

File Code: 1950
Date: July 13, 2016

Dear Interested Parties:

The Forest Service, Humboldt-Toiyabe National Forest, Ely Ranger District has prepared a Final Environmental Assessment (EA) for the Currant-Ellison Watershed Restoration Project.

The purpose of this project is to restore and maintain healthy and resilient watershed functions by implementing projects that enhance and improve vegetation communities, wildlife habitats and water resources, while also reducing fuels that pose a high wildfire risk to private lands, structures and other resources. There is a need to:

- Improve and/or maintain habitats for a variety of wildlife species including sage grouse, bighorn sheep, mule deer and sagebrush dependent species.
- Reduce fuels across the landscape with an emphasis near private lands and developments to minimize the potential impacts from wildfires.
- Restore, maintain and/or enhance mountain sagebrush and mountain brush communities at a landscape scale.
- Maintain and enhance mature pinyon-juniper and mountain mahogany woodlands.
- Improve and or/maintain watershed function related to springs, streams and other riparian areas.
- Restore fire to wilderness areas and fire dependent ecosystems where appropriate.
- Provide reasonable public access and address potential safety and resource concerns associated with roads and motorized trails.
- Protect archeological resources and protect/stabilize historical resources.

The proposed action will utilize a variety of treatments within an 185,000 acre project area on the Ely Ranger District.

A copy of the Final EA and the Draft Decision may be obtained by contacting the Ely Ranger District at the address listed below.

Eligibility to File Objections

This project is subject to a pre-decisional administrative review process, also known as an objection process (36 CFR 218, Subparts A and B). Only individuals or entities (as defined by 36 CFR 218.2) who submitted timely and specific written comments (as defined by 36 CFR 218.2) regarding this proposed project during a designated opportunity for public comment established by the responsible official are eligible to file an objection to this draft decision. Issues raised in objections must be based on previously submitted comments unless based on new information that arose after the designated opportunities to comment.

Individual members of organizations must have submitted their own comments to meet the requirements of eligibility as an individual; objections received on behalf of an organization are considered those of the organization only. If an objection is submitted on behalf of a number of individuals or organizations, each individual or organization listed must meet the eligibility requirement of having previously submitted comments on the project (§218.7). Names and addresses of objectors will become part of the public record.



Incorporation of documents by reference in the objection is permitted only as provided for at §218.8(b). Minimum content requirements of an objection, identified in §218.8(d), include:

- Objector's name and address, telephone number if available, and signature or other verification of authorship upon request.
- Identification of the lead objector when multiple names are listed, along with verification upon request.
- Name of project, name and title of the responsible official, national forest/ranger district of project.
- Sufficient narrative description of those aspects of the proposed project objected to, specific issues related to the project, how environmental law, regulation, or policy would be violated, and suggested remedies which would resolve the objection.
- Statement demonstrating the connection between prior specific written comments on this project and the content of the objection, unless the objection issue arose after the designated opportunities for comment.

Written objections (mail, fax, email, hand-delivery) on this draft decision must be filed within 45 days starting the day after the publication date of the legal notice of opportunity to object in the *Elko Daily Free Press*. The publication date is the exclusive means to calculate the timeframe. The Responsible Official is the Forest Supervisor of the Humboldt-Toiyabe National Forest.

Objections must be sent to: Objection Reviewing Officer, Intermountain Region USFS, 324 25th Street, Ogden, UT 84401; or fax to 801-625-5277; or email to: objections-intermtn-regional-office@fs.fed.us. Electronic objections may be submitted in an email message or in a .doc, .docx, .pdf, .txt, .rtf, or .html attachment. Please include "Currant-Ellison Watershed Restoration Project EA" in the subject line. It is the responsibility of objectors to ensure their objection is received in a timely manner (§218.9).

For additional information on this project please contact Jose Noriega at (775) 289-5100, or by email at jnoriega@fs.fed.us.

Sincerely,



JOSE NORIEGA
District Ranger

Decision Notice
and
Finding of No Significant Impacts
for the
Currant-Ellison Watershed Restoration Project

USDA Forest Service
Humboldt-Toiyabe National Forest
Ely Ranger District
White Pine and Nye Counties, Nevada

Introduction

In April of 2016, an Interdisciplinary Team completed the Currant Ellison Landscape Restoration Project Environmental Analysis in compliance with the National Environmental Policy Act (NEPA). The Environmental Assessment (EA) discloses the temporary, short and long term, direct, indirect, irretrievable, irreversible, and cumulative environmental impacts of the Proposed Action, No Action, and the No Treatments in Wilderness Areas Alternatives, for the Currant-Ellison Watershed Restoration Project. The EA is available on the Humboldt-Toiyabe National Forest's website.

To request a hard copy of the EA, please refer to the "Contact Information" section of this document.

The Humboldt-Toiyabe National Forest is proposing to restore native vegetative communities, enhance the diversity of age classes and structure of vegetation communities, restore and improve wildlife habitats, and reduce the severity of wildfires within a project area of approximately 185,000 acres.

Project Area Location

The project area is located on National Forest System lands on the Ely Ranger District. The area is approximately 185,000 acres in size and is located entirely within the White Pine Range Management Area. The project area is located approximately 30 miles southwest of the town of Ely, NV. The legal description for the project area is T14N, R57E; T14N, R58E; T14N, R59E; T14N, R60E; T13N, R57E; T13N, R58E; T13N, R59E; T13N, R60E; T12N, R57E; T12N, R58E; T12N, R59E; T12N, R60E; T11N, R58E; T11N, R59E; T11N, R60E in all or parts of the sections. A vicinity map is included on the next page (Figure 1).

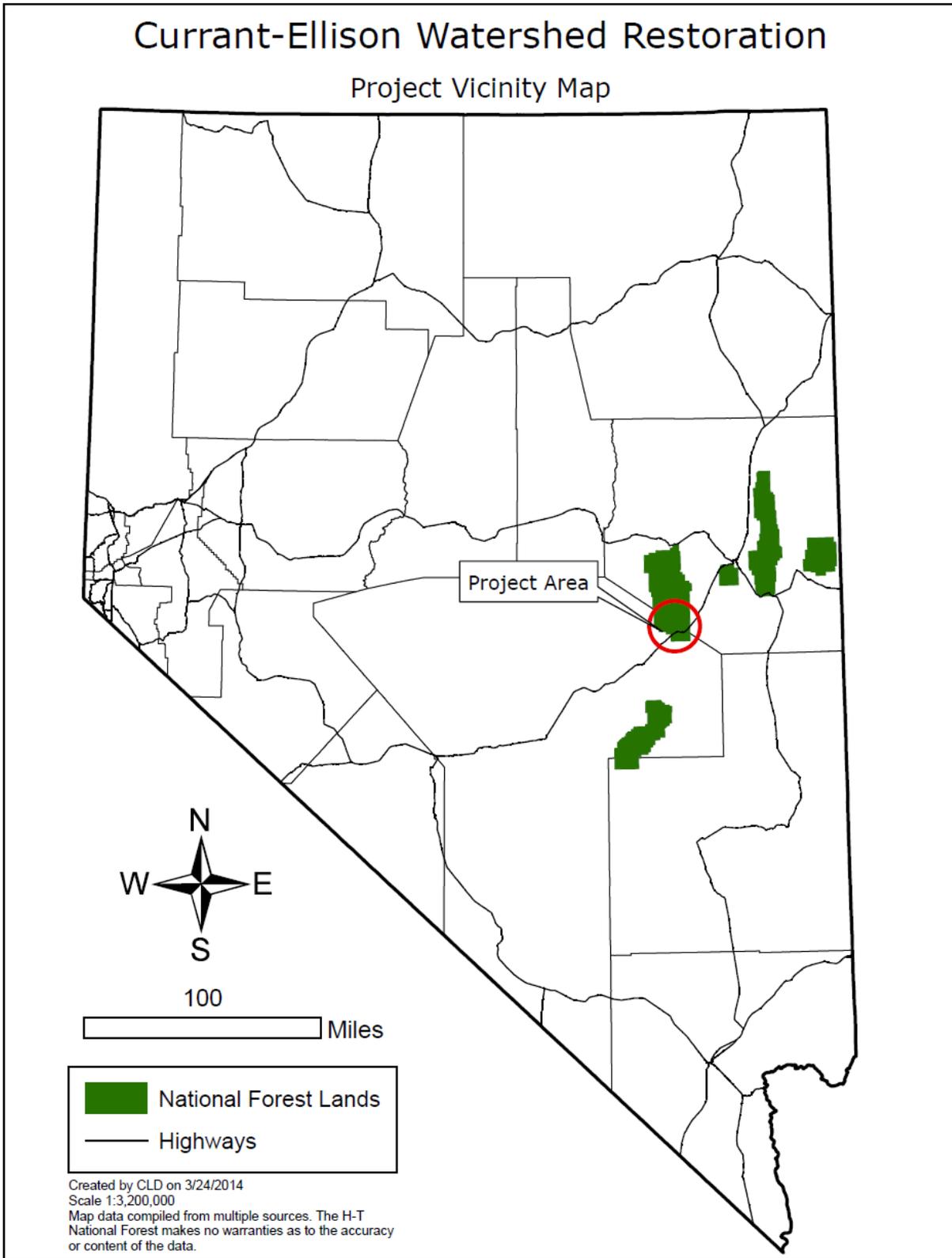


Figure 1. Project Vicinity Map

Purpose and Need

The purpose of this project is to restore and maintain healthy and resilient watershed functions by implementing projects that enhance and improve vegetation communities, wildlife habitats and water resources, while also reducing fuels that pose a high wildfire risk to private lands, structures and other resources. There is a need to:

- Improve and/or maintain habitats for a variety of wildlife species including sage grouse, bighorn sheep, mule deer and sagebrush dependent species.
- Reduce fuels across the landscape with an emphasis near private lands and developments to minimize the potential impacts from wildfires.
- Restore, maintain and/or enhance mountain sagebrush and mountain brush communities at a landscape scale.
- Maintain and enhance mature pinyon-juniper and mountain mahogany woodlands.
- Improve and or/maintain watershed function related to springs, streams and other riparian areas.
- Restore fire to wilderness areas and fire dependent ecosystems where appropriate.
- Provide reasonable public access and address potential safety and resource concerns associated with roads and motorized trails.
- Protect archeological resources and protect/stabilize historical resources.

