

<b>Geographic Area</b>	<b>Percent Racial or Ethnic Minority Population</b>	<b>Proportion of Population Below Poverty Level</b>
United States	29.5	15.3
Nevada	45.9	14.8
Eureka County	15.9	10.1

Note: Racial minorities include all persons identifying themselves in the census as a non-white race, including “Black or African American,” “American Indian and Alaska Native,” “Asian,” “Native Hawaiian and Other Pacific Islander,” “Some other race alone,” and “Two or more races.” Ethnic minorities include persons who identify themselves as Hispanic or Latino. Persons of Hispanic or Latino origin can identify themselves as part of any race (including white) and as persons of Hispanic or Latino origin.

Source: U.S. Census Bureau (2011a, b, c, 2012).

Comparing the screening criteria outlined above to the local settlement patterns, demographics, and poverty characteristics of the resident population in the County, and absence of major construction or other activity having direct effects that would extend beyond the project area, suggests no need for further assessment of potential environmental justice concerns as related to the proposed 3 Bars Project. The BLM is conducting government-to-government consultations with local tribes. If environmental justice concerns are identified during consultations, they will be addressed during the EIS process.

**3.24.2.3 Economic and Social Setting**

Eureka County is the second least populous county in Nevada with a 2011 estimated population of 1,994 and a 2011 average population density of 0.48 residents per square mile (Nevada State Demographer 2012a). The 2011 population estimate is virtually unchanged from the 1,987 residents reported for the County in the 2010 census.

<sup>5</sup> Nevada Revised Statute § 269.520. “Unincorporated town” or “town” means a specific area within a county in which one or more governmental services are provided by the county in addition to those services provided in the general unincorporated area of the county, for which the residents of such area pay through ad valorem taxes or for which other revenue is secured from within the area.

The town of Eureka initially developed in conjunction with the mining industry, but has been sustained through the years by the agricultural industry and local government. Farm and ranch households live on agricultural operations on private lands across the county, most of which are in the central portion of the county in the vicinity of Nevada State Route 278 (Eureka County 2010).

Eureka County's economy is predominately natural resource-based. Mining, farming and ranching, tourism, and many forms of outdoor recreation rely on the land and its resources. Agriculture, primarily growing high quality alfalfa and hay for sale and winter feed and cattle and sheep ranching, has historically served as a base for the Eureka County economy, with mining responsible for periods of economic prosperity and decline.

Mining plays a vital and complex role in the economy and culture of Eureka County. The two largest gold mining operations in the state, Barrick Gold's Goldstrike Complex and Newmont Mining's Carlin Trend Complex, are located in northern Eureka County. However, most of the economic activity associated with these mines accrues to Elko County, which is also home to most of the employees. These and other mines provide substantial tax revenue for Eureka County, which is used in part to provide public services and facilities throughout the County.

Land ownership and management also factor prominently in Eureka County's economic and social setting. The federal government manages 79 percent of all land in Eureka County, providing habitat and other environmental functions and supporting a variety of consumptive and non-consumptive uses. About 21 percent of the land is privately owned, including lands in the "checkerboard" along the Union Pacific Railroad mainline in the northern portion of the county. State- and County managed lands together comprise less than one-half percent of the total.

### **3.24.2.4 Population and Demography**

Eureka County's population peaked at more than 7,000 residents in 1880, fell to a low of 767 residents in 1960, then trended upward through the 1990s. Between 2000 and 2005, the County's population declined by nearly 200 residents, but subsequently gained more than 500 residents to 1,987 in 2010. The decline in the County's population between 2000 and 2005 coincided with a suspension of operations at the Ruby Hill Mine.

Between 2000 and 2011, population trends in Eureka County's unincorporated towns and outlying areas mirrored both those of the entire County and employment trends in the mining industry. During this period, just over two-thirds of the County's residents lived in the town of Eureka and nearby rural areas in the southern portion of the County. In 2011, the town of Eureka had 611 residents, with 396 in Crescent Valley and 987 living elsewhere in the County (**Table 3-66**).

In 2011, the average household size in southern Eureka County was 2.38 persons, which is smaller than the statewide average of 2.65 individuals (U.S. Census Bureau 2011a).

The racial composition of the resident population in southern Eureka County is more predominately white than that of the state as a whole. In 2010, 89.6 percent of area residents identified themselves as white, alone or in combination with one or more other races. That compares to 66.2 percent at the statewide level (U.S. Census Bureau 2011a).

The Nevada State Demographer prepares population estimates and population projections for Nevada's counties, cities, and unincorporated towns. The forecasts released in April 2012 anticipate a net gain of approximately 300 residents in Eureka County by 2020, with a further gain of 200 residents by 2030. The projected population gains initially parallel anticipated gains of 400 jobs in the County, on a place of work basis. Population growth is projected to slow thereafter (Nevada State Demographer 2012b).

**TABLE 3-66**

**Eureka County Population, Selected Years, 2000 to 2011**

Area	2000	2005	2011
Eureka County	1,651	1,485	1,994
Eureka Town	499	440	611
Crescent Valley	330	311	396
Remainder of the County	822	734	987

Source: U.S. Census Bureau (2011a, b), and Nevada State Demographer (2012a).

**3.24.2.5 Economy and Employment**

Mining dominates the Eureka County economy in terms of employment and earnings. Total employment in the County topped 5,300 jobs in 1997, nearly 4,400 of which were in mining. The concentration of employment in the mining sector is the result of the expansion of several gold mines along the Carlin Trend<sup>6</sup> in the northern part of the County, and whose employees reside, for the most part, outside of the County.

Data on the resident labor force and employment by place of residence are more reflective of the much smaller and more recent mining presence in southern Eureka County. Barrick Gold’s Ruby Hill Mine is just outside the town of Eureka, and provides an economic and employment boost for southern Eureka County. Since 2006, the Ruby Hill Mine has been recovering gold from the East Archimedes ore body, and recently announced additional reserves which may support mining for several more years.

Eureka County’s labor market conditions generally parallel trends in the mining industry, although they are more closely tied to activities in the southern part of the County. In 2005, when construction of the East Archimedes expansion of the Ruby Hill Mine was underway, the labor force stood at 674 and unemployment at 3.6 percent. The resident labor force has subsequently expanded to nearly 1,100, 65 percent over the 2005 levels, while unemployment remains relatively low 6.4 percent in February 2012 (Table 3-67).

**TABLE 3-67**

**Eureka County Labor Force, Unemployed, and Unemployment Rate, Selected Years**

	2007	2008	2009	2010	2011	2012 (Feb)
Labor Force	793	845	906	1,082	1,115	1,081
Unemployed	59	46	62	82	67	69
Unemployment Rate (%)	4.3	5.5	6.8	7.6	6.0	6.4

Source: U.S. Department of Labor Bureau of Labor Statistics (2012).

<sup>6</sup> The Carlin Trend, one of the world’s most productive gold mining districts, is a northwest trending belt of mineral deposits over 50 miles long and 5 miles wide extending through northern Eureka County into Elko County on the northwest and southeast.

Based on the strength of Eureka County’s economy, local unemployment rates are consistently lower than both the statewide and national averages; 6.0 percent in Eureka County for 2011, as compared to 13.5 percent statewide and 8.9 percent for the nation.

Eureka County personal income data by place of work statistics reflect the presence of the Barrick and Newmont mines in the northern part of the County, whereby most of the labor earnings paid by Eureka County employers flow out of the local economy. Over the 3-year period 2008 to 2010, more than 80 percent of the total wages and salaries paid by employers in Eureka County were to workers living outside the county. After additional adjustments, social security deductions, and other income such as interest and dividends, the total personal income of residents averaged approximately \$66 million (Table 3-68).

**TABLE 3-68**

**Eureka County Personal Income by Place of Residence, Selected Years (in millions of dollars)**

	2008 <sup>1</sup>	2009 <sup>1</sup>	2010 <sup>1</sup>
Earnings by Place of Work	441.1	463.9	453.6
Net Residency Adjustment	-347.8	-369.4	-357.3
Social Security Deductions	-43.9	-48.7	-48.0
Other Income to Residents	16.8	16.9	17.3
Total Personal Income - Residents	66.2	62.7	65.7
Per Capita Income	\$37,227	\$32,577	\$32,876

<sup>1</sup>A negative residency adjustment reflects the net earnings of workers employed in Eureka County, but who reside elsewhere, primarily in Elko County, that are in excess of the earnings of Eureka County residents employed outside the County.

Source: U.S. Bureau of Economic Analysis (2012a).

Prior to the late 1990s, per capita personal income of Eureka County residents was higher than that for Nevada and the U.S. Eureka County residents have trailed the state and national norms since 2000. In 2010, the variance was 11 percent below the statewide average and nearly 18 percent below the national average (Table 3-69). A substantial decline in farm income between 2008 and 2009 was largely accountable for a decrease of more than \$4,600 in per capita personal income (U.S. Bureau of Economic Analysis 2012b).

Although the mining industry is the dominant employer in the county, other sectors play important roles in supporting the County’s economy, particularly in the southern portion of the County. These sectors include government and public education, retail trade and services, construction, and agriculture. The levels of economic activity and employment in sectors other than agriculture, particularly construction, have historically reflected changes in mining activity.

**TABLE 3-69**

**Per Capita Personal Income, Eureka County, Nevada, and the United States**

	2008	2009	2010
Eureka	\$37,227	\$32,577	\$32,876
Nevada	\$39,879	\$36,533	\$36,938
United States	\$40,947	\$38,846	\$39,937

Source: U.S. U.S. Bureau of Economic Analysis (2012c).

Public sector employment, which includes federal, state and local government and public school employment, increased through much of the 1990s, eventually peaking at approximately 275 (U.S. Bureau of Economic Analysis 2012d). Public sector employment subsequently fell to 166 in 2003 before climbing to 250 in 2011 (Nevada Department of Employment, Training and Rehabilitation 2012). Most of the public sector employment in Eureka County is based in the town of Eureka due to the location of the County administrative and other functions, the Eureka County School District, and some state agencies within the town. Farm employment accounted for 3.3 percent of all employment.

The local business sector in the town of Eureka is limited in diversity and scale, focused primarily on essential consumer, building, and automotive goods and services. Retail shopping opportunities include groceries, hardware and lumber, auto parts/fuel/supplies, and novelties and gifts targeted at tourists. There are also several restaurants and other food service establishments, two bars and a casino in town. Residents use the internet or travel to Elko, Reno, or elsewhere to access a wider selection of goods, financial services, and a broader range of medical and dental care (USDOI BLM 2012c).

The local business sector in Crescent Valley includes a convenience/gas store, a restaurant and bar, a trailer park, and a contractor and tire, lube and equipment rental establishment (Eureka County 2012). Tourism, recreation activities, attractions, and events in Eureka County include big and small-game hunting, fishing, sightseeing, off-highway vehicle use, visits to the Eureka Opera House and Sentinel Museum, general interest in the historic mining character of the community, and events such as the county fair, county youth fair, high school rodeo, and special events (e.g., car show and drag race, and shooting and archery tournaments [Eureka County 2012, USDOI BLM 2012c]). Travelers along U.S. Highway 50, including bicyclists and motorcyclists, contribute to the Eureka County economy. The economic stimulus generated by recreation and tourism cuts across several retail and service industries; as a result, data regarding the levels of activity are not readily available.

Closely aligned with recreational activity on public lands is the harvest and collection of resources for personal use and enjoyment. Eligible resources include flowers, berries, pinyon and other nuts, seeds, cones, and other plant parts, campfire wood, rocks, mineral specimens, petrified wood, Christmas trees, semiprecious gemstones, and common invertebrate fossils. Harvesting of berries, nuts, and other plants and plant material is an important customary and traditional use of public lands for Native Americans.

### **3.24.2.6 Farming and Ranching**

Local agriculture is another important element of the area's economic base. Although agriculture's importance may not always be reflected on a strict accounting basis and farm income is sensitive to outside influences and varies year to year, farming and ranching provide livelihoods for many households, support local government and public education by contributing to the local tax base, and indirectly support other local businesses through purchases of farm equipment, fuel, veterinary services, and other goods and services. Since members of agricultural households often work "off the ranch" for additional income, they are also a source of labor for other employers. A study of economic linkages in Eureka County reported that each direct job on local farms and ranches supported between 0.28 and 0.68 jobs elsewhere in the local economy, and that every \$1 in economic output resulted in another \$0.66 to \$1.02 in secondary economic impact (Fadali et al. 2005). Examples of such linkages include local purchases of diesel fuel, lubricants, tools, other farm supplies, and groceries from local merchants and service providers, as well as electrical power used for irrigation purchased from Mt. Wheeler Power. Furthermore, the farm-based population tends to be connected to the land in ways that anchors it to the area more so than households associated with other elements of the economy.