Decision

I find, based on a review of the Currant-Ellison Watershed Restoration Project Environmental Assessment and project record, that the proposed action has no significant impacts requiring the preparation of an Environmental Impact Statement prior to the issuance of my decision to implement (see “Finding of No Significant Impacts” section for details). Based on my review of the EA and the project record, it is my decision to approve the proposed action as described in the EA. The proposed action will meet all aspects of the Purpose and Need as outlined above.

My decision will allow a variety of treatments within the Project Area. Appendix A of this Decision includes a Map of the Project Area. Appendix B includes a table and summary of treatments and acres by each unit within the Project Area.

Rationale for the Decision

I have selected the Proposed Action because it fully addresses the purpose and need as outlined in the Environmental Assessment. Additionally, the Proposed Action and associated mitigation measures address comments and concerns raised by the public and interdisciplinary team members during analysis of the project. The Proposed Action improves and restores habitats at a landscape scale for important wildlife species such as sage grouse, desert bighorn sheep, and mule deer. The proposed action also restores and improves important vegetative communities such as sagebrush and riparian areas. The Proposed Action creates fuel breaks and reduces fuels to increase the potential for success in managing wildfires within and adjacent to the Project Area. The Proposed Action also minimizes adverse impacts on resources within the project area.

Public and Other Agency Involvement

Public involvement on this project has occurred throughout the planning and analysis process leading to this document. The proposed project has been listed on the Humboldt-Toiyabe National Forest Schedule of Proposed Actions (SOPA) since April, 2012.

- In December 2012, a scoping notice was sent to 116 individuals, groups, agencies and tribes providing an opportunity to comment on the upcoming Currant-Ellison Watershed Restoration Project on the Ely Ranger District.
- On January 10, 2013 a scoping notice for the Currant-Ellison Watershed Restoration Project was published in the Ely Times. Thirteen comments were received during this comment period.
- In 2013, 2014, and 2015 an update on this project was provided to potentially affected Outfitter & Guide permit holders at the annual meeting.
- In 2013, 2014, and 2015 an update on this project was provided to potentially affected Livestock Permittees at the annual meetings.
- In December 2013, a Notice of Proposed Action was mailed to 87 individuals, groups, agencies and tribes providing an opportunity to comment. Four comments were received.
- On Jan. 10, 2014 a legal notice requesting public comments was published in the Ely Times Newspaper.
- On January 23rd, 2014 a legal notice requesting public comments was published in the Elko Daily Free Press Newspaper.
- Brief updates on this project were presented at 12 Tri County (White Pine, Nye, and Lincoln) meetings between December 2012 and present.
- Brief updates on this project were presented at 12 Coordinated Resource Management (CRM) meetings between December 2012 and present.
- Brief updates on this project were presented at 8 White Pine County Water Advisory Committee meetings between December 2012 and present.
- Brief updates on this project were presented at 11 White Pine County Public Land Use Advisory Committee (PLUAC) meetings between December 2012 and present.

Other Alternatives Considered in Detail

No Action Alternative

Under the No Action Alternative, current management plans will continue to guide management of the project area. No treatments will be implemented to improve wildlife habitats, reduce fuels or improve vegetation conditions. Wildfires will continue to occur and could be managed for resource benefits in accordance with existing policy and regulations. Pinyon-Juniper will continue to increase in density across the landscape. Sagebrush communities will continue to age and will contain limited early seral components.

Alternative 3 No Treatments Within Wilderness

This alternative is similar to the Proposed Action, except that no treatments will occur within any Wilderness Areas.

Alternatives Eliminated from Detailed Study

In addition to the proposed action, no action, and alternative 3 evaluated in this document, other management approaches were considered by the IDT in response to preliminary concerns generated from internal and external scoping of the Proposed Action. These alternatives, which were not studied in detail, are described in this section along with an explanation of why the alternatives were not considered further.

Removal or reduction of livestock grazing

Under this alternative domestic livestock would be removed or numbers significantly reduced within the project area. This alternative does not restore fire adapted ecosystems. No treatments would occur to reduce pinyon-juniper densities or encroachment. This Alternative would not reduce fuel loads or reduce wildfire risks to private lands or other important resources. This alternative would also not restore sagebrush ecosystems which are important to species such as sage grouse. This alternative was eliminated because it doesn't allow for restoration within the project area and does not meet the purpose and need for action.

No Treatments Within Roadless Areas or Wilderness Areas

Under this alternative no treatments would occur within roadless areas or wilderness areas. Alternative 3 was developed and analyzed to address no treatments within wilderness areas. Roadless Areas comprise a large portion of the project area and restoration treatments within these areas are critical to meet the purpose and need for this project. This alternative does not restore fire adapted ecosystems. Few treatments would occur to reduce pinyon-juniper densities or encroachment. This Alternative would not significantly reduce fuel loads or reduce wildfire risks to private lands or other important resources. This alternative would also not restore sagebrush ecosystems at a scale needed for species such as sage grouse and mule deer. This alternative was eliminated because it doesn't allow for the scale of restoration within the project area and does not meet the purpose and need for action.

Other Laws, Regulation, And Policy

As summarized below, my decision is consistent with Federal, State, and local laws or requirements imposed for the protection of the environment.

A number of disclosures involving compliance with various applicable laws, executive orders, and regulations are required in NEPA analysis for proposed resource management projects. These disclosures are listed below:

American Indian Treaty Rights—The proposed alternatives would not conflict with any treaty provisions.

Clean Water Act—The Clean Water Act (CWA) is a federal statute that requires states and tribes to restore and maintain the chemical, physical, and biological integrity of the nation’s waters (33U.S.C. 466 et seq., Title I, Section 101). The hydrology analysis discloses the potential effects of the alternatives on water quality (EA pages 92-95). Based on the analysis disclosed in this document, both action alternatives will comply with the CWA. This project includes mitigation measures (See Appendix C) to ensure management activities maintain or improve watershed conditions (Chapter 2). The project area contains no 303d listed streams.

Clean Air Act—The Proposed Action is in compliance with the Clean Air Act, 1977 as amended. All required permits would be secured to ensure compliance with federal and state laws. Pollutant emissions will be within state and federal standards.

Consultation with Tribal Governments (E.O. 13175)—Consultation with the Duckwater Tribe, Goshute Tribe and the Ely Shoshone Colony has been ongoing during project analysis.

Endangered Species Act—The project area contains no known populations or potential habitats for any federally listed threatened or endangered species. No federally listed threatened or endangered species occur on the Ely Ranger District.

Environmental Justice (E.O. 12898)—Executive Order 12898 (59 Fed. Register 7629, 1994) directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low income populations. The proposed alternatives would not result in unequal impacts on any part of the population in White Pine or Nye Counties, Nevada and complies with E.O. 12898.

Executive Order 11988 Floodplain Management and Executive Order 11990 Protection of Wetlands—The alternatives will not result in significant adverse impacts on wetlands or floodplains as they relate to protection of human health, safety, and welfare; preventing the loss of property values, and; maintaining natural systems. The goals of Executive Orders 11988 and 11990 would be met. All wetlands would be protected through mitigation measures which conform to Executive Order 11990.

Executive Order 13186 and the Migratory Bird Treaty Act—Both action alternatives would comply with the Migratory Bird Treaty Act. This project may result in an “unintentional take” of individuals during proposed activities; however, the project complies with the U.S. Fish and Wildlife Service Director’s Order #131 related to the applicability of the Migratory Bird Treaty Act to federal agencies and requirements for permits for “take”. This project complies with Executive Order 13186 because the analysis meets agency obligations as defined under the January 16, 2001 Memorandum of Understanding between the Forest Service and U.S. Fish and Wildlife Service designed to complement Executive Order 13186.

Facilitation of Hunting Heritage and Wildlife Conservation (E.O. 13443) – On August 16, 2007, President George Bush signed an Executive Order directing appropriate federal agencies to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. The action alternatives will result in improved habitats for big game species such as mule deer and elk. The no action alternative will have a long term adverse impact on big game species and would not work to meet the objectives outlined in this executive order.

Inventoried Roadless Areas (IRA)—The 185,000 acre project area includes all or portions of eighteen IRAs. Most of the IRA's within the Project Area are small remnants of previous, larger IRA's which became Wilderness in 2006. Neither action alternatives will have lasting effects on the attributes of any of the IRAs (Environmental Assessment, Section 3.7, pages 167-174).

National Historic Preservation Act—Under the Proposed Action there will be no adverse impacts to historic properties (NRHP eligible cultural sites, prehistoric, historic, TCP's, sacred sites) based on avoidance. All Historic Properties would be avoided during any surface disturbing activities, which typically are incorporated with planned vegetative mosaic patterns. Presently there are recorded Historic Properties that exist within the project area. The risk of damaging an eligible historic property during implementation of treatments is minimal as these sites will be avoided.

This project is covered under the Central Zone Vegetation Management Programmatic Agreement between the USFS and the State Historic Preservation Office (SHPO). The treatment of historic properties by the USFS would follow the standard protection measures listed in Appendix A of the Programmatic Agreement.

Best Available Science—The conclusions summarized in this document are based on a review of the project record that reflects consideration of relevant scientific information and responsible opposing views where raised by internal or external sources and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and/or risk where pertinent to the decision being made.

Humboldt National Forest Land and Resource Management Plan (1986)—The Proposed Action is in compliance with the Humboldt National Forest Land and Resource Management Plan (1986) as amended. See Environmental Assessment pages 16-17.

Climate Change—“The Forest Service is responding to climate change through ecological restoration—by restoring the functions and processes characteristic of healthy, resilient ecosystems.” (Thomas L. Tidwell, Chief April 20, 2010). The purpose of this project is to restore and maintain healthy and resilient vegetation communities, wildlife habitats and to reduce fuels and wildfire risks near private lands and structures. The prescribed fire portions of this project will result in short term smoke impacts into the atmosphere, however there will be no lasting effects as a result of these actions. The proposed action and design features are designed to restore resilient vegetation communities and ecosystems while minimizing the effects of invasive species. This project will not result in any long-term adverse impacts associated with climate change. Specific actions identified within the proposed action will create more resilient vegetative communities which are viable under changing climatic conditions.

Finding of No Significant Impacts

After considering the environmental effects described in the Currant-Ellison Watershed Restoration Project Environmental Assessment and reviewing the Council on Environmental Quality Regulations for Significance (40 CFR 1508.27), I have determined that this proposal is not a major Federal action that will significantly affect the quality of the human environment, either individually or cumulatively. Preparation of an Environmental Impact Statement pursuant to Section 102 (2) (c) of the National Environmental Policy Act of 1969 is not required. This determination is based on consideration of the context of the proposal and the following factors

to be considered when evaluating intensity of the potential impacts, as outlined in 40 CFR 1508.27.

Context:

The project area analyzed in this EA is located on the southern portions of the White Pine Mountain Range in White Pine and Nye Counties, Nevada. Vegetation communities within the project area range from lower elevation shrub communities up to high elevation Bristlecone Pine communities. The total project area perimeter includes approximately 185,000 acres, of which an estimated 30,838 acres would be treated.

The proposed action does not have impacts or influence outside the watersheds within which the project occurs. The proposed action does not have any regional or global implications that would expand the context of the impacts.

Intensity

Intensity is a measure of the severity, extent, or quantity of effects, and is based on information from the effects analysis of this EA and the references in the Project Record. I have determined that the interdisciplinary team considered the effects of this project appropriately and thoroughly with an analysis that is responsive to concerns and issues raised by the public. The team took a hard look at the environmental effects using relevant scientific information and their knowledge of site-specific conditions gained from field visits. My finding of no significant impact is based on the intensity of effects using the ten factors identified in 40 CFR 1508.27(b).

1. Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial.

Our finding of no significant environmental effects is not biased by the beneficial effects of the action. The beneficial effects of fuels reduction and restoration treatments have not been used to balance adverse effects of the treatments. Potential adverse effects were considered in the project mitigation measures to reduce the potential for adverse impacts and were incorporated into the proposed action. The mitigation measures are specifically included to minimize or eliminate potential adverse impacts caused by the treatments. Effects determinations were made independently from the beneficial effects of the treatment, but considering the mitigation measures incorporated into the Proposed Action. A discussion of the potential effects is summarized in Table 5 of the EA (pgs. 33–37).

2. The degree to which the proposed action affects public health or safety.

Implementation of this project will reduce threat to public health and safety from high severity wildland fires. Treatments are designed to increase the resiliency of the vegetation communities which will improve habitat for a variety of wildlife and plant species. Treatments on roads will also reduce potential water quality impacts and will ensure reasonably safe travel conditions for Forest users.

These fuels reduction treatments will achieve improved public health and safety by reducing the intensity of wildfires and their resistance to control by fire suppression efforts. Implementation of the Proposed Action will be governed by public health and safety standards and contract clauses.

Intense smoke emission and subsequent negative impacts on air quality experienced during severe wildfire events will be reduced by decreasing the potential for these events to take place. Smoke and air quality effects from project implementation cannot be completely eliminated, however impacts will be significantly reduced from wildfire effects. Burn plans addressing public safety and air quality will be completed in cooperation with local firefighting and air quality agencies prior to prescribe burning.

(See Environmental Assessment, Mitigation Measures page 26)

3. Unique characteristics of the geographic area such as the proximity to historical or cultural resources, parklands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas.

There will be no significant effects on unique characteristics of the area. Parklands, prime farmlands, wetlands, wild or scenic rivers or ecologically critical areas are not present within the analysis area.

Historic and cultural resources within the project area have been surveyed and analyzed, and found not to be significantly affected by the project or will be avoided during treatments.

Appropriate mitigation measures have been incorporated into the proposed action to mitigate impacts to cultural resources within the project area (See Appendix C).

This project contains all or parts of four wilderness areas. The proposed action and alternatives have been designed to minimize impacts on designated wilderness areas (See EA, pages 174-181).

The proposed action has been developed to restore streams and riparian areas within the project area.

4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.

The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the impacts of the project. Concerns were raised regarding this project and potential impacts to wildlife species and wilderness areas. The proposed action was designed to improve habitats for various wildlife species like sage grouse and those treatments are generally supported by current science and experts within various agencies related to the management of wildlife species and habitats.

The potential effects of this project on wilderness areas were also raised as a potential concern. The District worked closely with the commenters to address their concerns. The proposed action was also developed in a way to mimic natural processes and minimize the extent of management actions within wilderness areas. Of primary concern to the agency was the need to maintain resilient vegetation communities where natural processes like fire can occur without future unacceptable outcomes like the landscape dominated by noxious and invasive vegetative communities. The effects analysis was based on reviewed scientific studies and analysis. The effects of implementation of this decision on the quality of the human environment are not likely to rise to the level of scientific controversy.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The Forest Service (FS) has considerable experience with the types of activities to be implemented. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk. The proposed activities are routine in nature, employing standard practices and protection measures, and their effects are generally well known. This is meant in no way to nominalize the risk that is inherent in the use of prescribed fire, however relative to the highly unpredictable nature of wildfire during high or extreme fire weather conditions, those risks are far more certain and manageable

6. The degree to which the action may establish precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The action is not likely to establish a precedent for future actions with significant effects, because this action is not unusual and does not represent a decision in principle about future considerations. This action is the project level implementation of the Humboldt National Forest Land and Resource Management Plan (USDA 1986) and helps move the project area toward the desired future conditions identified in the plans.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects of this action were discussed in the Cumulative Effects sections of the EA and specialist reports. Appropriate mitigation measures have been incorporated into the proposed action to mitigate direct, indirect and cumulative impacts of the project. No cumulatively significant impacts were discovered during preparation of the Environmental Assessment. Although there will be individual short-term effects, the proposed action will not contribute cumulatively to significant adverse effects.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Under the Proposed Action there would be no adverse impacts to historic properties (NRHP eligible cultural sites, prehistoric, historic, TCP's, sacred sites) based on avoidance. All Historic Properties will be avoided or impacts mitigated during any surface disturbing activities, which typically are incorporated with planned vegetative mosaic patterns. Presently there are recorded Historic Properties that exist within the project area. The risk of damaging an eligible historic property during implementation of treatments is minimal.

This project is covered under the Central Zone Vegetation Management Programmatic Agreement between the USFS and SHPO. The treatment of historic properties by the USFS would follow the standard protection measures listed in Appendix A of the PA.

The Ely Shoshone and Duckwater Shoshone Tribes have been consulted on the project. The district maintains open communication with the tribes concerning potential discoveries during project implementation.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

It has been determined that no federally listed threatened or endangered species occur within the proposed project area or on the Ely Ranger District.

10. Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

This action was designed to be in compliance with federal, state, and local law. For a listing of environmental protection laws considered in the project design see the “Other Laws, Regulations and Policy” section above.

Objection Opportunities

This project is subject to a pre-decisional administrative review process, also known as an objection process (36 CFR 218, Subparts A and B). Only individuals or entities (as defined by 36 CFR 218.2) who submitted timely and specific written comments (as defined by 36 CFR 218.2) regarding this proposed project during a designated opportunity for public comment established by the responsible official are eligible to file an objection to this draft decision. Issues raised in objections must be based on previously submitted comments unless based on new information that arose after the designated opportunities to comment.

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- Identification of the lead objector when multiple names are listed, along with verification upon request.
- Name of project, name and title of the responsible official, national forest/ranger district of project.
- Sufficient narrative description of those aspects of the proposed project objected to, specific issues related to the project, how environmental law, regulation, or policy would be violated, and suggested remedies which would resolve the objection.
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Elko Daily Free Press. The publication date is the exclusive means to calculate the timeframe.

The Responsible Official is the Forest Supervisor of the Humboldt-Toiyabe National Forest

Objections must be sent to: Objection Reviewing Officer, Intermountain Region USFS, 324 25th Street, Ogden, UT 84401; or fax to 801-625-5277; or email to:

objections-intermtn-regional-office@fs.fed.us

Electronic objections may be submitted in an email message or in a .doc, .docx, .pdf, .txt, .rtf, or .html attachment. Please include “Currant-Ellison Watershed Restoration Project EA” in the subject line. It is the responsibility of objectors to ensure their objection is received in a timely manner (§218.9).

Implementation Date

As per 36 CFR 218.12, if no objection is received within the legal objection period, this decision may be signed and implemented on, but not before, the fifth business day following the close of the objection-filing period. If an objection is filed, this decision cannot be signed or implemented until the reviewing officer has responded in writing to all pending objections.

Contact Information

Jose Noriega, District Ranger
Ely Ranger District
825 Avenue E
Ely, Nevada, 89301
(775) 289-5100
(775) 289-0176 (cell)

William Dunkelberger
Forest Supervisor
Humboldt-Toiyabe National Forest

Date

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

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To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at

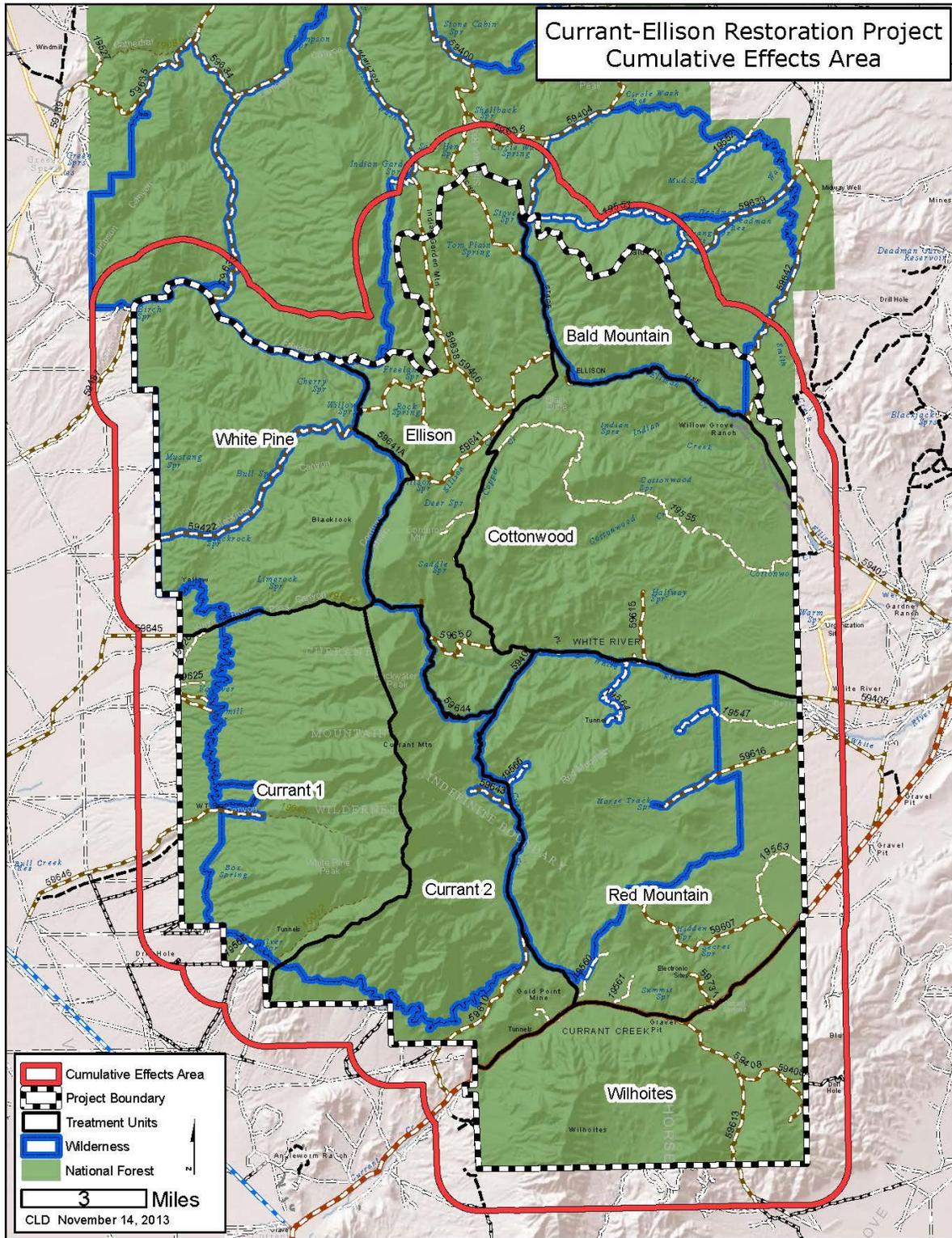
http://www.ascr.usda.gov/complaint_filing_cust.html and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992.