Farm employment in Eureka County has experienced some volatility since 2000, declining for several years at the beginning of the decade, but increasing thereafter. As a consequence, farm employment in 2010 was reported at 163, a net increase of 30 farm jobs, or 23 percent, as compared to 2000.

The National Agricultural Statistics Service reported 86 farms and ranches in Eureka County in 2007, up from 73 in 2002 (USDA 2009). Together those 86 operations reported operating a total of 783,440 acres, which corresponds to an average farm size of 9,110 acres.<sup>7</sup> Eureka County farmers and ranchers reported just under \$27 million in livestock, commodity, and other agricultural product sales in 2007 and out of 17 counties in Nevada, Eureka County was ranked fourth in the state in terms of crop value. The combined sales of livestock and products rose to \$32 million in 2008, declining to \$24.1 million in 2010. Revenue derived from livestock sales generally accounts for about one-third of the aggregate sales by local farms and ranches, and receipts from crop sales account for about two-thirds of the total. Cattle account for most of the livestock raised in Eureka County with sheep and horses accounting for most of the remainder. Approximately 35,000 acres of farmland are devoted to forage production (U.S. Bureau of Economic Analysis 2012b).

Eureka County growers are known to raise high quality alfalfa and other hay that is marketed out-of-state to dairies and horse breeders, as well as exported internationally. Data for Eureka County in 2011 indicated a total of approximately 42,400 acres devoted to raising crops; hay (31,200 acres) and alfalfa (10,400 acres) being the two primary crops (USDA Cropscape 2012a). More than 70 percent of the total land planted in crops was in the Diamond Valley and elsewhere in southern Eureka County. As shown in **Figure 3-53**, Eureka County alfalfa production has ranged from a 2004 low of slightly over 60,000 tons, to a peak in 2007 of over 100,000 tons. Production in 2011 was 77,000 tons, comparable to the annual average for the period 1995 to 2011. Weather, including an extended period of drought, was largely responsible for much of the year-to-year variation in hay production over the past decade.

Eureka County livestock production over the past 11 years peaked at 37,000 units in 1999 and 2000, but has since decreased to 25,000 units in 2011 (see **Figure 3-54**)<sup>8</sup>. As in the case of hay production, some of the changes in the number of cattle produced reflect the effects of drought, as some ranchers adjusted to the availability of hay. Historically, substantial numbers of both sheep and cattle were raised in Eureka County but more recently cattle have become predominant. **Table 3-70** summarizes farm income and expenses from 2007 to 2010 for farms in the study area.

It is not uncommon for households dependent on agriculture to derive income from multiple sources, with one member engaged in farming/ranching and another working in education, government, or mining, for example. In fact, some residents note that having an “off-the-ranch” income is economically imperative, particularly recently when agricultural production and income have been adversely affected by the extended drought.

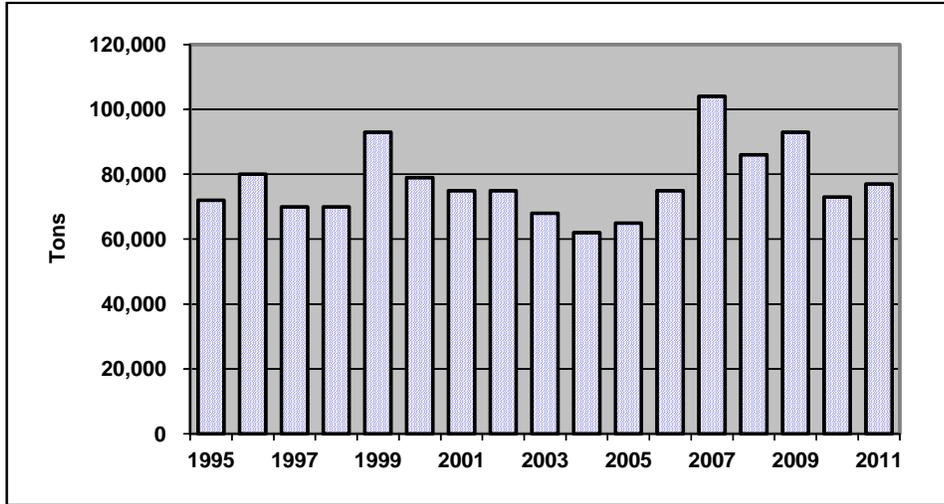
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<sup>7</sup> The 783,440 acres in farms in 2007 is over 500,000 acres more than was reported in 2002 and exceeds the approximate total of 550,000 acres of privately owned land reported by Eureka County (2010). The reason for this discrepancy is unclear.

<sup>8</sup> The information regarding livestock production for 2007 to 2011 is of questionable reliability due to cutbacks in federal funding that has affected data collection, analysis, and reporting of agricultural production.

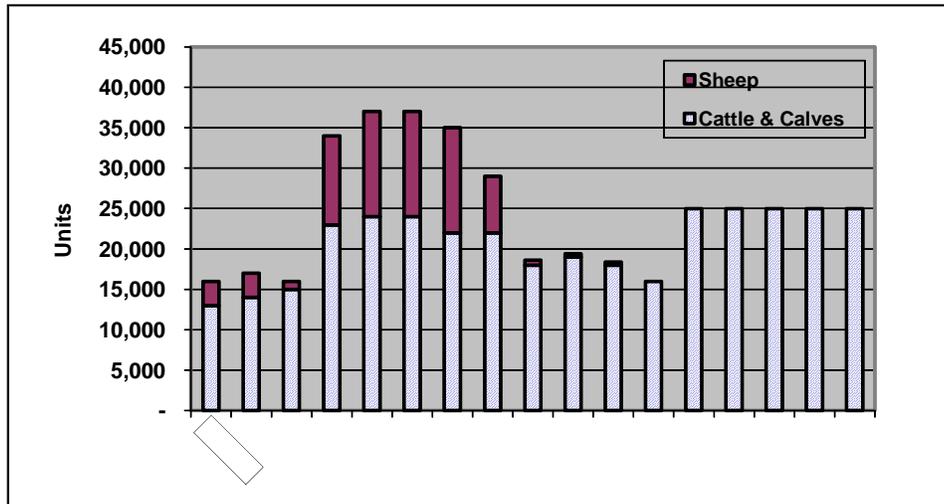
**3.24.2.7 Housing**

Eureka County had a total of 1,076 housing units in 2010, a net increase of 51 units compared to the 2000 Census (U.S. Census Bureau 2002; 2011a). Most of the net change was in multi-family units built in the town of Eureka. According to the Census Bureau, just over half of all units were single family residences, mobile homes accounted for 40 percent of all homes, and multi-family units about 7 percent. Vacancy rates are low across the County. The County is working with the Nevada Rural Housing Authority to develop new housing and commercial development in the Eureka Canyon subdivision located on the north end of the town of Eureka.



**Figure 3-53. Eureka County Alfalfa Production 1995 – 2011.**

Source: USDA National Agricultural Statistics Services (2012).



**Figure 3-54. Eureka County Livestock Production 1995 – 2011.**

Source: USDA National Agricultural Statistics Service (2012).

**TABLE 3-70**  
**Farm Income and Expenses, Eureka County 2007-2010 (x \$1,000)**

	2007	2008	2009	2010
Cash receipts from livestock and products	\$ 9,460	\$ 7,965	\$ 7,878	\$ 9,000
Cash receipts from crops	17,341	24,056	17,808	15,124
Other income	1,344	880	1,675	1,084
Production expenses	22,325	23,216	23,888	23,001
Value of inventory change	-3,063	-412	517	-121
Net income of corporate farms	629	1,484	457	390
Net farm proprietors income	2,128	7,789	3,533	1,696

Source: U.S. Bureau of Economic Analysis (2012b).

Accommodations for tourists and visitors, including four motels offering a total of 88 rooms, are in the town of Eureka (Eureka County 2010). Four mobile home and recreational vehicle parks provide nearly 100 spaces for short- and long-term rental. During the peak summer travel and hunting seasons, the short-term accommodations are frequently at or near full occupancy. A 36-space mobile home park located in the town of Eureka was refurbished by Eureka Moly Limited Liability Corporation (LLC), and two additional recreational vehicle parks were recently refurbished or built. Much of the recent housing activity is being prompted by the potential development of the Mount Hope Project north of Eureka, in the vicinity of the 3 Bars Project area (USDOI BLM 2012c). There is one recreational vehicle park in Crescent Valley.

**3.24.2.8 Eureka County Facilities, Services, and Public Utilities**

Eureka County is governed by a three member Board of County Commissioners elected at-large to overlapping 4-year terms. Each year the Board selects one of its members to serve as Chairperson. County government provides a broad range of services to the two unincorporated towns and to the County as a whole. To provide these services, Eureka County employed 92 full-time employees and 45 casual employees in fiscal year 2011. The County also uses contractors and various service vendors. Within the County, the three largest functions in terms of full-time employees were public works (25), public safety (22), and general government (18). Public works includes the County’s road and bridge department, as well as staff associated with water and wastewater utilities, solid waste control, fairgrounds, and county buildings and grounds (Eureka County 2011).

**3.24.2.8.1 Law Enforcement and Criminal Justice**

The Eureka County Sheriff’s Office is based in the town of Eureka and provides law enforcement for the entire County, operates the County’s detention facilities, and provides dispatch services for all County public safety functions including police, emergency medical, and fire suppression activities. The District Attorney, District Court, and Juvenile Probation office are also based in the town of Eureka.

**3.24.2.8.2 Emergency Response**

Emergency response includes fire protection and emergency medical/ambulance services. Eureka County funds an emergency management services coordinator to oversee emergency planning, response, and management among the

various local service providers, serves as a liaison with various statewide entities, and directs the volunteer ambulance/emergency medical service in Eureka.

#### **3.24.2.8.3 Fire Protection**

Eureka County funds six local volunteer fire departments. In addition to departments in the town of Eureka and Diamond Valley, volunteer fire departments are located in Beowawe, Crescent Valley, Dunphy, and Pine Valley.

The Eureka Volunteer Fire Service (VFS) and the Diamond Valley VFS service southern Eureka County. The Eureka VFS provides fire suppression service in and around the town of Eureka and accompanies the ambulance on motor vehicle accident calls. During dry years, the VSF frequently responds to calls to fight wildfires. The Eureka VFS is staffed by volunteers and is housed in a two-story, seven-bay fire station commissioned in late 2009.

The Diamond Valley VFS located on 11th Street in Diamond Valley. The Diamond Valley VFS maintains a three-bay fire station that accommodates five vehicles including an ambulance. Most calls to the VFS are for vehicle accidents along State Route 278 and for wildfires (USDOI BLM 2012c).

These departments, along with the Nevada Department of Forestry and BLM, maintain mutual-aid agreements to augment the capacities of any given department when the need arises. Eureka County provides funds to the Nevada Department of Forestry to help fund its fire suppression activities.

#### **3.24.2.8.4 Emergency Medical/Ambulance Services**

Emergency medical care and transportation in the County are provided by the Eureka County Emergency Medical Service, a volunteer ambulance service. In the southern part of the County, the Emergency Medical Service is staffed by the full-time paid Eureka County Emergency Medical Service Coordinator and volunteers. Two ambulances and a search and rescue vehicle are housed in the town of Eureka. An older ambulance is stationed in Diamond Valley. The ambulances have radio communication with Northeast Nevada Regional Hospital in Elko, where most patients are transported. Fixed-wing and helicopter emergency medical air transportation is available to hospitals in Elko, Reno, and Salt Lake City, Utah (USDOI BLM 2012c).

#### **3.24.2.8.5 Health Care**

Primary health care in southern Eureka County is provided at the Eureka Medical Clinic in the town of Eureka and operated by the Nevada Health Centers, Inc. The Eureka Medical Clinic facility was constructed in 1998 with funding from Eureka County. When fully staffed, the clinic employs a physician, a physician's assistant/clinic coordinator, two medical assistants, and an administrative employee. The clinic provides a full range of basic and emergency medical services.

Another health care clinic is located in Crescent Valley. It is open on a part-time basis, staffed by practitioners from the Eureka Medical clinic who travel to the facility. Most patients requiring hospitalization use the Northeastern Nevada Regional Hospital in Elko. Patients requiring specialized care often choose to access facilities in Reno (USDOI BLM 2012c).