Submit your completed form or letter to USDA by:

- (1) Mail: U.S. Department of Agriculture
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410;
- (2) Fax: (202) 690-7442; or
- (3) Email: program.intake@usda.gov.

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Appendix A: Project Area Map



Appendix B: Treatment Acres by Unit

Treatment Type	Acreage/Mileage
Bald Mountain Unit (8208 Acres)	
Unauthorized Route Rehabilitation	Up to 0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Watershed Treatments	14.7 Acres
Cottonwood Unit (31,174 Acres)	
Treatment Type	Acreage/Mileage
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 15 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5500 Acres
Watershed Treatments	199 Acres
Ellison Unit (21,241 Acres)	
Prescribed Fire	Up to 2500 Acres
Unauthorized Route Rehabilitation	Up to 30 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 3000 Acres
Watershed Treatments	281.5 Acres
Currant 1 Unit (25,925 Acres)	
Abandoned Mines	6.5 Acres
Prescribed Fire (No active ignition, potential fire movement from adjacent units)	Up to 1000 Acres
Currant 2 Unit (20,363 Acres)	
Abandoned Mines	26 Acres
Prescribed Fire	Up to 5000 Acres
Unauthorized Route Rehabilitation	0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1200 Acres
Watershed Treatments	6.5 Acres
Red Mountain Unit (34,904 Acres)	
Unauthorized Route Rehabilitation	Up to 2 Miles
Prescribed Fire	Up to 2000 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1500 Acres
Watershed Treatments	19.5 Acres
White Pine Unit (23,479 Acres)	
Prescribed Fire	Up to 3000 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Unauthorized Route Rehabilitation	Up to 2 Miles
Watershed Treatments	13 Acres
Wilhoites Unit (19,627 Acres)	
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5000 Acres
Unauthorized Route Rehabilitation	Up to 2 Miles
Total Treatment Acres (184,921 Project Area Acres)	
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 52 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 16,600 Acres
Watershed Treatments	534.2 Acres
Prescribed Fire	Up to 13,500 Acres
Abandoned Mines	32.5 Acres

Appendix C: Mitigation Measures

Mitigation measures have been developed to ensure the project maximizes the benefits and minimizes the risks to resources in the project area.

Wildlife:

- Establish a minimum of a 250-acre protection area around any active goshawk nests. Also, establish an appropriate aircraft buffer around any active goshawk nests during spring or early summer burns to prevent disturbance to the nesting birds. Goshawk nesting surveys will be done before prescribed fire is used in potential nesting habitat.
- No prescribed fire ignitions in pure mountain mahogany stands identified on the H-T current vegetation map and on the ground; avoid burning these stands which provide important wildlife habitat
- Prescribed fire and mechanical treatments will not target sagebrush communities which do not contain a pinyon-juniper or white fir component.
- Ensure that ignition activities for prescribed burning are less than 2 weeks in duration within treatment units to allow for migratory birds that may lose their nest to re-nest.
- If mechanical treatments are implemented during the breeding season (May 1 to July 15), nesting bird surveys will be done and breeding territories found will be flagged and avoided.
- Leave and maintain large, cone-bearing pinyon trees in patches within the treatment area for the pinyon jay, black-throated gray warbler, and the juniper titmouse. Large stands of pinyon will remain within and adjacent to the project area.
- Prescribed fire will not be used in occupied habitat for pygmy rabbits. Trees in these areas may be removed with chainsaws and be accessed by foot.
- Survey for bats prior to mine closures.

Heritage Resources:

- Avoid burning known historic wood features within the project area. Hand clearing of vegetation around these features may be done as needed to protect the sites.
- Avoid active ignition of other known cultural sites.

Noxious and Invasive Weeds:

- Prescribed fire treatments will be encouraged during spring; avoiding south facing slopes in areas where cheatgrass is abundant. If cheatgrass is present it will likely increase over time.
- Treatment of known infestations with herbicide before and after implementation will occur and will help limit the further establishment and spread of invasive and noxious weed species.
- Inventoried invasive and noxious weed infestations will be flagged and avoided to reduce the expansion of undesirable species.

- To mitigate ground disturbance during mastication, track equipment operators will avoid making abundant sharp right angle turns, instead utilize a gentle curved pattern with the lowest possible sharp angles during implementation to reduce ground disturbance.
- In areas where jackpot burning will be applied, monitoring will be implemented before and after treatment and any infestations of noxious or invasive weeds will be treated.
- The District Weed Coordinator will complete follow-up monitoring within the Currant-Ellison Watershed Restoration Project Area following completion and at regular intervals to determine the persistence, reoccurrence or spread of invasive and noxious weeds.
- Inventory of new and existing populations of undesirable species will continue to be recorded and treated along existing roads being used during and after project implementation.
- To ensure continuation of an integrated pest management program across the project area, additional funding opportunities will be pursued through collaboration with; Rocky Mountain Elk Foundation, Mule Deer Foundation, and other potential partnerships.
- During implementation, vehicles entering and leaving the project area will be washed to avoid transmission of invasive and/or noxious weed seeds.
- As needed, control of noxious weeds and invasive species would be done under the Forest's approved treatment program.

Vegetation:

- No ignition will occur on rocky outcrops to avoid burning rare plant communities
- Seeding of native grasses and forbs may be done following treatment to provide additional seed sources for vegetative recovery. Non-native species may be included in the seed mix for the Halogeton Treatments.

Range:

- In areas where prescribed fire and/or where re-seeding is employed, a mandatory two year rest will be implemented as designated by the Forest Plan.
- In areas where mechanical methods are used, adjustments will be made to lessen impacts by livestock. Adjustments may include temporary head month reductions, changes in rotation of livestock operations, and resting areas where re-seeding has occurred.

Soils/Air/Water

- Skidding or other activities that would tend to loosen the soils will not occur on slopes over 25%. Skidding across drainages will be avoided where feasible.
- Protect water quality through the use of BMPs, which are employed by the Forest Service and the State of Nevada to prevent water quality degradation and to meet state water quality objectives relating to non-point sources of pollution. In addition, use site-specific mitigation measures that relate directly to these BMPs to minimize erosion and resultant sedimentation.
- For ephemeral streams that do not show scour and deposition employ streamside management zone (SMZ) widths of 25'. Harvesting equipment is excluded from this area. Equipment may reach into the exclusion zone to remove material.

- Exclude equipment from channels, except at equipment crossings, unless specifically allowed for in the environmental document. Minimize the number of crossings. Crossings will be back-bladed after use, as necessary, to restore the natural relief and reduce erosion.
- Remove any slash generated by project activities from stream courses as soon as practicable unless specifically allowed for in the environmental document.
- Do not locate landings within channels. Mulch and then sub-soil landings and other disturbances within 200 feet of stream channels.
- Remove no trees adjacent to channels that provide bank stability and/or contribute to channel integrity (except for hazard trees).
- Drainages breached, rerouted, or infilled by existing and activity related landings, skid trails and temporary roads would be restored to their natural contour. This would occur during sub-soiling operations.
- Do not locate skid trails parallel to the bottom of swales. Treat swales as stream courses, crossing at right angles and skidding away from these features.
- Retain at least 90% of large woody debris in channels and leave 50-75% of the ground unburned within the interior 50' of drainages. Within these core areas, ensure that burned areas appear intermittent, not concentrated. Maintain a minimum of 75% ground cover over stream channels. Locate burn piles outside of the "green line" or at least 25' away from channels having evident scour and deposition, whichever is greater. Burn piles prior to under burning.

Public Safety:

- Roads within the project area may be closed to the public for the brief time that operations are in progress.
- Signs would be posted as would a notification through public media.
- Local residents and permittees would be notified.
- The project area would also be checked and cleared of any campers, hunters, and any other recreational users that could be impacted by any of the types of treatments.

Wilderness:

- The use of motorized or mechanized equipment related to unauthorized route rehabilitation is prohibited within wilderness areas.
- Non-native seed will not be used within wilderness areas.

Appendix D: Response to Comments

Currant Ellison Watershed Restoration Project

Response to Comments from the NOPA Comment Period

Published in the newspaper of record, The Elko Daily Free Press Jan. 23rd, 2014

Received Four (4) Letters During this scoping Period

Letter 1-Comment by Curt Leet at a Public Land Use Advisory Committee meeting.

Comment 1: U.S. Forest Service should utilize prescribed burns and forgo hand cutting within aspen stands.

Response: Thank you for your comment. The amount of aspen acreage within the Currant Ellison Watershed Restoration Project is quite small. It is unlikely that hand cutting would be utilized to stimulate aspen regeneration due to the size of existing stands. The location of many of the stands are high elevation and within wilderness and is being looked at closely for prescribed burning.

Letter 2 Submitted By Bill Wolf

Comment 2-1: I support this project. My concern is with the design of PJ harvesting. I believe the design the agency has implemented on the lower slopes on the east side of Ward Mountain is inappropriate and I hope it will not be duplicated in the Currant-Ellison Project.

Response: Thank you for your support. The Ward Mountain P/J cutting project your reference was one of the first conducted on the Ely Ranger District and a considerable amount of information regarding implementation, lay-out, and overall design has been learned by all the resource specialists involved in these types of projects. We will be implementing these lessons learned as we move into implementation within the Currant-Ellison Watershed Restoration Project.

Comment 2-2: It is my hope that the agency, when thinning late stage 1 along with stage 2 and 3 PJ, will take a more naturalistic approach to the design. Instead of a polka-dot design I would hope the agency would clear blocks but at the same time not have linear borders. If one looks across Steptoe Valley from the Ward project you can see how PJ naturally seems to follow the drainages as it expands into the sage steppe. This results in sinuous stringers of trees. I believe this has several benefits beyond the visual. It seems to me that the stringers also function as living snow fences to help capture drifting snow along the drainages as provide slower release of snowmelt. The polka-dot pattern would also see to discourage use of the lower slopes by sage grouse whereas thinning the trees into stringers could provide open areas more amenable to use by sage grouse. My limited knowledge of wildlife also suggests that the stringers provide better cover for elk and deer as they move up and down the slopes. Over time, the brush component should become denser as more water is available from the removal of the trees. This will happen with the polka-dot thinning or the more naturalized approach I advocate. My experience in fire management suggests to me that it would be easier to manage fires in a continuous brush field rather than a brush field interspersed with mature trees that would likely be torching completely. Control lines within the brush field would only need to be sized to the brush and not the tree component. Additionally, along the stringers one often finds an edge effect from the trees out-

competing brush, grass and forbs which results in a slight break in the continuity of fuels. This break in continuity is especially useful in low intensity fires.

Response: Late stage 1 P/J canopy cover removal has been ongoing through smaller projects that fall within the Currant Ellison Watershed Restoration Project. Most, if not all, of these phase 1 p/j removal projects have resulted in much greater open sagebrush areas. The effect to the visual is minimal and in some cases a person may not even be able to tell that anything has been cut. This however, is not the same for the denser canopy cover found in Phase 2 and 3 P/J. Through the various projects that the Ely RD has been implementing within Phase 2 and 3 P/J we have begun to design the implementation a bit differently. Instead of wholesale clear-cutting, we are now leaving islands of trees within large blocks of cutting, as well as, long thin stringers where the terrain allows. Further, in the phase 3 p/j canopy cover type we are only “feathering” the cutting into these areas as a way of poking holes into it to slowly allow for the understory component to begin reestablishment. We are striving to not leave such a linear footprint on the landscape as you suggest has been the case in the past.

Letter 3- Submitted by John Breitrick

Comment 3-1: The Currant Ellison Restoration Project is inadequate and lacking in several of the proposals. The unit maps do not show locations of most of the proposed treatments.

Response: The Environmental Assessment will contain more detailed information regarding proposed treatments and locations.

Comment 3-2: The proposed project calls for 16,600 acres of vegetation treatment by mechanical and hand-cutting methods. None of the acreage proposed for these treatments are shown on the maps provided. The areas for personal fuel-wood harvest, commercial green fuel-wood harvest and mechanical treatments such as mastication are not shown.

Response: The Environmental Assessment will identify proposed treatments and acreages of treatments by treatment units.

Comment 3-3: None of the 13,500 acres proposed for prescribed fire treatments are located on the maps.

Response: The Environmental Assessment will identify proposed treatments and acreages of treatments by treatment units.

Comment 3-4: The maps do not clearly indicate which springs and where on the stream habitats where riparian restoration will take place, particularly those areas which may involve the use of equipment, and those areas where road relocation and/or rehabilitation may occur.

Response: The Environmental Assessment will contain more detailed information regarding proposed treatments and locations.

Comment 3-5: The road system is not shown on the maps. The maps do not show where the level 3, 2, and user created roads mentioned in the proposal are located. None of the proposed 52 miles of road closure or rehabilitation are indicated on the maps. Neither closed user created roads nor open user created roads are distinguished and shown. Most of the roads in the proposal area are user created roads-many created more than 100 years ago. These roads are historical and should be preserved. Roads where vegetation will be cut back are not shown.

Response: All routes not currently authorized by the 2009 Travel Management Decision will not be shown on any maps unless specifically targeted for rehabilitation and physical closure. For the purposes of this project, we disclosed that we would be rehabilitating up to 52 miles of existing closed routes. Road Maintenance is ongoing within the Project area annually based upon priorities and funding. Trail maintenance is ongoing year to year and all of the authorized motorized trails within this project area have been targeted for maintenance through annual trail maintenance plans. Only authorized motorized roads open to all vehicles will receive maintenance under this project proposal.

Comment 3-6: The time period for public comment is poorly scheduled and inadequate. A 30 day comment period in January when the public cannot access the forest to examine proposed actions that will take years to implement is unacceptable.

Response: This is the second of two formal Scoping periods. The first comment period occurred in December of 2012 which left the commenter over a full year to go to the project area and become familiar with the area. Additionally, a project briefing has been presented at numerous PLUAC, CRM, Tri-County and other public meetings over the past several years.

Letter 4- Submitted on behalf of Wilderness Watch by Gary MacFarlane

Comment 4-1: We believe the project as proposed is contrary to the letter and spirit of the Wilderness Act. Please note our comments are directed at the Wilderness portions of this proposal.

Response: Thank you for your comment.

Comment 4-2: The large size of the proposal and project area-185,000 acres, much of which is designated Wilderness-clearly points to the necessity of an EIS.

Response: Size and scope of a project are not what determine whether an EIS or an EA are necessary. What drives the differentiation is the determination of whether or not there are significant adverse effects that cannot be otherwise remedied, avoided, or mitigated in any meaningful way.

Comment 4-3: There is considerable scientific controversy, indicating an EIS is needed. Research that supports a fairly large extent of pinyon juniper woodlands in pre-settlement times is The Historical Stability of Nevada's Pinyon-Juniper Forest by Ronald M. Lanner, a retired forestry professor from Utah State University, and Penny Frazier (Phytologia, Dec. 2011, vol. 93, pp. 360-387) (see attached). Thus the rationale for this project is suspect both scientifically and in terms of wilderness-compatibility.

Response: Thank you for your comment. However, one dissenting view point among a multitude of supporting viewpoints does not mean that there is controversy. There is significant research, including ongoing research that supports much of the work that is proposed within this project and in others proposed across the State of Nevada. Potential effects of this project will be disclosed within the Environmental Assessment.

Comment 4-4: Two alternatives that should be analyzed include an alternative that does not involve management actions in the Wilderness, and an alternative that defers livestock grazing until riparian recovery occurs.

Response: We fully agree. A third alternative has been added to the Currant Ellison Watershed Restoration Project that considers no management actions within wilderness. We will consider

your alternative proposal as it relates to livestock grazing, however, an EIS and Decision Notice is in the process of being finalized related to the management of livestock grazing. Therefore for the most part the management of livestock grazing is outside the scope of this analysis.

Comment 4-5: The Currant Ellison project could allow a level of manipulation and trammeling of the Currant Mountain, White Pine Range, and Red Mountain Wildernesses not permitted by the 1964 Wilderness Act.

Response: Thank You for your comment, however, we disagree with your statement. The 1964 Wilderness Act does not prohibit activities which could manipulate or result in a trammel of a wilderness area. We are required to follow specific processes and procedures and must disclose the potential effects of this project. Additionally, specific design features and mitigation measures will be included to minimize the potential effects on wilderness areas.

Comment 4-6: Wilderness Watch supports allowing lightning-caused fire to play its role in these four wildernesses but the Forest service plan proposes to significantly manipulate wilderness in ways that will destroy the areas wilderness character, in violation of the mandate of the 1964 Wilderness Act. The proposed action would apparently allow human-ignited fire in three of these wildernesses. It is unclear whether human-ignited fire would be allowed to enter Bald Mtn Wilderness.

Response: Thank you for your comment but we disagree. We are not planning on implementing unrestricted prescribed fire within any of the wildernesses. We are conducting a very thorough analysis of the current vegetation conditions, and other resources of significance that together make the wilderness character of each separate wilderness area unique. We are also looking to put fire back into these wilderness areas in such a manner that mimics lightning caused fires, such as the use of a heli-torch. The 1964 Wilderness Act does not prohibit activities such as prescribed fire within a wilderness area. Any use of prescribed fire will be done in a way mimicking a wildfire while minimizing some of the potential adverse impacts that may result from wildfire in a human altered environment which is the case in these wilderness areas. Prescribed fire is currently not proposed within the Bald Mtn. Wilderness. A previous fire did great environmental damage within this particular wilderness a number of years ago. Cheat grass and other noxious weed species have invaded the old fire scar.

Comment 4-7: The proposed action, even where agency-ignited fires are allowed to burn into wilderness, ignores any impacts to the untrammeled, unmanipulated wilderness character of the four wildernesses. Even if agency-ignited fire may bring some perceived ecological or species-specific benefits, human-ignited fire in Wilderness is a significant manipulation or trammeling of the area. This is true whether fire is ignited in the Wilderness or just outside with the intent it would burn into the Wilderness. The Forest Service plan has the potential to turn these Wildernesses from wild landscapes into heavily manipulated, managed forest and rangeland. Allowing the Wilderness to evolve of its own accord and letting lightning-caused fire play its natural role is a much better alternative.

Response: The proposed action with regards to prescribed fire very much is a trammeling, but so is suppression. When we suppress a fire we are not allowing natural processes to occur as they would. Continual suppression, such as what has occurred for the past century, has created Unnatural characteristics within these wilderness areas and has put them at greater risk of devastating fire effects that may forever change not only the wilderness character but the entire ecosystems within them. We must balance all of the factors that make up wilderness character

carefully and make the determination of what is most important in the long term, a functional watershed that provides invaluable ecosystem services and wildlife species, or whether or not man puts his hand in the mix or not. We feel that in the best interest of these ecosystems that some short term manipulation to re-direct the degradation that is occurring to a more sustainable, natural trajectory that occurs over a longer term is desirable. By allowing suppression of fire to continue and then leave wilderness to operate on its own accord is both hypocritical and detrimental to the overall vitality and viability of the wilderness area into the future.