#### **3.24.2.8.6 Public Education**

Public education (kindergarten through 12th grade) in Eureka County is provided by the Eureka County School District, headquartered in the town of Eureka. In addition to administrative offices, the Eureka County School District

operates an elementary school and a junior/senior high school in Eureka, which serve the southern portion of the County. The Eureka County School District also operates an elementary school in Crescent Valley, serving the Crescent Valley/Beowawe area. The Eureka County School District sends junior and senior high school students from the Crescent Valley/Beowawe area to the Lander County School District's schools in Battle Mountain and sends some Pine Valley area students to the Elko County School District Combined School in Carlin. Public school enrollment in grades kindergarten through 12<sup>th</sup> grade totaled 235 students in the fall of 2012, an increase of 6 students compared to the preceding year (Nevada Department of Education 2012).

### **3.24.2.8.7 Other Public Facilities and Services**

Eureka County provides social and senior services from offices in Eureka. The County fairgrounds, a library, swimming pool, and other recreational facilities are also in Eureka.

Eureka County maintains and operates three water systems in the southern part of the County, the Eureka Town Water System and two general improvement district systems in the Devils Gate subdivision about 4 miles north of Eureka. The County also operates a water system in Crescent Valley.

Wastewater collection and treatment services in the town of Eureka are provided by a central system, with a multiple-cell, aerated, evaporative lagoon wastewater treatment facility managed by the County public works department. Developments in Crescent Valley and elsewhere in the County rely on septic systems.

Eureka County operates the Class II-rated Whiskey Flat Landfill north of the town of Eureka. The landfill is staffed by two County public works employees. The County has long-term plans to open a new landfill (USDOI BLM 2012b).

Mt. Wheeler Power provides electric power to central and southern Eureka County including the town of Eureka and the project area. Nevada Energy provides power to the Crescent Valley area. Residential and commercial gas is provided by private propane vendors. Conventional landline telephone service is provided by AT&T. Cellular phone coverage is available across much of the County except in Pine Valley along State Route 278.

### **3.24.2.9 Fiscal Conditions**

Eureka County has a solid fiscal foundation. That strength derives from a combination of substantial revenues generated by the mining industry, a relatively low service population, and local governance policies focused on using revenues to fund essential countywide services and maintaining a strong reserve fund during periods of prosperity which can be used to cushion the budgetary impacts of mine closures or declining net proceeds or assessments.

Total County revenues have risen by nearly \$10 million per year over the past 5 years, from \$22.6 million in fiscal year 2006/2007 to \$32.4 million in fiscal year 2010/2011 (**Table 3-71**). Eureka County's primary revenue sources are ad valorem taxes and intergovernmental revenues. These two categories of revenue have accounted for more than 85 percent of the County's total revenues in each of the past 3 years.

Ad valorem taxes are a function of the tax rate and assessed valuation. Local ad valorem tax rates are consistently the lowest or among the lowest rates in Nevada. In 2010/2011, the tax rate on property in the town of Eureka was \$1.9896 per \$100 of assessed valuation, 45 percent less than the state-mandated maximum of \$3.64 per \$100. All property owners benefit from the relatively low tax rates. Recognizing the potential volatility in revenues associated with mining activity, the Board of Eureka County Commissioners has a long-standing a policy to maintain relatively

steady property tax rates, funding reserve accounts during periods of prosperity that can be used to cushion the budgetary impacts of mine closures or declining net proceeds or assessments (USDOI BLM 2012c).

Over the past decade, Eureka County’s total assessed valuation has grown dramatically as a result of capital investment in mining, higher production, and record high gold prices. In 2008/2009, the County’s total assessed value reached \$1.51 billion, more than a 150 percent increase in just 3 years. Driven by the increases in gold prices, the total valuation doubled to more than \$3.1 billion for the 2010/2011 tax year and primarily the result of a large jump in net proceeds (**Table 3-72**).

In fiscal year 2010-11, agricultural lands and improvements accounted for approximately 1.9 percent of Eureka County’s total assessed value, if the net proceeds from mining are excluded. If net proceeds of mining are included, agriculture’s share is 0.5 percent (Nevada Department of Taxation 2012).

As a result of the growth in assessed value, ad valorem taxes levied by Eureka County increased from \$7.1 million in fiscal year 2006/2007 to \$18.5 million in fiscal year 2010/2011. The latter is a record high. Combining the real and personal property valuations associated with the mining industry and net proceeds reveals that the mining industry accounts for approximately 90 percent of the total ad valorem tax base of the County and Eureka County School District.

**TABLE 3-71**  
**Eureka County Budget Summary, Fiscal Years 2007 to 2011**

	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011
Total Revenues	\$22,566,806	\$24,495,445	\$32,088,413	\$29,242,039	\$32,362,380
Total Expenditures	14,439,988	21,468,845	24,651,142	28,202,042	27,824,071
Net Current Revenue	8,126,818	3,026,600	7,437,271	1,039,997	4,538,309
Reserve Fund Balance (Ending)	46,551,069	49,592,669	57,036,340	56,326,337	59,625,419

Source: Eureka County (2011).

**TABLE 3-72**  
**Eureka County Assessed Value, Fiscal Years 2005/2006 through 2010/2011 (in millions of dollars)**

Fiscal Year	Secured <sup>1</sup>	Unsecured, Including Net Proceeds of Mines <sup>1</sup>	Total
2005/2006	\$273.4	\$322.6	\$596.0
2006/2007	333.8	488.9	822.7
2007/2008	381.9	653.0	1,034.9
2008/2009	473.1	1034.4	1,507.5
2009/2010	583.7	832.6	1,416.3
2010/2011	546.2	2,627.2	3,173.4

<sup>1</sup> Secured property generally refers to real property, mobile homes placed on foundations, and some improvements held by a title. Unsecured property generally refers to personal property, mobile homes not placed on foundation, and other property interest subject to property tax.

Source: Nevada Department of Taxation (2012).

Intergovernmental revenues, the second major category of revenues for Eureka County, increased from \$11.6 million in fiscal year 2005/2006 to \$13.3 million in fiscal year 2009/2010, falling to \$9.7 million in fiscal year 2010/2011. Intergovernmental revenues from the state include the Basic County-City Relief Tax, Supplemental County-City Relief Tax, motor vehicle property taxes, and fuel taxes. Basic County-City Relief Tax and Supplemental County-City Relief Tax are statewide sales and use taxes enacted to provide property tax relief. Intergovernmental revenues also include various federal payments and grants, including receipts of federal Payments in Lieu of Taxes. In 2010, federal Payments in Lieu of Taxes payments totaled \$275,208, based on 2,156,915 acres of qualifying federal lands (USDOI BLM 2012c).

Eureka County expenditures have also increased in recent years from \$14.4 million in 2006/2007 to \$27.8 million in 2010/2011, the rise generally tracking the growth in revenues over time (**Table 3-71**). Budgeted expenditures increased across all major functions/departments. Much of the increase is accounted for by non-recurring outlays for facility and road improvements funded from current revenues and the County's accumulated reserves for such purposes. Eureka County completed several major capital improvement projects in recent years. These projects included a new Eureka Fire House, water storage and distribution projects in Eureka, a Main Street water/sewer project in Eureka, arsenic treatment projects in the Devils Gate and Crescent Valley water systems, and a Countywide chip seal project.

Net current revenues, defined as total revenues less total expenditures, ranged between \$1.0 and \$8.1 million over the past 5 years (**Table 3-71**). For fiscal year 2010/2011, the net current revenue was \$4.5 million. After accounting for other financing sources or outlays, the residual net revenue was transferred to the County's reserve funds. The County's combined reserve fund balances stood at \$59.6 million at the end of the 2010/2011 fiscal year.

A small portion of the reserve fund is held as a reserve against an outstanding note receivable; however, the majority of the funds is unreserved, and are held for potential use in meeting future general fund needs, capital projects, and other special needs as established by the County Commission. The County had no bonded debt as of June 30, 2011.

### **3.24.2.10 Social Conditions and Affected Publics**

This section generally describes existing social conditions in Eureka County and groups that could be affected by the 3 Bars Project. Information for this section was obtained from interviews (between 2006 and 2008) with local officials, County staff and local residents, and from a review of secondary sources (Blankenship Consulting LLC and Sammons/Dutton LLC 2008).

Southern Eureka County, including the town of Eureka and Diamond Valley, is a close-knit community where many residents know each other because of their long association with the community. There are a number of multi-generational families in the community, some whose roots date back to the original settlement of the area by people of European descent. Many southern Eureka County residents are deeply involved in the community. It is not uncommon for an individual to be a hay grower or business person, serve as an elected official or be an appointed member of a board or committee, and also serve as a member of a volunteer fire department, search and rescue team, or other civic organization.

Although the town of Eureka hosts tourists and highway travelers during summer months and experiences periodic influxes of mine workers from area mines, it endeavors to maintain its small town traditions and lifestyles. Many residents enjoy knowing many of their neighbors and value the low crime rate and the casual atmosphere of the town.

On the other hand, some community members are concerned that many of the community's youth move away to find suitable employment and would like to have a somewhat larger student body at the high school to support a broader curriculum. The limited range of commercial, dining, and entertainment options is a drawback for some residents.

Specific public and groups identified during scoping and interviews as potentially affected by development and operation of the mine include:

- Eureka County ranchers who hold grazing permits for the allotments within the 3 Bars Project area.
- Individuals and businesses that provide goods and services to the agricultural sector.
- Individuals and businesses that may provide goods and services to contractors or the BLM personnel involved in the restoration efforts.
- Recreational users of the 3 Bars Project area. These users mainly include hunters, some off-highway vehicle users (all-terrain vehicle and snowmobile) and visitors, and re-enactors and supporters interested in the Pony Express National Historic Trail, which traverses the project area.
- Individuals and businesses that provide goods and services to outdoor recreational users of the 3 Bars Project area.

### **3.24.3 Environmental Consequences**

Public lands play an important role in the economy, social structure, and quality of life for area residents as well as for tourists and other visitors to the area. The economic contributions derived from use of public lands, including expenditures by local and non-local recreational users, provide support for local ranching, mining, and other natural resource uses. The "wide open spaces" that are common across the West and that are comprised largely of public lands also contribute to the "sense of place" that is important to residents and nonresidents alike. Because of the important ties between public lands and communities and residents, actions that affect public lands, including landscape restoration activities, may have social and economic consequences in the region.

Implementation of the proposed vegetation treatment program would create temporary and long-term effects on land use patterns, resulting in short-term socioeconomic effects. However, effects would also result from non-action, although the timing, extent, and location of these effects are subject to a higher degree of uncertainty. Consequently, the socioeconomic assessment seeks to describe the trade-offs involved between action and no action.

#### **3.24.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

Specific stakeholder groups identified during scoping as potentially affected by the restoration initiatives include:

- Individuals and businesses providing goods and services to the BLM in conjunction with the landscape restoration projects.
- Farmers and ranchers in the Kobeh and Diamond Valleys, who raise livestock and grow alfalfa, hay, or other grasses, including high quality dairy and export grade hay.
- Grazing operators who manage cattle on BLM grazing allotments in the 3 Bars Project area.
- Businesses that provide goods and services to local farming and ranching operations.

- Recreational users of the area around the 3 Bars Project, including hunters, anglers, off-highway vehicle users, sightseers, and re-enactors and supporters of the Pony Express National Historic Trail, which traverses the 3 Bars Project area.

The key issues of concern regarding socioeconomics identified by stakeholders during scoping include to:

- Recognize the contributions of the existing agriculture industry to the economic and social structure of Eureka County.
- Recognize the economic and social benefits of other land uses and activities that occur in the area.
- Consider the potential short- and long-term economic effects of the treatment alternatives on ranch operators.
- Consider the local job opportunities and economic development effects supported by the landscape treatment alternatives.
- Plan and schedule vegetation treatments and coordinate with grazing permittees to limit the extent of short-term economic disruptions.
- Consider the overall cost of the restoration project and how the project would be funded.

### **3.24.3.2 Significance Criteria**

The NEPA (Section 1508.14) states that “...economic or social effects are not intended by themselves to require preparation of an environmental impact statement. When an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement would discuss all of these effects on the human environment.” This means that social or economic differences are not enough to result in a potentially significant adverse effect, but need to manifest themselves with some physical change, as described in the NEPA (Section 1508.8[b]), “...effects may include growth inducing impacts and other effects related to induced changes in the pattern of land use, population density or growth rate.”