Comment 4-8: Natural Fire should be allowed to play its role in wilderness and human-ignited fires, either in wilderness or adjacent to wilderness with the intent of going into Wilderness should not be allowed.

Response: We have determined that most of the wilderness areas within this project area are available for natural fire to play its role. However, in the event that conditions (weather, fuels, resource availability) do not allow for natural fire to occur, the US Forest Service is proposing to use prescribed fire within wilderness to meet those objectives when natural fire conditions must be suppressed. Over the past two years the Ely Ranger District has stepped up to the plate and proven our support for allowing natural fire to play a role within wilderness with the management of 3 large fires for resource benefit in three separate wilderness areas on the District. This is where we want to go into the future; however, you cannot just say one day we will allow natural fires to burn after over 100 years of effective fire suppression. This proposed action allows us to move that direction in a more structured way to minimize the potential for catastrophic adverse effects.

Comment 4-9: The proposals to create fuel breaks raise several questions. For example, there would be fuel breaks constructed along the boundary of the Bald Mountain Wilderness, along a road, which parallels the boundary, even though no burning is proposed in this unit. Is this being done to prevent agency-ignited fire from entering the Bald Mtn Wilderness? If so why isn't that being done for all the other Wildernesses if the goal is to allow Wilderness to be defined by natural rather than human-ignited fire? If it is being done to prevent natural fire from exiting wilderness, why have non-wilderness fire ignitions if the agency is so certain that natural fire will play a role in these areas?

Response: Fuel Breaks are being proposed along roads near the Bald Mountain Wilderness as well as other wilderness areas in the project area. No fuel breaks are proposed within the boundaries of any wilderness area. The Ely District is moving towards a setting where natural fire can play its role within many of these wilderness areas. Allowing fires to play a more natural role, however, does not mean that management of fires and in some cases the need to suppress fires does not exist. The fuel breaks will provide management points to help us implement management decisions regarding wildfires in a safe manner.

Comment 4-10: Similarly, how wide are the fuel breaks and what guarantees are there that they won't go into Wilderness?

Response: The wilderness boundary was set during the designation process at 100' from the roads edge. When these particular projects are implemented the Wilderness Manager will be onsite to ensure that no mechanical cutting occurs within the wilderness boundary.

Comment 4-11: Can't the proposed human-ignited fires outside of the wildernesses be conducted so that no fuel breaks are needed to prevent fire from either entering the wildernesses or damaging other resources?

Response: The fuel breaks that are proposed are not needed to control prescribed fire. Their purpose is to create an anchor point related to the management of wildfires in the area. Any fuel breaks necessary to contain management ignited fire outside of wilderness would vary from man-made to natural vegetation type changes to rocky outcrops or cliffs. Fuel breaks around historic structures would be considered depending on the importance of the structures, as well as, particular habitats would also be avoided or a fuel break may be created to protect it.

Comment 4-12: Does the agency have a natural fire program for this mountain range? If not, why not, given the apparent desire of the agency to want fire on the landscape, including in Wilderness, and the apparent lack of conflicting resource values that would preclude natural fire?

Response: Yes, we have identified that most of the wilderness areas within the White Pine Range Management Unit are open to allow fire to play a more natural role. The exception is the Bald Mountain Wilderness due to existing resource concerns regarding invasive annual grasses and other noxious weeds. The District has been very active in managing wildfires for resource benefits within Wilderness as mentioned in the response to comment 4-8 above.

Comment 4-13: Rather, the proposal would put into place an unnatural fire regime with ignitions in the spring, rather than summer and fall when fires are more likely to naturally occur. These projects could go on in perpetuity.

Response: Over 100 years of fire suppression, climate change, vegetation changes and other factors such as livestock grazing has created an environment that is not natural on this landscape. The proposed action will look to use fire in a way which will move the landscape further to a point where natural fire can play its role without creating additional resource concerns or consequences. The use of prescribed fire may occur during any season of the year to meet those objectives. For example, the use of prescribed fire in the spring would minimize potential impacts from cheatgrass.

Comment 4-14: Two factors deserve consideration. The first is whether there is a threat to resources outside of the Wildernesses and if this project would reduce that threat.

Response: Pinyon-juniper encroachment is threatening the health and vitality of sagebrush communities which further impacts wildlife species of all kinds including sage grouse, elk and deer. Wildfires also poses a threat to sagebrush dependent species like sage grouse both within and outside of Wilderness. This proposal will address those threats and impacts.

Comment 4-15: The second is an analysis of the issues involved, including the first, to see if in fact, agency-ignited fire is allowed by the Wilderness Act and its subsequent regulations.

Response: Thank You for your comment. The 1964 Wilderness Act does not prohibit management activities within a wilderness area. We are required to follow specific processes and procedures and must disclose the potential effects of this project. Additionally, specific design features and mitigation measures will be included to minimize the potential effects on wilderness areas.

Comment 4-16: The wilderness act allows management actions to be taken in the control of fire, insects and disease (Section 4(d)(1)). This allowance is not without limitation, however. In the

case of controlling insects, for example, the Courts have held that controlling insects within Wilderness to protect forests outside Wilderness (an “outside interest”) is inappropriate unless the agency shows that the “outside interest” has taken equally intensive efforts to control insects on non-wilderness lands (see *Sierra Club v. Lyng*, Civ. No.85-2226). Also, Forest Service policy prohibits the use of management-ignited fire for the purpose of enhancing wildlife habitat (FSM 2324.22.7).

Response: Correct. However, Forest Service Policy allows for the use of management-ignited fire for the purpose of enhancing wilderness character. Wilderness character is comprised of multiple considerations: untrammeled, natural, undeveloped, opportunities for solitude or primitive, unconfined recreation and then there are unique characteristics that should be considered. Sometimes these unique characteristics are in fact wildlife species being present. While actions are not taken for the sole benefit of one of these aspects, they all must be considered together. We must determine what level of compromise is acceptable. We have trammled the wilderness since before wilderness was a concept. We have been trammeling wilderness since we coined the term and made designations by allowing on-going grazing and fire suppression efforts. In order to provide an enduring resource of wilderness sometimes we have to take trammeling actions to preserve or protect the Natural aspects, the undeveloped nature, the opportunities for solitude and unique aspects of these areas.

Comment 4-17: The proposal to cut trees in Wilderness ostensibly for riparian restoration is inconsistent with allowing natural processes to define Wilderness.

Response: There is no proposal to cut trees within wilderness in this project. Any and all riparian restoration work that utilizes cut trees will occur outside of wilderness where trees are overcrowding the spring source or along riparian corridors. Only three springs within wilderness have been identified as needing some sort of action. Generally, this only includes an enclosure to protect the site. If materials are not near they will be brought to the site from sources outside of the wilderness. These actions are necessary due to unnatural processes (cattle grazing, wild horses trampling springs) impacting the natural processes (springs flowing and healthy/functioning riparian vegetation) within these sites.

Comment 4-18: Further, the maps are unclear as to whether certain other projects would or would not occur in Wilderness. The NEPA document needs to clearly address this issue with detailed maps. For example, according to the online maps at wilderness.net, some of the proposed cutting units (called watershed treatments) are inside the Wildernesses, not outside. The same may be true of some of the mine closures.

Response: When the draft EA is published acreages of treatments will be identified by units. Any proposed actions within Wilderness will be clearly identified and analyzed. There are no cutting units within wilderness in this project.

Comment 4-19: The proposal also calls for rehabilitating unauthorized routes. Would heavy machinery be used in any of the wildernesses?

Response: No. All route restoration/rehabilitation within the wilderness boundary will be conducted with hand tools and hand crews and utilize a variety of treatments such as but not limited to, pitting of the road way to de-compact the ground and turn-up the existing seed bed, the use of existing dead and downed vegetation (vertical mulching) to hide the route corridor from a visibility stand point, transplanting vegetation from a broad area in the geographic area

and closure of the route well before the wilderness boundary utilizing boulders and other closure methods.

Comment 4-20: The distinctive and distinguishing characteristic of Wilderness is wildness. This fundamental tenet must guide the analysis and decision.

Response: Years of fire suppression and other management actions coupled with factors like climate change within these landscapes and wilderness areas have left these areas at risk and in conditions which are not acceptable. As it relates to Wilderness areas, this project proposes some actions to move these areas closer to a condition where natural functions can generally occur on the landscape with minimal human management. Given the current conditions and factors to say “just let mother nature take care of it” is not acceptable and puts significant risks on the resources and values that make up those wilderness areas. The Ely Ranger Districts commitment to moving towards our goals in wilderness are very evident through our commitment over the past several years to using fire for resource benefits in multiple wilderness areas on the unit.

Comment 4-21: The FS should fully analyze the negative impacts to wilderness character from the extensive manipulation and trammeling of the wildernesses, including imposing human ignitions in the wildernesses, cutting trees and manipulating vegetation.

Response: Correct, the Wilderness Specialist on the Ely RD will be analyzing these impacts as well as any positive impacts that can be identified in the Wilderness Specialist Report. As a reminder no cutting of trees or other similar treatments are planned within the wilderness areas.

Comment 4-22: The FS should conduct its burns well outside the Wildernesses. Further, the Forest Service apparently believes that reducing fuels outside the wildernesses would allow natural fire to play its role in the Wildernesses.

Response: The Forest Service is treating fuels outside the wilderness to help protect resources and developments such as private lands, communications sites, guard stations, archeological and historic sites, and important wildlife habitats for species like sage grouse. Managing fuels outside wilderness areas allows for improved management alternatives and improves the safety for firefighters in the event of a wildfire.

Comment 4-23: All burning plans should include measurable and quantifiable objectives, with a mandated monitoring plan, so the success of any burn in achieving the project’s goals can be readily determined.

Response: Thank You for your comment. We agree.

Comment 4-24: The analysis under the proposed burning plan should clearly determine when human-ignited burns will have accomplished their goals and when only lightning fires will be allowed to burn in the wildernesses.

Response: Thank You for your comment. We agree.

Comment 4-25: The environmental impact statement must assess whether the agency’s plan for prescribed fire matches the area’s historic fire regime in terms of fire intensity (such as ground fires versus stand-replacement fires), fire frequency and return intervals, and time of year that most fires historically burned in the area.

Response: We disagree. The historic fire regime has been altered from the past century of fire suppression efforts which has created an un-natural condition. A careful evaluation of the fire

regime interval and historic fire frequency is a good starting point to work from. The objectives of the management ignited fires is to move vegetation and fuels resources closer to sustainable goals where natural fire can play its role on the landscape.