The proposed action would be considered to have a significant effect on social and economic values if the following occurred:

- Substantial long-term change in any sector of the local economy, such as major expansion or contraction of employment, output, or diversity.
- An increase in temporary or resident populations that would unduly strain the ability of affected communities to provide housing and services or otherwise adapt to growth-related social and economic changes.
- An aggregate change in public sector revenue and/or expenditure flow likely to either compromise the ability of affected units of government to maintain public services and facilities at established service levels, or to compromise their ability to allow for improved services without increasing the tax burdens on existing taxpayers.
- Permanent displacement of residents or users of affected areas that would result from project induced changes in or conflicts with existing uses or ways of life.

The significance threshold would be triggered if any one of the above criteria were satisfied.

### **3.24.3.3 Direct and Indirect Effects**

#### **3.24.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

##### *Adverse Effects*

Because the 3 Bars Project area is rural and largely undeveloped, potential adverse social effects related to restoration would be indirect and largely intangible, and would most likely affect general degrees of satisfaction or dissatisfaction of individuals, families, and various stakeholders. In general, the social and economic effects associated with the management types and treatment methods would be similar in type, varying in degree based on the cost of treatment and the acres of area treated.

There could be short-term reductions in authorized grazing levels and subsequent downward pressure on ranch income as a result of grazing restrictions and increases in the required amount of livestock management. It is estimated that the total economic cost to ranchers and the local economy would be \$69.57 per AUM, much of which would accrue to the regional economy of northeastern Nevada. This value differs from the \$53.40 (1999 dollars) and \$73.75 (2012 dollars) values given in the Mount Hope Project Final EIS. Those values were based on the Nevada Grazing Statistics Report and Economic Analysis for Federal Lands in Nevada (Resource Concepts, Inc. 2001) and an adjustment for general inflation. However, the original \$53.40 value was determined to be incorrect because of double-counting of the industry's labor income and value-added when Resource Concepts, Inc., reported total output as defined by the IMPLAN model. By adding the three lines items together, all other things remaining the same, the net result is that the economic values of an AUM to regional output were overestimated in the Mount Hope Project Final EIS. To correct the issues associated with the Resource Concepts, Inc., values, the updated value of \$69.57 per AUM was derived based on average beef prices over the period January 2004 to January 2013, as compared to the 1999 base value used by Resource Concepts, Inc. (USDA 2013) and an updated local economic output multiplier of 2.02 as compared to the statewide multiplier of 1.82 reported by Resource Concepts, Inc. (Fadali 2005).

The BLM would experience short-term, and possibly long-term, reductions in annual grazing fees as a result of reductions in the level of authorized grazing use during and following treatment. Existing linkages between grazing and ranch families in the Diamond and Kobeh Valleys, public lands and public lands management, and the Eureka community would continue, with short-term uncertainties regarding the timing and effectiveness of implementation, and potential long-term reduction in uncertainty regarding future grazing levels.

Social effects would include effects on ranchers, outfitters, individual recreationists, some business owners, local law enforcement and fire departments in Eureka County, and others affected directly and indirectly by changes in access, temporary closures, or other restrictions associated with the mechanical and fire treatments. These effects would manifest themselves in terms of concerns for social and economic well-being, increased satisfaction or dissatisfaction with public lands management by the Mount Lewis Field Office, and quality of life in general. Some individuals may also experience dissatisfaction with the types and locations of treatments proposed.

Treatments could occur within designated harvest units for woodland products, as discussed in Section 3.11. There is a large degree of overlap between harvest units and pinyon-juniper treatment areas. As a result of thinning treatments, the number of pinyon pine and juniper trees within harvest areas would be reduced, although woodland products would still be available over portions of treatment areas. Treatments would affect approximately 26 percent of the total designated woodland products harvest area during the life of the project. Removal of pinyon pines and juniper from these areas would eliminate or limit the ability to harvest woodland products there, although a large portion of

the potential treatment area would not be affected. Additionally, other nearby areas in the Battle Mountain District, which make up a substantial portion of the annual harvest area, would not be affected by treatments under the 3 Bars Project.

None of the action alternatives would cause substantive changes to existing patterns and trends in local population and demographic conditions in Eureka County. The employment opportunities associated with implementation of the restoration initiative would generally be temporary and unlikely to substantially affect migration to or from the region.

### ***Beneficial Effects***

The project would generate a short-term temporary local economic stimulus (e.g., purchases of materials and supplies, equipment-related rentals and leases, and retail and lodging expenditures) associated with BLM and contractor efforts and jobs. Locally, these benefits would accrue primarily to residents and businesses in southern Eureka County. At a national level, the short-term effects on employment and income would not necessarily represent benefits, but rather transfers funded through the BLM's budget process.

In addition, pinyon-juniper trees with potential for use as fence posts or for firewood could be gathered up and offered for sale to the public, providing additional benefits to residents, local businesses, and landowners, including farmers and ranchers. Potential long-term benefits associated with future increases in the level of authorized grazing use would be dependent on the successful achievement of the treatment objectives.

It is assumed that restoration treatments would meet, to varying degrees, the identified need for reducing the risk of wildfire and improving ecosystem health. Restoration treatments would reduce the amount and concentration of hazardous fuels. As a result, the number, size, and severity of wildfires would be reduced, as would the cost of wildfire suppression and the risk of loss of life and property. The reduction in risk of a large-scale reduction in wildfire would benefit nearby private property owners and facilities constructed on public land, including facilities for mining and infrastructure, reducing the risk of property damage and interference with operations. Treatments that improve ecosystem health could increase or improve the amount and quality of commercial and casual uses of public lands, improve or maintain market and non-market values of public land resources, and reduce the cost of operations on public lands (USDOJ BLM 2007c:4-124).

### **3.24.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

The BLM would treat on average about 127,000 acres annually using all available methods under Alternative A. The 2- to 4-fold increase in acres treated compared to Alternatives B and C, respectively, reflects the BLM's ability to use lower cost treatment methods under Alternative A. For example, the BLM would be able to use prescribed fire (approximately \$50 per acre) under this alternative, but not under Alternatives B and C. This is less than the costs associated with manual (cutting trees with a chainsaw, \$200-1,000 per acre) and mechanical (mowing or chaining, \$90 per acre; shredding, \$300-350 per acre) treatment methods (**Table 3-73**).

### ***Riparian Treatments***

Riparian treatments would be relatively expensive on a per-acre basis, and would be completed using construction equipment and substantial levels of labor to complete stream channel reconstruction, rock placement for channel stabilization, and to install fencing to prevent access to treated sites by livestock, wild horses, and wild ungulates. Based on stream restoration work done by NDOW, it could cost about \$250,000 per mile for stream channel restoration and plantings, and another \$5,000 per mile for temporary fencing (**Table 3-73**; Lee 2013). Trees could be

removed using chainsaws, and piled or used for stream restoration, at a cost of about \$550, or shredded at a cost of about \$300 to \$350 per acre. If trees are piled and burned, this would add an additional \$250 per acre. Prescribed fire could be used on a few acres annually, at a cost of about \$50 per acre.

**Adverse Effects**

Short-term adverse socioeconomic effects include additional management efforts for ranchers associated with grazing management and with the potential need to establish and maintain new water sources for livestock.

**TABLE 3-73**  
**Estimated Treatment Costs per Acre**

Treatment Method	Estimated Cost per Acre <sup>1</sup>
<b>Manual</b>	
Chainsaw and leave trees in place	\$200 <sup>2</sup>
Chainsaw, pile trees, and burn	\$600 - \$1,000 (\$800) <sup>2</sup>
Pipe rail fencing	\$9.39 per lineal foot (\$4,957 per mile) <sup>2</sup>
<b>Mechanical</b>	
Double chaining	\$90 <sup>2</sup>
Sagebrush mowing or chopping	\$90 <sup>2</sup>
Drill seeding	\$90 <sup>2</sup>
Shred trees and shrubs	\$300 - \$350 (\$325) <sup>2</sup>
Hand planting	\$600 <sup>2</sup>
<b>Fire</b>	
Prescribed fire	\$50 <sup>2</sup>
Pile burning	\$200- \$300 <sup>2</sup>
<b>Biological</b>	
Insect, pathogen, and nematode	\$80 - \$300 (\$150) <sup>3</sup>
Livestock	\$15 <sup>2</sup>

<sup>1</sup> Value in parentheses is the average value use to calculate costs of treatment methods.

<sup>2</sup> Source: Mount Lewis Field Office.

<sup>3</sup> Source: 17- States PEIS and PER (USDOJ BLM 2007b, c). Cost estimates from 2005.

**Beneficial Effects**

Stream channel restoration and bioengineering treatments would improve riparian habitat and stream water quality. These effects could benefit livestock, wild horses, and wild ungulates, to the benefit of ranchers and the public. Removal of pinyon-juniper near streams and within floodplains would help to reduce wildfire risk and associated wildfire suppression costs and the risk of loss of life and property.

**Aspen Treatments**

**Adverse Effects**

Aspen treatments would be relatively expensive on a per acre basis, in part due to their small size, use of some mechanized equipment, substantial levels of labor, and the costs associated with the distribution of pinyon-juniper

slash. It would cost about \$200 per acre to use chainsaws to stimulate root suckering, and about \$800 per acre to use chainsaws to remove pinyon-juniper to slow encroachment and create fire breaks. Some of the slash from pinyon-juniper removal would be left in place to stimulate aspen root suckering and would lessen treatment costs compared to pile burning of trees.

Short-term adverse socioeconomic effects include additional cost and effort for ranchers associated with grazing management due to the placement of exclosures, clearing areas in preparation for prescribed fires, and/or changes in season of use. Short-term reductions in the authorized level of grazing, and thus the potential for adverse effects on production and income from livestock, would be a function of the size of each treated area and the aggregate total of such areas treated within a specific allotment.

### **Beneficial Effects**

Short-term benefits would include seasonal employment opportunities with the BLM, contracting opportunities for local residents and contractors, and income potential for businesses that support construction for lodging, eating, and drinking establishments, and for specialized aerial application contractors. Removal of pinyon-juniper near roads associated with aspen stands would help to reduce wildfire risk and associated wildfire suppression costs and the risk of loss of life and property.

### ***Pinyon-juniper Treatments***

#### **Adverse Effects**

Short-term adverse socioeconomic effects include cost and management effort for ranchers associated with grazing management in preparation for prescribed fires and mechanized treatments, changes in rest/rotation/seasons of use, and possibly the need for provisions to relocate or provide alternative livestock water. Short-term reductions in the authorized level of grazing, and thus the potential for adverse effects on production and income from livestock, would be a function of the size of individual treated areas, and the aggregate total of such areas treated within a specific allotment.

#### **Beneficial Effects**

Short-term benefits would include seasonal employment opportunities with the BLM, contracting opportunities for local residents and contractors, and income potential for businesses that support construction for lodging, eating, and drinking establishments. Economic benefits would occur to the local community from pinyon-juniper treatments. Additional economic benefit could come from the sale of pinyon-juniper trees with commercial market potential for fence posts and firewood.

### ***Sagebrush Treatments***

#### **Adverse Effects**

Short-term adverse socioeconomic effects would include additional cost and effort for ranchers associated with grazing management in preparation for prescribed fires and mechanized treatments, installing temporary fencing, changes in rest/rotation/seasons of use, and possibly the need for provisions to relocate or provide alternative sources of water to livestock. Short-term reductions in the authorized level of grazing, and thus the potential for adverse

effects on production and income from livestock, would be a function of the size of individual treatment areas, and the aggregate total of such areas treated within a specific allotment.

### **Beneficial Effects**

Short-term benefits would include seasonal employment opportunities with the BLM, contracting opportunities for local residents and contractors, and income potential for businesses that support construction for lodging, eating, and drinking establishments. Additional economic benefit could come from the sale of pinyon-juniper trees with commercial market potential for fence posts and firewood.

#### **3.24.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

The cost per acre of treatment would be greater under Alternative B than under Alternative A. This reflects, in part, the higher expenditures associated with manual and mechanical treatments, which generally cost about 2 times or more per acre to implement than do fire treatments (**Table 3-73**).

Such outlays could increase the annual level of expenditures and the associated short-term employment and income and business revenue benefits associated with landscape restoration in the 3 Bars Project area. The level of financial and other resources devoted to implementation of actions under Alternative B would be minor relative to the overall economy in the 3 Bars Project area and surroundings.

Grazing permittees would experience short-term reductions in income in conjunction with the proposed treatments, particularly the pinyon-juniper and sagebrush treatments, which could necessitate reductions in herd size, the need to purchase additional private pasture or feed, and increases in management efforts and costs. The actual reductions would vary over time in response to the actual acreages treated in any given year. The BLM could experience reductions in grazing fee receipts as a result of the temporary reductions in grazing use, although the effects on grazing fee receipts are unknown due to uncertainties regarding the magnitude in reductions in grazing due to restoration efforts and future decisions regarding the allocation of available forage to competing uses.

Temporary and long-term social effects under Alternative B would be similar to those for Alternative A, although some individuals and stakeholder groups would be more or less satisfied by the preclusion of prescribed fire.

#### **3.24.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

The cost per acre of treatment would be greater under Alternative C than under Alternatives A and B. This reflects, in part, the higher expenditures associated with manual and classical biological control treatments, which generally cost 3 to 5 times or more per acre to implement than do fire and mechanical treatments (**Table 3-73**).

Due to the reduction in acres treated, the temporary reductions in grazing use associated with treatments would be lower, and the potential for other reductions due to declining rangeland health would persist. The actual reductions would vary over time in response to the actual acreages treated in any given year. The BLM would experience reductions in grazing fee receipts as a result of the temporary reductions in grazing use, although the effects on grazing fee receipts are unknown due to uncertainties regarding the magnitude in reductions in grazing due to restoration efforts and future decisions regarding the allocation of available forage to competing uses.

Over the long term, treatments would do little to slow the declines in rangeland health and promote a stabilization of future grazing levels and support for rural lifestyles. Treatments would do little to improve habitat for fish and

wildlife, conditions of woodland stands to the benefit of pine nut production and other woodland products, and aesthetic qualities of the landscape for the recreational and commercial resource users.

### **3.24.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct effects on social and economic values from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM would not create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation, especially cheatgrass; restore fire as an integral part of the ecosystem; or reduce the risk of a large-scale wildfire that could be detrimental to public resources. Treatments to improve 3 Bars ecosystem health and increase or improve the amount and quality of commercial and casual uses of public lands, improve or maintain market and non-market values of public land resources, and reduce the cost of operations on public lands, would not occur under this alternative.

### **3.24.3.4 Cumulative Effects**

The CESA for social and economic cumulative effects is the southern portion of Eureka County, from the BLM Elko District boundary to the Nye County line, and includes the town of Eureka (**Figure 3-1**). The area is approximately 1,692,238 acres and approximately 86 percent of the area is administered by the BLM, 9 percent is administered by the Forest Service, and 5 percent is privately owned. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

#### **3.24.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

Agriculture, land development, and mineral, oil, gas, and hydrothermal exploration and development could affect lands within the CESA in the reasonably foreseeable future, including land sales, new croplands, roads, and rights-of-way for power and telephone lines. These actions would provide economic benefits to the local community, but would also result in loss of fish and wildlife habitat, and possibly recreational opportunities.

The Mount Hope Project would directly disturb approximately 8,300 acres over the long term and another 6,000 acres would be fenced to exclude the public and livestock. The proposed mine project would have economic costs and benefits. Economic costs would include the loss of 32 AUMs in perpetuity due to construction of the mine pit. In addition, another 781 AUMs would be lost for approximately 70 years due to the mine project. The total economic cost from these reductions is estimated at \$56,560 annually during the 70 year period (\$69.57 multiplied by 813 AUMs), and \$2,226 in perpetuity thereafter, all other things remaining the same. More than 70,000 AUMs of livestock grazing are supported annually on public lands in the 3 Bars Project area and nearby areas of the CESA around the Mount Hope Project area. Consequently, the loss of grazing associated with the mine project would represent about 1 percent of the AUMS in the surrounding area and less than 1 percent of total grazing levels within Eureka County. In addition, there could be some impact to property values from the loss of AUMs, but this loss is difficult to quantify. While this impact may not be significant to the ranching community, the impact may be important to individual ranch operations. This loss of income was considered potentially significant in the Mount Hope Project EIS (USDO IBLM 2012c:3-421 to 3-422). In addition, there would be losses of AUMs associated with the 3 Bars Project, although annual losses would vary depending upon the amount of acreage treated, and where. These losses would occur at the same time as those for the Mount Hope Project, and would be a cumulative effect.

Construction employment for the Mount Hope Project would peak at about 600 workers, with about 455 workers needed for mine operations. There would be a similar level of indirect employment as a result of the mine project. Thus, the number of workers within Eureka County could increase by 50 percent from current levels due to the mine project. Annual mine payroll is projected to be \$33.4 million at full production, about half of which is projected to accrue to Eureka County residents. The increase in income would be equal to about 28 percent of the income realized by local residents in 2008. Mining taxes over the life of the project are estimated at \$384 million, while sales and use tax revenues would total about \$63.9 million during construction through year 10 of operation. Additional information on mine-related revenues and costs, and their effects on housing, social conditions, and the affected public, is available in the Mount Hope Project EIS (USDO IBLM 2012c:Section 3.17).

3 Bars Project treatments would have little impact on population growth, as most work would be done by local or outside contractors for short periods each year. The Mount Hope Project, however, would significantly impact the local population. The population of southern Eureka County is expected to increase by about 50 percent during the construction phase, and decrease slightly from this during mine operations (USDO IBLM 2012c:3-540 to 3-541).

Public and private lands in the CESA are used for a variety of recreational uses. It is expected that recreation activity would reflect population growth in Eureka County over the life of the project.

Since 1985, wildfires have burned about 7,000 acres annually in the 3 Bars Project Area CESA, at an estimated annual cost of \$1,890,000, including costs for fire suppression and burned area rehabilitation (USDO IBLM 2007c:4-131). Wildfires degrade fish and wildlife habitat, and may destroy human property, at substantial cost to recreation users and landowners. In addition, it is difficult to restore some burned lands, due to their remote location and uneven terrain, and noxious weeds and other invasive non-native vegetation often out-compete and displace native vegetation, to the long-term detriment of resources used by the public. Based on past acreage burned by wildfires, approximately 140,000 would burn over the next 20 years in the CESA, at an estimated cost of \$37.8 million for fire suppression and burned area rehabilitation costs.

To reduce the risk of wildfire and improve 3 Bars ecosystem health, the BLM proposes to treat 127,000 acres under the 3 Bar Project, and about an additional 15,000 acres under current and reasonably foreseeable future authorizations within the CESA, including in high to very high wildfire risk areas within the CESA. These include treatments of noxious weeds and other invasive non-native vegetation on up to about 1,000 acres annually within the CESA. New infestations would typically be found in newly burned or disturbed areas, and in areas where livestock and wild horses congregate. Herbicide treatments generally cost about \$50 per acre or less, so the economic benefits would be negligible. Treatments that remove hazardous fuels, including decadent and diseased pinyon-juniper and cheatgrass and other non-native vegetation, and construction of fire breaks, would be expected to reduce the risk of catastrophic wildfire and its associated costs on about 8 percent of the CESA.

3 Bars Project and other BLM actions within the CESA would have little effect on the social and economic conditions within the CESA. The growth in economic activity and social trends, and stakeholder perceptions and concerns regarding various issues related to rangeland health, including grazing use, the allocation of forage for wildlife, wild horses, and grazing, would generally be greatest under Alternative A.

### **3.24.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

The effects from non-3 Bars Project reasonably foreseeable future actions on social and economic values would be similar to those described under Alternative A. The social and economic benefits from actions under Alternative B

would be limited in scale compared to those from the Mount Hope Project and other proposed infrastructure development projects and agricultural in the reasonably foreseeable future.

The BLM would conduct treatments on approximately 63,000 acres on the 3 Bars Project area, and about another 15,000 acres on other portions of the CESA, or collectively about 4 percent of the CESA, to reduce hazardous fuels and improve fish and wildlife habitat. The types of risks and benefits to social and economic resources under Alternative B would be about half those for Alternative A within the CESA. 3 Bars Project and other BLM actions within the CESA would have negligible effect on the social and economic conditions within the CESA. The growth in economic activity and social trends, and stakeholder perceptions and concerns regarding various issues related to rangeland health, including grazing use, the allocation of forage for wildlife, wild horses, and grazing, would generally be less under Alternative B than under Alternative A.

### **3.24.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

The effects from non-3 Bars Project reasonably foreseeable future actions on social and economic values would be similar to those described under Alternative A. The types of risks and benefits to social and economic resources under Alternative C would be similar to those for Alternative A within the CESA.

The BLM would conduct treatments on approximately 32,000 acres on the 3 Bars Project area, and about another 15,000 acres on other portions of the CESA, or collectively about 2 percent of the CESA, to reduce hazardous fuels and improve fish and wildlife habitat. The types of risks and benefits to social and economic resources under Alternative C would be about one-fourth those for Alternative A within the CESA. 3 Bars Project and other BLM actions within the CESA would have negligible effect on the social and economic conditions within the CESA. The growth in economic activity and social trends, and stakeholder perceptions and concerns regarding various issues related to rangeland health, including grazing use, the allocation of forage for wildlife, wild horses, and grazing, would generally be less under Alternative C than under Alternatives A and B.

### **3.24.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on social and economic values would be similar to those described under Alternative A. There would be no cumulative effects on social and economic values and environmental justice from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildfire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually). Thus, benefits to social and economic values and environmental justice would be negligible and least among the alternatives.

### **3.24.3.5 Unavoidable Adverse Effects**

Implementation of the 3 Bars Project would result in short-term adverse effects on livestock grazing, outdoor recreation, and wildfire risk, which would have economic and social manifestations affecting individual ranchers and the local economy. The economic effects would include reductions in ranch income, higher management costs for ranchers, and adverse effects on local businesses and tax revenues. Adverse social effects could include changes in recreation experience (quality of life) and stress for individuals and households engaged in the ranching

industry. Closures of treatment areas for extended periods of time could temporarily affect some recreational uses and commercial activities.

### **3.24.3.6 Relationship between Local Short-term Uses and Long-term Productivity**

Restoration treatments would adversely affect use of treated areas over the short term. Any restrictions on the use of treated lands could cause social and economic hardship to affected parties. However, individuals and industries involved in the restoration of native ecosystems on public lands would benefit.

Over the long term, most users of public lands, and those with interests near public lands, would likely benefit. An important goal of treatments is to restore ecosystem health so that public lands can provide sustainable and predictable products and services. In addition, treatments would reduce risks associated with large-scale wildfire, improve ecosystem health to the benefit of recreational and other public land users, and emphasize employment- and income-producing management activities near those communities most in need of economic support and stimulus. The enhancement in long-term productivity of public lands and in the ability of the land to provide for social and economic needs would reflect not only the success or failure of treatments, but also the influence of outside forces (e.g., economy, lifestyle changes, climate) over which the BLM and other federal agencies have no control (USDOI BLM 2007b:4-250).

### **3.24.3.7 Irreversible and Irretrievable Commitment of Resources**

Implementation of the 3 Bars Landscape Project would require the commitment of natural, human, engineered, and monetary resources, as well as the resource commitment associated with subsequent changes to existing natural resources (e.g., existing pinyon-juniper stands). Once completed, most of the resource investments would be irretrievable and their use for this project would preclude or foreclose their use for other purposes. The latter characteristic serves to make these resource commitments largely irreversible from a social and economic perspective. However, because of the environmental restoration objectives associated with the landscape restoration initiative, the long-term environmental and potential social and economic effects of the resource commitments are viewed as positive.

### **3.24.3.8 Significance of the Effects under the Alternatives**

Based on the criteria used to determine if social and economic values and environmental justice effects are significant, none of the alternatives would have significant direct, indirect, or cumulative effects.

## **3.24.4 Mitigation**

No mitigation measures are proposed for social and economic values and environmental justice effects.

## **3.25 Human Health and Safety**

### **3.25.1 Regulatory Framework**

#### **3.25.1.1 Federal Laws**

The BLM must comply with laws and regulations that are protective of human health and safety. Numerous federal statutes, including the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, and the Resource

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Conservation and Recovery Act have been established to regulate actions that may directly pose human health risks through degradation of air and water quality and land pollution.

Under the Clean Air Act, the USEPA sets limits on air pollution and certain air pollutants, including sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter. An interim policy to address public health and welfare impacts caused by wildland and prescribed fires that are managed to achieve resource benefits was adopted by the USEPA in May 1998. Visibility impairment and ambient air quality worse than the national ambient air quality standards for particulate matter are used as the principal indicators of public welfare impacts. The USEPA policy is interim until further recommendations from the U.S. Department of Agriculture's Air Quality Task Force and final rules for implementing USEPA's Regional Haze Program are adopted.

The Clean Water Act regulates discharges of pollutants and sets water quality standards for all contaminants in surface waters of the U.S. The Safe Drinking Water Act was established to protect the quality of drinking water in the U.S., including all surface or underground waters sources that may potentially be designated for drinking use.