Comment 4-26: The plan should require a Minimum Requirements Decision Guide/ minimum tool analysis for each non-conforming use that the agency proposes, for example, for chainsaw use within the wildernesses to cut trees or aerial ignition via plane or helicopter.

Response: We agree, this is existing policy.

Comment 4-27: The environmental impact statement must analyze whether natural lightning-caused fire alone can be used to restore fire to the ecosystem.

Response: A third alternative was developed to address no management actions within the wilderness.

DRAFT



United
States
Department
of Agriculture

Forest
Service

May 2016



Environmental Assessment

Currant-Ellison Watershed Restoration Project

Ely Ranger District

Humboldt-Toiyabe National Forest

Responsible Official:
William Dunkelberger
Forest Supervisor
Humboldt-Toiyabe National Forest
Sparks, Nevada

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Chapter 1 — Purpose and Need

1.1. Introduction

This Environmental Assessment (EA) discloses the temporary, short and long term, direct, indirect, and cumulative environmental impacts of the Proposed Action, No Action, and the No Treatments in Wilderness Areas Alternatives, for the Currant-Ellison Watershed Restoration Project on the Ely Ranger District of the Humboldt-Toiyabe National Forest in White Pine and Nye Counties, Nevada.

This document has been prepared pursuant to the requirements of the National Environmental Policy Act (NEPA, 40 CFR 1500-1508), the National Forest Management Act (NFMA), and the Humboldt National Forest Land and Resource Management Plan (Forest Plan).

1.2. Project Area Location

The project area is located on National Forest System lands on the Ely Ranger District. The area is approximately 185,000 acres in size and is located entirely within the White Pine Range Management Area. The project area is located approximately 30 miles southwest of the town of Ely, NV. The legal description for the project area is T14N, R57E; T14N, R58E; T14N, R59E; T14N, R60E; T13N, R57E; T13N, R58E; T13N, R59E; T13N, R60E; T12N, R57E; T12N, R58E; T12N, R59E; T12N, R60E; T11N, R58E; T11N, R59E; T11N, R60E in all or parts of the sections.

A vicinity map is included on the next page (Figure 1).

1.3. Background

Within the project area past management activities and other impacts including fire suppression, historical livestock grazing practices, historical mining, noxious and invasive weeds, and other land management practices have resulted in vegetation communities which are not in desired condition. Changes in ecosystems are putting many important vegetation communities such as sagebrush at risk. Important wildlife habitats for species such as sage grouse, mule deer and other sagebrush dependent species are being impacted or lost.

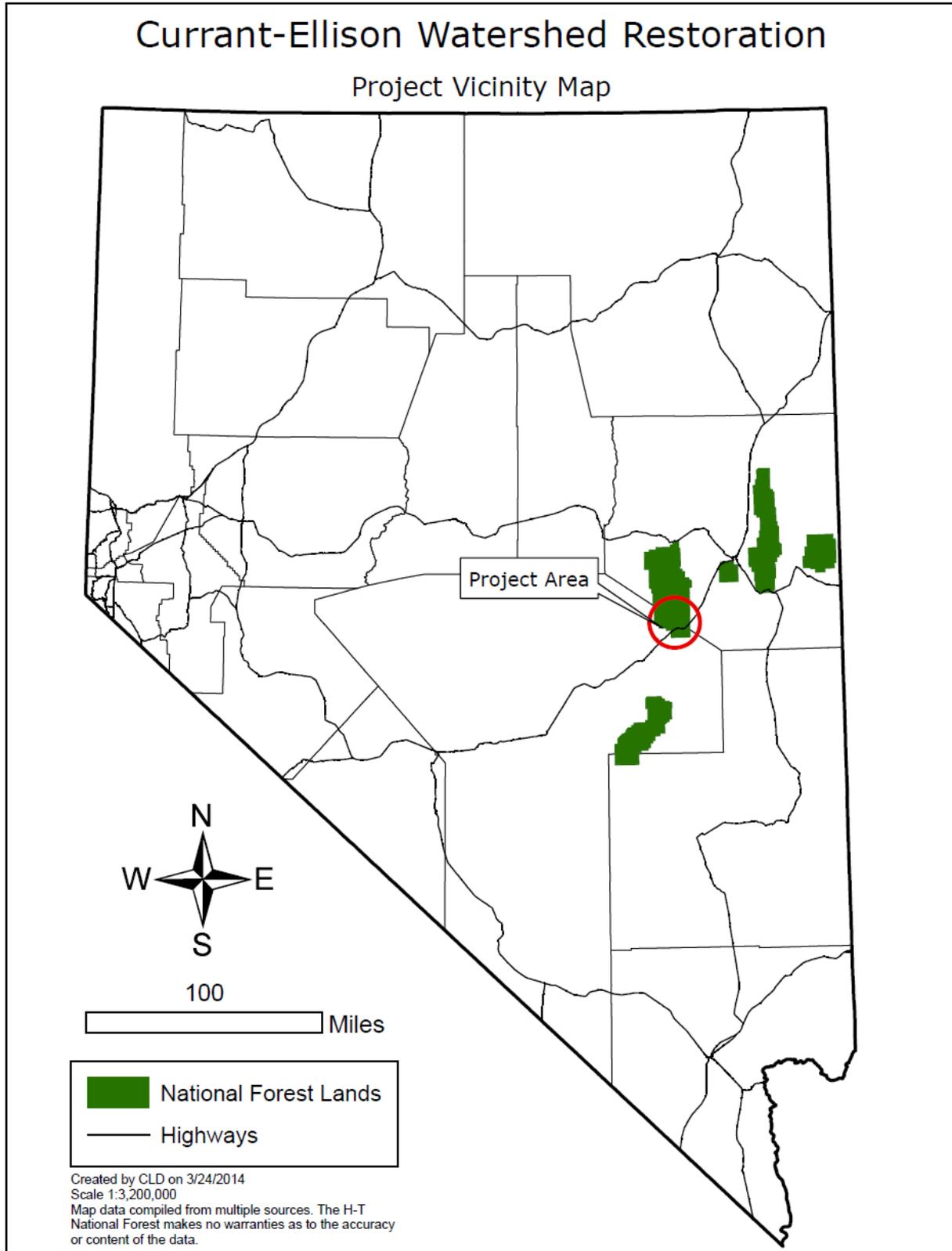


Figure 1. Vicinity map

1.4. Vegetation Communities

Table 1. Current vegetation cover types mapped for the project area (Gillham, et al. 2004)

Mapped Cover Type	Approximate acres	Percent
Pinyon-juniper, mixed woodland	132,218	71
Mixed Sage/brush species-Mountain big sage/mountain shrub, bitterbrush, Wyoming Big sage, Basin Big Sage, Black Sage, Mt. Shrub and Low Sage	36,588	20
Curleaf mountain mahogany	5,390	3
White fir	5,381	3
Riparian aspen, Grassland, Shrub, Basin Grassland (447 ac) Cottonwood (182 ac)	629	.3
Other vegetation, agriculture, barren, mining and rock	4794	2
Total acres within the project area	185,000	

1.4.1. Pinyon-Juniper

The lower elevations within the project area are currently dominated by pinyon juniper (p/j) cover type. Pinyon dominates this mix. On the current vegetation map, RSAC (Remote Sensing Application Center), there are approximately 132,218 acres (71% of acres within project area) of pinyon-juniper (p/j) mapped on the current vegetation map (Table 1 and Table 2). Pinyon dominates this mix. Since the pre-settlement period, the mid 1800s, pinyon and juniper have expanded mainly downslope into sagebrush and to a lesser degree, other ecosystems (Tausch et. al. 1981). This rapid expansion is due to fire suppression, grazing practices, and a climate which favored the establishment and growth of these woodland species (ibid). It is estimated that 2/3's of the area within the Great Basin currently occupied by p/j is expansion p/j; only 1/3 are historic woodlands (Miller, et. al. 2008). The expansion p/j lands are in various Phases of development. Miller et. al. 2008 defines the early, mid, and late Phases of pinyon-juniper woodland successional development as:

Phase I—trees are present but shrubs and herbs are the dominant vegetation that influence ecological processes on the site.

Phase II—trees are co-dominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site.

Phase III—trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site.

As Phase I and II transition into Phase III, the understory shrubs, grasses and forbs are lost as trees dominate and the tree's canopy cover increases and dominates the site. The loss of the ground vegetation and increased density of canopy fuels marks a shift in biomass to crown fuels which can significantly affect fire severity. The more tree dominated the woodlands become, the less likely they are to burn under moderate conditions. In addition, Phase III pinyon-juniper has lost much of the seed source necessary to regenerate understory herbs, grasses and shrubs following a disturbance (Miller et, al. 2008). As stated above, it is estimated that 2/3 of the landscape dominated by p/j is a phenomenon of recent expansion; formerly these areas were dominated by sagebrush. As pinyon-juniper mature and increase in density shrub and herbaceous species decline, reducing critical habitat components for many wildlife species, including mule deer, elk, sage grouse and other sagebrush dependent species. In Table 4, pinyon/juniper low,

medium and high canopy designations correspond to Phase I, II, and III, respectively. The low, medium, and high, canopy designations correspond to the canopy closure classes for woodland vegetation in the existing vegetation map. These canopy closure breakouts are low = 10–20%, medium = 21–40%, and high = 41%+ (Gillham et. al. 2004).

Objectives for pinyon-juniper include:

- Restore and/or maintain sagebrush and shrub communities where they are actively being replaced by phase I & II pinyon-juniper.
- Reduce fuels with an emphasis near private lands and developments.
- Maintain and/or enhance mature pinyon-juniper communities

1.4.2. Mixed Sagebrush Species

The project area includes approximately 36,588 acres of various sagebrush cover types (Table 1). Sagebrush communities provide critical habitat components for many wildlife species, including mule deer, sage grouse and other sagebrush dependent species. A portion of these vegetation communities are slowly being replaced by Phase I and II pinyon-juniper. Objectives for sagebrush communities include:

- Increase age class and species diversity within stands.
- Maintain stands through removal of phase I and II pinyon-juniper.

1.4.3. Curl-leaf Mountain Mahogany

The project area includes approximately 5,390 acres of mountain mahogany cover type (Table 1). Mountain mahogany is difficult to regenerate and often occupies rocky harsh sites. Objectives for mountain mahogany communities include:

- Maintain stands through removal of pinyon-juniper encroachment.