The generation, transportation, treatment, storage, and disposal of hazardous waste is regulated by the Resource Conservation and Recovery Act, as administered by the USEPA. In the case of spills of hazardous materials, requirements for agency notification and clean-up procedures are regulated under the Comprehensive Environmental Response, Compensation, and Liability Act also administered by the USEPA.

Under the Occupational Safety and Health Act (OSHA) of 1970, employers are responsible for providing a safe and healthful workplace. In addition to complying with all applicable OSHA standards, employers must also comply with the General Duty Clause of the OSHA, which requires employers to keep their workplace free of serious recognized hazards.

### **3.25.1.2 Nevada Laws**

Nevada State regulations related to water and to air are outlined in Nevada Administrative Code and Nevada Revised Statutes 100-955 and 445B 100-445 B.845, respectively.

The State of Nevada's Division of Environmental Protection is authorized to implement air pollution control requirements in Eureka County. The State of Nevada's standards for ambient air quality differ from the USEPA's established National Ambient Air Quality Standards for criteria pollutants including the notable addition of standards for carbon monoxide at elevations at or greater than 5,000 feet amsl. In order to meet the USEPA's interim air quality policy on wildland and prescribed burns, the Bureau of Air Quality Planning's Mobile, Smoke and Area Sources Branch coordinates and facilitates the management of prescribed outdoor burning in Nevada.

Nevada's laws regarding occupational diseases and occupational safety and health are set forth in Nevada Administrative Code and Nevada Revised Statutes § 617 and 618 respectively.

## **3.25.2 Affected Environment**

### **3.25.2.1 Study Methods and Study Area**

Background information pertinent to human health issues for the 3 Bars Project area has been compiled from various public agencies and other data sources, including the State of Nevada Health Division, U.S. Census Bureau, U.S. Department of Labor, American Cancer Society, and the National Centers for Disease Control and Prevention, Injury

Prevention and Control, and Health Statistics. Data on motor vehicle injuries and death was obtained from the U.S. Department of Transportation National Highway Traffic Safety Administration.

Information about occupational health issues and risk was obtained from the State of Nevada and National Institute for Occupational Safety and Health Administration and the Bureau of Labor Statistics. Information pertinent to wildfires and associated health issues was obtained from the USEPA, the National Interagency Fire Center, the Western Greater Basin Coordination Center, the National Wildfire Coordinating Group, the U.S. Fire Administration, the Nevada BLM, and the State of Nevada Division of Environmental Protection Bureau of Air Quality Planning.

The study area for direct, indirect, and cumulative human health and safety effects is the southern portion of Eureka County, from the BLM Elko District boundary to the Nye County line (**Figure 3-1**).

**3.25.2.2 Health Risks**

The leading causes of deaths in Nevada and Eureka County are presented in **Table 3-74**. The most common causes of death in Nevada include heart disease, cancer, chronic lower respiratory disease, accidents, cerebrovascular diseases (strokes), and suicide. The four leading causes of death in Eureka County are heart disease, cancer, accidents, and respiratory disease. Strokes and intentional harm (suicide) are equally ranked as the fifth leading cause of death.

Eureka County has higher than average mortality rates for heart disease and accidents and slightly higher than average incidences of suicide, compared to averages compiled for the entire state of Nevada. Eureka County has low to average mortality rates for cancer, respiratory and cerebrovascular (stroke) diseases.

**TABLE 3-74**

**Leading Causes of Death in Nevada and Eureka County, 2000 to 2008**

Cause of Death	Percent of Total Deaths	
	Eureka County	Nevada
Heart Disease	40	25.7
Cancer	19	22.6
Chronic Lower Respiratory Disease	5	6.4
Accidents/Injuries	9	5.3
Cerebrovascular Disease (Stroke)	3	5.2
Intentional Harm (Suicide)	3	2.5
All other causes of death	21	32.3

Source: Nevada State Health Division (2011a).

**3.25.2.2.1 Risks from Diseases**

As the nation’s leading cause of death, heart disease results in approximately one in every four deaths (26 percent) in the U.S. Lifestyle and certain medical conditions, such as high cholesterol and blood pressure levels, diabetes, smoking, obesity, physical inactivity, poor nutrition, and alcohol use contribute to increased risk of heart disease. Heart disease is also the leading cause of death for both men and women in Eureka County. Forty percent of the total deaths in Eureka County between 2000 and 2007 were attributed to coronary heart disease, which is 1.5 times higher than the mortality rate for heart disease in Nevada and the U.S.

Cancer is the second leading cause of death in the United States, Nevada, and Eureka County. According to the American Cancer Society, the probability of developing cancer during a person's life is 1 in 2 for men and 1 in 3 for women. There are many causes of cancer development, including lifestyle conditions (smoking, obesity, and poor nutrition), as well as occupational exposure to carcinogens, environmental contaminants, and substances in food. In the U.S., one-third of all cancers are attributed to tobacco smoking. Occupational exposures were previously estimated to account for approximately 4 percent of cancer deaths in the U.S. Further studies indicate that the burden of occupational cancer is actually higher, and some workers have a proportional increase in mortality before age 65, compared to those without occupational exposures.

### **3.25.2.2.2 Risks from Injuries**

In Nevada, injury is a leading cause of death for children, teens, and young adults. For older adults, aged 45 years and greater, other medical conditions, such as heart disease and cancer, result in more deaths than injury (Nevada State Health Division 2011b).

Motor vehicle crashes are the leading cause of injury in Nevada, and account for more than 46 percent of all unintentional injury deaths in the state (Nevada Health Division 2005). More than 53 percent of reported trauma injuries in Nevada were attributed to motor vehicle, motorcycle, and pedal cycle crashes (Nevada Health Division 2005).

Unintentional falls are the second leading cause of injury in Nevada, and rank among the most serious injuries facing the elderly. Falls represented 12 percent of all reported trauma injuries in the Nevada from 2000 to 2002. Falls are the second leading cause of occupational injury-related fatalities, after transportation-related deaths (Chino et. al 2010).

Other causes of injury include stabbings, assaults, and fights, pedestrian injuries (11 percent of reported injuries), gunshot wounds (7 percent), and all other injuries (7 percent; Nevada State Health Division 2005). Gunshot wounds account for the second highest number of unintentional injury deaths in the State.

### **3.25.2.2.3 Motor Vehicle Mortality**

Motor vehicle crashes are the leading cause of death and injury for Nevadans aged 5 to 34 years. In 2006, 62,225 motor vehicle crashes resulted in 32,669 injuries and 423 deaths. Most motor vehicle accidents occur during daylight hours in clear weather conditions. More males than females are injured in motor vehicle crashes, and in 2006, alcohol was involved in 10 percent of non-fatal and 30 percent of fatal motor vehicle crashes in 2006 (Chino et. al 2010).

Rural communities are at a much higher risk for motor vehicle injury and death. Higher vehicle speeds, fewer traffic control devices, and/or longer distances to emergency medical care facilities may factor into the higher motor vehicle fatalities rates in rural areas. In Nevada, Eureka County has the second highest rate of motor vehicle fatalities, at 47.2 per 100,000 people (age adjusted for the combined years 2000 through 2008; U.S. Department of Transportation 2010a). This rate is more than triple the median rate of 17.1 for all U.S. counties, as estimated by the U.S. Department of Transportation National Highway Traffic Safety Administration.

### **3.25.2.2.4 Occupational Fatalities and Injury**

An occupational fatality or injury is death or bodily damage, respectively, resulting from working. The fatality or injury may result from a single event (e.g., a fall from a building), or it may represent a physical injury which results from repeated use or exposure.

In 2010, the highest number of fatal work injuries in the U.S. occurred in the transportation and material moving occupations (U.S. Department of Labor Bureau of Labor Statistics 2011a, b). However the highest reported fatal work injury rate (25.3 per 100,000 full-time equivalent workers) was for the farming, fishing, and forestry occupation groups. The transportation and construction industries had the second and third highest fatal work injury rates (14.2 and 11.5, respectively).

During the period 2003 to 2008, there were 324 occupational injury-related deaths, primarily involving males, in Nevada (Chino et al. 2010). During this period, Nevada's occupational injury fatality rate was 1.8 per 100,000 people, slightly higher than U.S. rate of 1.4 per 100,000 people. In 2010, Nevada's non-fatal occupational injury and illness total recordable case incidence rate was 3.8 per 100 full-time workers in private industries and state and local governments, which was slightly higher than the national rate of 3.5 (U.S. Department of Labor Bureau of Labor Statistics 2011a, b).

Forty-two percent of all occupational injury-related fatalities in Nevada result from transportation incidents. Construction and mining injuries involving falls represent 20 percent of all occupational fatalities. Contact with equipment is also common, while occupational injury fatalities resulting from violence and exposure to harmful substances or environments occur less frequently (Chino et al. 2010). Over 90 percent of non-fatal occupational cases are attributed to injuries. Five percent are attributed to illnesses associated with repetitive motion cases, systemic diseases and disorders, skin diseases, hearing loss, respiratory conditions, and poisoning (U.S. Department of Labor 2011).

In 2010, the non-fatal occupational injury rate of 4.5 reported for the agricultural, forestry, fishing, and hunting industry was higher than the national rate of 3.5 per 100 workers. However the rate of non-fatal incidents resulting from crop and animal production and other support activities for agricultural and forestry was greater than the rate of those directly associated with natural resources and mining, forestry and logging.

Within the BLM, the national injury rate (total accidents and illnesses) for 2009 to 2011 was 8.4 per 100 workers, which is the same as the injury rate for the Nevada BLM during the same period. Within the Battle Mountain District, the injury rate was lower, at 5.3. Lost time injury rates in the Battle Mountain District for 2009 to 2011 averaged 1.64, compared to 2.4 for the Nevada BLM and 2.1 for the BLM nationally (USDOJ BLM 2012q).

From 2009 to 2011, the most common types of injuries in the BLM Battle Mountain District were falls, followed by slips/twists/trips and weather exposure. For the BLM statewide, the most common injuries were unclassified, slips/twists/trips, manual labor, and equipment (USDOJ BLM 2012q). Hazards associated with poisonous plants and insects, dangerous wildlife, falling objects, including trees, protruding branches and twigs, and other obstacles on the ground that may cause slips and falls may be encountered by workers during BLM activities. Extreme and adverse weather conditions may lead to workers suffering heat-related illness or hypothermia.

The operation of tools and equipment, such as chainsaws and mowers, may present inherent risks, such as exposure to hazardous fuels and lubricants used in the mechanized equipment, sharp tool edges, and loud noise that could result in hearing damage to workers. Nearby workers and the public can be struck by flying debris around some equipment. Equipment operators could also be injured from improperly operating or losing control of the machinery on steep or slippery terrain. Some injuries and fatalities have occurred during use of all-terrain vehicles.

Injuries can vary from minor cuts, sprains, bruises, and abrasions to major arterial bleeding, compound bone fractures, serious brain concussions, and death. Manual and mechanical methods treatment methods also present potential

ergonomic hazards related to lifting and carrying equipment, and when pulling vegetation. Improper body mechanics may lead to muscular-skeletal injuries. Some chronic disorders associated with repeated trauma are directly linked to the nature of the work. For example, a large proportion of workers regularly using hand-held power tools, such as chippers, grinders, chainsaws and jackhammers, often suffer from the effects of vibration syndrome, which causes blanching and reduced sensitivity in the fingers.

### **3.25.2.2.5 Risks from Fire**

Wildfires cause the loss of life and property. According to compiled data reported by the National Interagency Coordination Center, 74,000+ wildfires burned more than 8,700,000 acres in the U.S. in 2011 (National Interagency Coordination Center 2011). More than 86 percent of all reported fires in the nation were caused by humans.

According to the U.S. Fire Administration, 81 U.S. firefighters died while on duty in 2010. Ten on-duty firefighters died in association with wildfires, the lowest number of annual firefighters associated with wildfires since 1996. Heart attacks were responsible for the deaths of 48 firefighters (59 percent) in 2011. Fifty-four percent of all firefighter fatalities occurred while performing emergency duties. Only three firefighters were killed in vehicle collisions.

For the past decade, the leading cause of all USDOJ/USDA wildland firefighter fatalities has been aviation accidents (50 percent; National Wildfire Coordinating Group 2010). Additional leading causes of wildland firefighter fatalities include burnovers/entrapments (20 percent), driving accidents (13 percent), heart attacks (7 percent), and hazard trees (6 percent).

Smoke from wildfires is a mixture of gases that may cause irritation to throat and eyes. Although the main components of smoke are water vapor and carbon dioxide, other pollutants and fine particulate matter are also present. Fine particulate matter is the primary human health concern for smoke management. Because of its small size (similar to a pollen grain) it can easily penetrate deep into lung tissues, causing severe respiratory and cardiovascular disease.

The average exposure to smoke and its most likely hazards—acrolein, benzene, carbon monoxide, formaldehyde and PM<sub>2.5</sub>—among 200 firefighters at prescribed burns in the Pacific Northwest was studied by the U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station and Radian Corporation between 1991 and 1994. The study found that up to 5 percent of the exposures to respiratory irritants (breathable particles, formaldehyde and acrolein) and 2 percent of the carbon monoxide exposures exceeded permissible exposure limits set by the OSHA. Average exposures were highest during line holding, line supervision, and direct attack activities during the fire (Reinhardt et al. 2000). In most cases, the unexposed time spent traveling and setting up the prescribed burn reduced the overall work shift exposure to levels below the permissible exposure limits. Benzene exposure was found to not be significant.

Persons with heart or lung disease may be more susceptible to irritation from exposure to smoke. Particulate matter in smoke can also significantly reduce visibility on highways by scattering and absorbing light, thus compromising safe driving conditions.

### **3.25.3 Environmental Consequences**

#### **3.25.3.1 Key Issues of Concern Considered during Evaluation of the Environmental Consequences**

No issues of concern pertaining to human health and safety were identified during scoping, except for treatments using herbicides. The BLM does not propose to use herbicides under the alternatives.

#### **3.25.3.2 Significance Criteria**

The following would have a significant adverse effect on human health and safety:

- Loss of life, or moderate to severe injuries which may require hospitalization.
- Exposure of workers or the public to chemicals, contaminants, or smoke at levels that would cause adverse health effects.
- Violation of any laws or regulations implemented to protect worker or public health and safety.

#### **3.25.3.3 Direct and Indirect Effects**

##### **3.25.3.3.1 Direct and Indirect Effects Common to All Action Alternatives**

This analysis assumes that the SOPs, which have been designed expressly to protect worker and public health and safety, would be effective at preventing most accidents and injuries (see **Appendix C**). However, it is also assumed that some injuries could still occur, particularly if workers do not follow the SOPs closely.

Under all alternatives, and for all treatment methods, workers conducting the treatments could be at risk for adverse effects from walking on uneven ground, on broken terrain, and in dense vegetation. Other potential adverse effects associated with the proposed treatments would vary by treatment method, as there are human health risks unique to each method.

Treatments that remove noxious and poisonous weeds and other harmful vegetation near public use sites and facilities would benefit public health and welfare and would involve all treatment methods. However, all treatments that reduce the risk of catastrophic wildfire on public lands would have similar benefits to human health and safety. These benefits are discussed in the 17-States PER (USDOI BLM 2007c:4-139). Benefits would include reduced threats to public health and safety, as well as to air quality, firefighters, and property.

##### **3.25.3.3.2 Direct and Indirect Effects under Alternative A (Preferred Alternative)**

###### ***Riparian Treatments***

###### **Adverse Effects**

Manual treatments utilized in riparian zones (installation of fencing and plantings) should not adversely affect public health or physical well being, as appropriate safety zones around work areas would prevent public access. The greatest risks to human health and safety from manual treatments would be to workers performing the treatments. These risks are discussed in the 17-States PER (USDOI BLM 2007c:4-137). Risks include exposure to plant irritants,

biting and sucking insects, poisonous snakes, physical exertion, falls, use of hand tools, and noise and exhaust from motorized equipment. The SOPs designed to protect worker health and safety would minimize risks for severe injuries, as well as most minor injuries. Appropriate first aid treatment on site would also help to minimize the risk of infection or other long-term effects from minor injuries. Provided SOPs are followed, no laws or regulations implemented to protect worker or public health or safety would be violated, and the risk of injuries resulting in loss of life or hospitalization would be minimized. Nonetheless, it is possible that moderate to severe injuries could result from use of hand tools such as chainsaws.

Similar to manual treatments, the greatest health and safety risks associated with mechanical treatments would be to workers performing the treatments, rather than to the public. The public would be at a slight risk of injury from flying debris, but these risks would be minimized by maintaining safety buffers around mechanical treatment areas. Risks to workers from mechanical treatments are discussed in the 17-States PER (USDOI BLM 2007c:4-137). These risks include injuries associated with use of heavy equipment, contact with sharp cutting blades, exposure to rocks and other flying debris, loss of control of equipment, high noise levels, and vehicle exhaust. Risks would be greatest for project groups with the most extensive mechanical treatment component, involving streambank earthworks and pinyon-juniper removal (Frazier Creek group, Roberts Creek group, and Henderson above Vinini Unit). For the Denay Pond group, risks would be lower, since only fence installation would occur. For all mechanical treatments, risks would be minimized through the use of appropriate SOPs.

The potential effects associated with use of prescribed fire are discussed in the 17-States PER USDOI BLM (2007c:4-135). Workers and the public would be at risk for fatality or injury as a result of the fire itself, from inhalation exposure from combustion products. Standard Operating Procedures would be implemented to protect workers and the public from fire-related injuries. Smoke inhalation could result in health risks, particularly for those exposed to smoke repeatedly over a long period, such as firefighters. Of greatest toxicological concern are polynuclear aromatic hydrocarbons, which contain multiple carcinogenic materials. An human health risk assessment was completed in 2007 (and also used for the 17-States PEIS and PER) estimated that cancer risks to workers and the public from polynuclear aromatic hydrocarbons found in wood smoke are very low (USDOI BLM 2007b:4-136).

In riparian enhancement projects, fires could be used in small areas. Roberts Creek receives fairly high use in terms of fishing, hunting, and camping, and other riparian zones are used for recreation as well. Additionally, the Roberts Mountains WSA is located adjacent to the Roberts Creek riparian treatment area. Recreational users near riparian treatment sites could be exposed to smoke from prescribed fire. Advance notice to the public and posting treatment areas would warn recreational users about potential smoke related impacts so that they could avoid use of nearby recreation sites.

Fires can affect public safety by reducing visibility and create hazardous driving conditions on nearby roads. The Frazier Creek, Garden Spring, and Trail Spring units, in particular, are located along State Route 278, where risks to motorists from reduced visibility could be high. Other small, lesser-used roads occur adjacent to other riparian treatment areas. When there are potential visibility issues on public roadways, the BLM utilizes traffic control measures and road signing, as appropriate, to reduce safety risks to motorists (USDOI BLM 2002b).

To limit air quality impacts and the associated potential human health effects from smoke inhalation, the BLM would implement site-specific fire prescriptions to minimize impacts to air quality. These prescriptions could include timing the fire to minimize smoke, procedures to limit the smoldering stage, and procedures to reduce fire intensity (USDOI BLM 2002b). Most risks associated with prescribed fire would be offset by reductions in the incidence of wildfires, which would be expected to release more smoke and affect people over a larger geographic area than prescribed fires.

**Beneficial Effects**

Treatments would help reduce the risks to human health from wildfire smoke and fire. Additionally, treatments that improve the physical and ecological processes of creeks and that improve water quality in water bodies designated for beneficial uses (such as fisheries, irrigation, and drinking water) would be likely to benefit human health by providing cleaner water for drinking and for aquatic species that are consumed by the public.

***Aspen Management***

Aspen treatments would consist of manual and mechanical methods, prescribed fires, and exclosures/changes in livestock use. Risks associated with creating exclosures or changing livestock use would be minimal, provided SOPs were followed. The initial acreage of aspen identified for treatment is low (451 acres over the life of the project), and only a few acres would be treated annually using prescribed fire. Therefore, associated health and safety risks initially would be localized to very small areas in the Roberts Mountain, JD, 3 Bars, and Santa Fe allotments.

***Pinyon-juniper Management*****Adverse Effects**

The number of people potentially exposed to treatment projects could be relatively high for pinyon-juniper enhancement projects, given the size of treatments and the geographic area covered. Risks to workers and the public from treatments in these areas would be similar to those described for aspen enhancement projects. However, wildland fire for resource benefit would be used in addition to prescribed fire, which does not allow the same degree of pre-planning to reduce smoke impacts as prescribed fire. The BLM would measure air parameters and take appropriate action to reduce these emissions if these parameters are exceeded. Fires near roadways could affect human health and safety by reducing driving visibility and increasing the risk of an accident. The Sulphur Spring Wildfire Management Unit (62,000 acres) and the Whistler Unit (23,000 acres), in particular, are adjacent to State Route 278 and U.S. Highway 50, where the risks to motorists from reduced visibility would likely be greatest. Prescribed fires in the Whistler Unit would generally be 5 to 50 acres in size. Wildland fires managed for resource benefit in the Sulphur Spring Wildfire Management Unit would be 1,000 acres or less. When there are potential visibility issues on public roadways, the BLM utilizes traffic control measures and road signing, as appropriate, to reduce safety risks to motorists (USDOJ BLM 2002b).

**Beneficial Effects**

Much of the focus of pinyon-juniper management is to reduce the risk of catastrophic wildfire. Creating and enhancing fuel breaks in pinyon-juniper stands associated with the Atlas Unit group would break up of the continuity of fuels, moderate fire behavior, and reduce the risk of loss of life and property from a catastrophic wildfire. On the Lower Pete Hanson, Cottonwood/Meadow Canyon, Dry Canyon, Three Bars Ranch, Tonkin North, and Whistler units, the focus of treatments would be on hazardous fuels reduction using manual and mechanical methods and prescribed fire. Much of the west slope of Roberts Mountains has not experienced a large-scale wildfire in over 100 years. These units have been identified as having high to very high risk of catastrophic wildfire, or in the case of the Tonkin North, Lower Pete Hanson, and Whistler units, very high to extreme wildfire risk (**Figure 3-37**). The 3 Bars Ranch is at the base of Roberts Mountains.

Pathogens and pests, including mistletoe, have led to unhealthy pinyon-juniper stands in the Tonkin North and South units and a build-up of hazardous fuels. The BLM proposes to remove up to half of the trees using manual and

mechanical means and prescribed fire. These projects would enhance the health and resilience of pinyon-juniper woodlands and reduce the amount of hazardous fuels and wildfire risk.

The BLM would restore fire as an integral part of the ecosystem, improve species diversity, and reduce hazardous fuels on the Sulphur Spring Wildfire Management Unit by using wildland fire for resource benefit. The BLM would allow fire to burn on about 20 to 40 percent of the area. Several wildfires have occurred in this area in recent years due to dense fuel accumulations and pinyon-juniper cover. As discussed above, the Sulphur Spring Wildfire Management Unit is near State Route 278.

Over the long term, hazardous fuels reduction and other actions to reduce wildfire occurrence would lead to substantial benefits as far as reducing human exposure to smoke over the long term. Unplanned or unwanted fires, such as catastrophic wildfires, can pose serious threats to public health and safety, as well as to air quality. Because these fires are uncontrolled, they can pose significant threats to the safety of firefighters and the general public and destroy property. The intense or extended periods of smoke associated with uncontrolled wildfires can cause serious health problems and decrease visibility. Wildfires also cause the loss of life and property.

Prescribed fires and fire use for resource benefit, on the other hand, are used to restore natural fire cycles, reduce the buildup of hazardous fuels, and restore native vegetation and natural ecosystem processes. Scheduling burning during favorable weather conditions and controlling the amount of fuel and acreage burned can minimize emissions and adverse effects of smoke on public health and the environment. As part of this effort to manage smoke and its health effects, the BLM would use alternative treatments to fire, including mechanical and manual treatments, and reduce fuel levels before burning. Mechanical thinning and biomass utilization are part of the suite of treatments the BLM would use in areas where fire presents an unacceptable risk (USDOJ BLM 2007c:4-13).

### *Sagebrush Management*

#### **Adverse Effects**

Human health and safety risks associated with biological control would be minimal, and are discussed in the 17-States PER (USDOJ BLM 2007c 4-138). They primarily include physical injuries to workers from livestock, and injuries associated with use of equipment to release biological control agents at treatment sites. Risks for these injuries would be reduced by following standard SOPs, such as wearing appropriate personal protective equipment and using equipment that is maintained properly.

While prescribed fire would be used to reduce herbaceous competition, its use would be limited to mountain big sagebrush communities because of the high fire risk to greater sage-grouse in Wyoming big sagebrush habitats. The more predominant health and safety risk factors would be to workers using mechanical equipment.

#### **Beneficial Effects**

Much of the focus of pinyon-juniper management is to reduce the risk of catastrophic wildfire. Treatments to reduce the occurrence of cheatgrass and other noxious weeds and invasive non-native vegetation on the Table Mountain, West Simpson, and Whistler Sage units, and create fire and fuel breaks, should reduce this risk.

**3.25.3.3.3 Direct and Indirect Effects under Alternative B (No Fire Use Alternative)**

The human health and safety risks associated with exposure to smoke from prescribed fire would not be present under this alternative. The acreage of land treated using mechanical methods, and the associated level of risk to worker safety associated with this treatment method, would be similar to that under Alternative A. Risks to workers and the public would continue to be minimized through implementation of SOPs, which would prevent worker deaths or severe injuries. It is expected that the rate of accidents associated with manual and mechanical treatments would be similar to that under Alternative A.

The effectiveness of treatments at reducing catastrophic wildfire potential would likely be less than under Alternative A. While mechanical treatments can be used to remove fuels, in some instances a combination of treatments (mechanical plus fire) might produce better results. Therefore, wildfire risk reduction and associated health and safety benefits would likely be less under this alternative than under Alternative A.

**3.25.3.3.4 Direct and Indirect Effects under Alternative C (Minimal Land Disturbance Alternative)**

Under this alternative, only manual and classical biological control methods would be used. Workers and the public would not be at risk for exposure to smoke, or for accidents associated with operation of heavy equipment. Risks associated with manual methods and classical biological control would be minimal, and SOPs for operation of hand-held equipment would help prevent accidents associated with using this equipment. Out of all the action alternatives, short-term health and safety risks associated with project treatments would be lowest under Alternative C. However the long-term health and safety benefits associated with reducing catastrophic wildfire risk would be lower than under the other alternatives because the least amount of hazardous fuel removal would occur.

**3.25.3.3.5 Direct and Indirect Effects under Alternative D (No Action Alternative)**

There would be no direct effects on human health and safety from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM would not create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation, especially cheatgrass; restore fire as an integral part of the ecosystem; or reduce the risk of a large-scale wildfire that could be detrimental to human health and safety.

**3.25.3.4 Cumulative Effects**

The study area for direct, indirect, and cumulative human health and safety effects is the southern portion of Eureka County, from the BLM Elko District boundary to the Nye County line (**Figure 3-1**). This area is approximately 1,692,238 acres. Approximately 86 percent of the area is administered by the BLM, 9 percent is administered by the Forest Service, and 5 percent is privately owned. Past and present actions that have influenced land use and access in the 3 Bars ecosystem are discussed in Section 3.2.2.3.3.

**3.25.3.4.1 Cumulative Effects under Alternative A (Preferred Alternative)**

Members of the public who visit or drive through the 3 Bars Project area may also visit or drive through areas shown on **Figures 3-2 to 3-6**, where other projects are occurring. Additionally, workers who implement the BLM's 3 Bars treatment projects may live in the vicinity of other projects, may visit or drive through areas where other projects are occurring, or may be hired to implement other projects that have been identified. Therefore, it is likely that both workers and members of the public who would potentially be exposed to 3 Bars project treatments would also be

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exposed to human health and safety risks associated with other reasonably foreseeable future actions, resulting in cumulative health and safety risks.

Grazing, agriculture, woodland product harvest activities, and recreation are associated with health and safety risks, including risks of injury from livestock; installing and maintaining range improvements; applying pesticides on cropland; using saws and other hand tools to harvest woodland products; exposure to poisonous vegetation or vegetation with thorns; exposure to harmful snakes and other wildlife; or accidents from recreation activities such as off-highway vehicle use. The safety of members of the public who harvest woodland products would be dependent on each individual's personal responsibility for his or her own safety. Commercial harvest would follow the health and safety guidance of the responsible commercial entity, which should include policies and procedures for protecting human health and safety.

Projects associated with utilities construction and distribution include road development, powerlines, communication sites, wind generation facilities, railroads, and related projects. All of these projects have associated occupational and public health and safety risks during the construction phase, and some would have associated risks during the operational phase. It is assumed that industry standard SOPs and other procedures would be implemented to minimize health and safety risks. Road development is expected to be limited to dirt roads created by recreational use of public lands. However, traffic volumes on U.S. Highway 50 and State Route 58, as well as other roads are predicted to increase as a result of increased economic activity and population growth. New roads and increased traffic would increase the risk of injuries from motor vehicle crashes, which is the leading cause of death and injury for Nevadans aged 5 to 34 years (Chino et al. 2010), and is already very high in Eureka County (U.S. Department of Transportation 2010b).

Land development, mineral development, and oil, gas and geothermal leasing and development could all have associated health and safety risks. All types of development in the CESA are expected to bring more people into the area, which would increase the number of people potentially exposed to smoke from the proposed treatments. Additionally, there are numerous health and safety risks associated with resource extraction activities. Workers and the public could be exposed to these risks, in addition to the risks associated with the 3 Bars Project. It is expected that all of the future development and resource extraction in the region would involve industry standard safety protocols designed to minimize health and safety risks to workers and the public.

Approximately 7,000 acres burn annually within the CESA, although acreage burned each year by wildfire is quite variable. Wildfires would lead to potential exposure to smoke by the public and firefighters, risk of accidents due to low visibility on roadways, and risk of loss of life and damage to property from the fire itself.

The BLM would treat about 142,000 acres (127,000 on the 3 Bars Project area, and 15,000 on other areas within the CESA), or about 8 percent of the CESA, to restore natural fire regimes and encourage the growth of native vegetation that is more resilient to wildfire, reducing the risk of wildfire. This includes the use of herbicides on several hundred acres annually under existing authorizations. Human health concerns are associated with herbicide exposure scenarios, including direct spray, dermal contact with foliage, swimming, and ingestion scenarios for public exposure, and some occupational exposures that predominantly involve contact with accidental releases of herbicides. Herbicides that could be used by the BLM generally have negligible or minor risks to workers and the public, as discussed in the 17-States PEIS (USDOI BLM 2007b:4-174 to 4-196). In all cases, human health risks can be avoided by following SOPs including to apply herbicides with appropriate protective equipment, prevent spills and other accidental releases, and prevent public access to sprayed areas for the appropriate time interval.

If plant community structure, species composition, and disturbance regimes return to near historical ranges, then disturbances should have effects that are similar to historical effects, which would be less severe, and result in less wildfire danger and risks to the public, than at present.

#### **3.25.3.4.2 Cumulative Effects under Alternative B (No Fire Use Alternative)**

The effects from non-3 Bars Project reasonably foreseeable future actions on human health and safety would be similar to those described under Alternative A. Because fire would not be used on the project area, risks associated with exposure to fire and smoke would not contribute to cumulative health effects.

Hazardous fuels reduction and habitat improvement projects could occur on about 63,000 acres within the 3 Bars Project area, and on up to 15,000 acres within the CESA, or about 4 percent of acreage within the CESA. The BLM would be limited to hand pulling, disking, plowing, and using livestock to control non-native vegetation on the 3 Bars Project area, and using chainsaws and mechanical equipment, instead of prescribed fire and wildland fire for resource benefits, to manage pinyon-juniper and sagebrush. The cumulative risks to workers from these treatments could be greater from manual and mechanical methods than from fire treatments. Over the long term, cumulative effects to health and safety associated with wildfire would be greater than under Alternative A, since the acreage treated for fuels reduction would be less and treatments would likely not be as effective.

#### **3.25.3.4.3 Cumulative Effects under Alternative C (Minimal Land Disturbance Alternative)**

The effects from non-3 Bars Project reasonably foreseeable future actions on human health and safety would be similar to those described under Alternative A. Under Alternative C, the BLM would only be able to use manual and classical biological control methods to restore the 3 Bars ecosystem. Adverse, short-term effects to human health and safety with the use of fire and mechanized equipment would not occur under Alternative C. However, fire and mechanized equipment would be used in other portions of the CESA to improve habitat, remove hazardous fuels, and reduce the risk of wildfire.

By not being able to use mechanical methods and fire to reduce hazardous fuels, restore ecosystem health, create fire and fuel breaks, and remove downed wood and slash, however, the risk of wildfire and its impacts on human health and safety would likely increase on the 3 Bars Project area. About 48,000 acres would be treated in the CESA to reduce hazardous fuels, but only 32,000 acres would be treated in the 3 Bars Project area. This would be less than 2 percent of the land within the CESA and within the 3 Bars Project area.

Under Alternative C, the acreage treated would be less than under Alternatives B and C, and only manual and classical biological treatment methods would be used. Therefore, short-term cumulative health and safety risks would likely be lowest under Alternative C. Over the long term, cumulative effects to human health and safety associated with wildfire would be greater than under the other alternatives, as the least amount of hazardous fuel removal would occur under Alternative C.

#### **3.25.3.4.4 Cumulative Effects under Alternative D (No Action Alternative)**

Under Alternative D, effects from non-3 Bars Project reasonably foreseeable future actions on human health and safety would be similar to those described under Alternative A. There would be no cumulative effects on human health and safety from 3 Bars Project treatments as no treatments would be authorized under this alternative. The BLM could create fire and fuel breaks; thin and remove pinyon-juniper to promote healthy, diverse stands; slow the spread of noxious weeds and other invasive non-native vegetation using ground-based and aerial application methods

of herbicides, especially cheatgrass; restore fire as an integral part of the ecosystem; and reduce the risk of a large-scale wildland fire under current and reasonably foreseeable future authorized actions, but on a very limited acreage (about 1,500 acres annually). Thus, benefits to human health and safety would be negligible and least among the alternatives.

### **3.25.3.5 Unavoidable Adverse Effects**

All treatment methods have the potential to harm workers or the public. The health and safety of workers could be at risk from working on uneven ground, on broken terrain, and in dense vegetation; from the use of hand and power tools; from exposure to falling debris; from exposure to smoke from fires; and from other accidental situations. Although the BLM would implement numerous SOPs to minimize health and safety risks, not all injuries would be avoided.

Members of the public could be at risk from flying debris if they were near an area where manual or mechanical equipment was being used. Risks would be minimized by establishment of safe zones around work areas, provided the public complied with restrictions on entry into these areas. Particulate matter, and other harmful materials associated with fire treatments, could harm the public outside of treatment areas. However, it is expected that these exposures would be kept to minimum levels by following fire prescriptions, and conducting treatments during climatic conditions that minimize drift of smoke.

### **3.25.3.6 Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity**

The proposed vegetation treatments could harm the health of workers and the public over the short term, particularly if SOPs to protect health were not followed. Adverse reactions to smoke could cause minor to severe discomfort to sensitive individuals, but most symptoms would go away in a few hours. If serious injury or death resulted from treatments, the effects on the health of the affected individual would be long term, or in the case of death, permanent.

Proposed treatments to reduce the buildup of hazardous fuels and restore native vegetation would help restore natural fire regimes and improve ecosystem health. If treatments are successful, there would be a long-term reduction in the risk of wildfire, which would benefit public health by resulting in a reduced exposure to smoke and a reduced risk of adverse human health effects from fires.

### **3.25.3.7 Irreversible and Irretrievable Commitment of Resources**

Serious injury or death caused by vegetation treatments could be irreversible and irretrievable. However, risk of death and serious injury is very unlikely based on the current rate of injury (very low) and death (none) associated with BLM vegetation treatments during the past decade. It is likely that a few people would experience minor discomfort from fire treatments, but these effects would be short-term and reversible.

### **3.25.3.8 Significance of the Effects under the Alternatives**

The BLM's SOPs to protect worker and public safety substantially reduce the risks for accidents and injuries during vegetation treatments. Many employers, especially those involved with agricultural and mining operations, have health and safety plans to protect worker health. However, there is some risk for injury and adverse health impacts associated with all working conditions, such as those associated with operation of chainsaws and heavy equipment,

working on uneven terrain, and managing fires. Accidents would be possible. If workers do not follow SOPs closely, severe injuries could occur. While SOPs provide the maximum amount of realistic prevention of injury, it is not possible to state that death or moderate to severe injury would not occur. Exposure of workers to chemicals, contaminants, and smoke is possible, but the health effects of these exposures should be limited to insignificant levels through SOPs to limit exposure, use of Personal Protective Equipment, and establishing safety buffers around treatment sites. Standard Operating Procedures also would ensure that the BLM's treatment program did not violate any laws or regulations implemented to protect worker or public health and safety. Based on the BLM's past safety record for vegetation treatments, there has been a very low rate of injury and no deaths associated with vegetation treatment programs. Therefore, direct, indirect, and cumulative effects to human health and safety from 3 Bars Project actions are unlikely to be significant.

#### **3.25.4 Mitigation**

Given that BLM SOPs for the various treatment methods are already highly protective of public and worker health and safety, no additional mitigation is recommended.