Table 2. Acreage by dominant community type

Community Type	Approximate Acres in Project Area
Pinyon-Juniper and Mixed Woodland	1,602
Phase 1	60,845
Phase 2	56,950
Phase 3	12,821
Total acres	132,218 acres
Cottonwood	182
Riparian- Riparian Aspen, Riparian Grassland, and Shrub	428
Uplands	41,997
Mountain Big Sagebrush/Mountain Shrub	15,307
Wyoming Big Sagebrush ^a	14,767
Low Sagebrush	4,214
Basin Big Sagebrush	866
Mixed Sage/ Bitterbrush	674
Mountain Mahogany	5,390
Black Sagebrush ^a	11
Mixed Shrub/Basin Shrub	749
Basin Grasslands	19
Isolated conifer forest (White Fir)	5,381
Other (barren/snow/isolated conifer forests/mining/Urban/Agriculture, Bristlecone Pine, White Bark/Limber Pine other vegetation)	4,794
Total	185,000

^aAcreage was calculated using Remote Sensing Applications Center (RSAC), Existing Vegetation Map of Humboldt-Toiyabe National Forest. Several years of ground verification has found an error pertaining to the abundance of Black sagebrush across the Ely District. In many instances Black sagebrush was misidentified as Wyoming sagebrush; thus, overestimating the presence of Wyoming sagebrush and underestimating Black sagebrush community types.

1.4.4. White Fir/Seral Aspen

The project area includes approximately 5,381 acres of White Fir cover type (Table 1). In a number of locations the white fir communities are intermixed with seral aspen communities and mapping of these community types is somewhat difficult. In other areas white fir occurs without an aspen component. In part due to fire suppression, white fir is encroaching slowly into high elevation mountain big sagebrush and other communities. Seral aspen communities are important for many wildlife species and are slowly being replaced by white fir. Seral aspen is defined as those stands where aspen are actively replaced over time by conifers.

Objectives for White Fir communities include:

- Where stands are associated with seral aspen communities, restore fire into the communities to maintain and enhance the aspen component.
- Where white fir is encroaching into mountain sagebrush communities allow fire to interact along this edge to maintain these high elevation sagebrush basins.
- Restore fires natural role within these communities.

1.4.5. Riparian Areas

Riparian areas are scattered in small areas throughout the project area. In a number of locations riparian communities are intermixed with seral and stable aspen communities. Mapping of these community types is somewhat difficult due to their small size. Objectives for riparian communities include:

- Reduce pinyon-juniper encroachment within riparian areas. Within these areas encourage the dominance of species such as aspen, cottonwood, willow and herbaceous species.
- Restore hydrologic and stream function within these systems.
- Restore and/or maintain riparian vegetation

1.5. Purpose and Need for Action

The purpose of this project is to restore and maintain healthy and resilient watershed functions by implementing projects that enhance and improve vegetation communities, wildlife habitats and water resources, while also reducing fuels that pose a high wildfire risk to private lands, structures and other resources. There is a need to:

- Improve and/or maintain habitats for a variety of wildlife species including sage grouse, bighorn sheep, mule deer and sagebrush dependent species.
- Reduce fuels across the landscape with an emphasis near private lands and developments to minimize the potential impacts from wildfires.
- Restore, maintain and/or enhance mountain sagebrush and mountain brush communities at a landscape scale.
- Maintain and enhance mature pinyon-juniper and mountain mahogany woodlands.
- Improve and or/maintain watershed function related to springs, streams and other riparian areas.
- Restore fire to wilderness areas and fire dependent ecosystems where appropriate.
- Provide reasonable public access and address potential safety and resource concerns associated with roads and motorized trails.
- Protect archeological resources and protect/stabilize historical resources.

1.6. Proposed Action

The Ely Ranger District proposes to implement a variety of restoration treatments on a landscape scale within the Currant-Ellison Watershed Restoration Project Area. Appendix A contains a map of the project area. The following sections summarize the various treatments being proposed including total acres proposed for treatment.

1.6.1. Vegetation Treatments using Mechanical Methods

Up to 16,600 acres may be treated using various mechanical treatment methods. An additional 171 acres may be treated to eradicate halogeton and improve resource conditions. Mechanical treatments would generally occur on slopes less than 30%. Mechanical treatments will improve

the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Areas or piles of heavy slash build-up following mechanical treatments may be burned or chipped to reduce the risk of wildfires. A variety of treatment methods would be used to meet site-specific objectives. Mechanical treatment methods may include:

- Hand cutting/thinning with chainsaws
- Personal or commercial fuelwood harvest
- Mastication, chipping, or similar mechanical methods
- Hand cutting of fuel breaks along roads or natural barriers
- Commercial green fuelwood harvest using low impact mechanized vehicles or other equipment.
- Slash created from treatments may be disposed through chipping, removal from the project area, or jackpot burning during periods of low fire risk.

Seeding may be done to restore perennial vegetation. Seed mixtures would emphasize native seed, however, non-native perennial species may be considered on a very limited basis such as restoration of a site heavily infested by halogeton or other species where the potential for success using native species is considered very low. Seed may be applied using hand seeders, rangeland drills or other similar mechanical methods.

Potential equipment that may be used would include chainsaws, three wheeled shears, tracked vehicles, rubber tire skidders and chippers. The work may be accomplished using contractors, Forest Service crews, stewardship contracts, commercial sales, volunteer groups or other similar methods. Existing roads will be used for access. Roads within the project area may be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. These actions would ensure the safety of both the public and project personnel.

Mechanical vegetation treatments would be used to:

- Restore or enhance Wildlife habitats with an emphasis on restoration of sagebrush ecosystems through treatment of pinyon-juniper.
- Treatment of pinyon-juniper to reduce fuels around and protect archeological and historical resources.
- Treatments to reduce fuels.
- Treatments to thin pinyon-juniper stands to enhance pinyon nut production and improve the health of the stands.

1.6.2. Vegetation Treatments using Prescribed Fire

Up to 13,500 acres may be treated using prescribed fire. Prescribed fire treatments may occur during any season of the year within established prescriptions. Prescribed fire treatments would be used to reduce pinyon-juniper densities, restore sagebrush and mountain brush communities through removal of pinyon-juniper, reduce fuels, and restore fire within wilderness areas. Burned

openings would typically range from 1/4 to 200 acres in size and would create a mosaic pattern across the landscape. Larger openings may occur, particularly when utilizing prescribed fire as a tool due to somewhat unpredictable nature of fire. A variety of ignition methods may be used, including:

- Ground ignition-drip torches and/or flares
- Aerial ignition using helicopters-helitorch and/or Plastic Sphere Dispenser (PSD)
- Management of naturally occurring wildfires (unplanned ignitions).

Ground support staging areas would be on existing roads or designated areas. Hand lines would be discouraged; however, may be used to protect archeological resources, historic properties, private lands or other high value resources. In addition, firefighting resources would be present to ensure full containment of the prescribed fire within the project area. The primary target areas for the prescribed burn would be Phase I and Phase II pinyon/juniper stands, White fir communities, and wilderness areas.

Roads within the project area would be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. The project area would also be checked and cleared of any campers, hunters, or other recreational users. These actions would ensure the safety of both the public and project personnel.

1.6.3. Watershed and Riparian Restoration

Watershed and riparian restoration treatments would be implemented throughout much of the project area. Approximately 534.2 acres of stream and/or spring habitats would be treated/restored. Watershed and riparian treatments may include:

- Pinyon-Juniper treatments and/or thinning around springs and other riparian areas to restore riparian vegetation and increase water quantity and quality. Slash created will be utilized as natural barriers to grazing animals and ungulates as a way of limiting trampling, soil shearing and land wasting into the stream courses and springs. All slash will be placed into natural openings in the riparian vegetative corridor and other openings created by grazing animals.
- Stabilization/restoration of streambanks and headcuts which may involve the use of equipment.
- Planting of riparian vegetation including willows, sedge plugs, and seeding of native seed.
- Riparian exclosures
- Road relocation and/or rehabilitation to reduce sedimentation into streams as well as reduce soil erosion.

1.6.4. Road Rehabilitation

Road rehabilitation will be completed on closed user created vehicle routes. These treatments will consist of ripping roadbeds and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash will be installed

along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that occur within or immediately adjacent to historic properties. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. Up to 52 miles of closed routes may be rehabilitated under this project.

1.6.5. Road Maintenance

Road maintenance will be completed to address issues associated with designated, open routes such as adequate signing, failing culverts, washouts, stream crossings and non-functioning water bars or drain dips. Vegetation along open routes may also be cut back to provide for better sight lines for both directions of travel along the routes. All well-developed level III routes will be maintained every few years according to the Road Maintenance Schedule. High clearance Level II roads and motorized trails will be maintained only when needed to provide for public safety, to reduce erosion and sedimentation into riparian areas, or to address other resource concerns.

1.6.6. Abandoned Mine Closures

The project area contains numerous abandoned mines including open shafts and adits. Under this proposal the Forest service is proposing to close open shafts and adits to protect public safety on National Forest System Lands. Closures will include the following options:

- Foam plugs, which completely seal the mine opening.
- Mine gates which prevent public access, but maintain habitats for bats and other wildlife species, which are using the shafts or adits.

1.7. Forest Plan Direction

The Proposed Action responds to the goals and objectives outlined in the Humboldt National Forest Land and Resource Management Plan, and helps move the project area towards desired conditions. Forest-wide goals applicable to this project are:

Goal #10 Identify, protect, interpret and manage significant cultural resources.

Goal #13 Improve the quantity and quality of lake and stream habitats through increased coordination with other land use programs, cooperation with Nevada Department of Wildlife, and direct habitat improvement.

Goal #14 Improve the current productive level of wildlife habitat with emphasis on maintaining or improving limiting factors such as big game winter ranges measured in acres in cooperation with Nevada Department of wildlife.

Goal #21 Maintain sensitive plant species.

Goal #24 Emphasize the control of priority 1 noxious weeds.

Goal #25 Harvest woodland products in coordination with other resources and provide for integrated pest management. The long-range objective is to manage wood products in an orderly long-term manner.

Goal #26 Promote the utilization of fire-killed trees, chainings, and green pinyon-juniper through an aggressive firewood program.

Goal #29 Provide water and soil resource input to other resource activities to protect or improve water quality and soil productivity.

Goal #32 Design and implement practices on-the-ground that will re-establish acceptable soil, hydrologic, and vegetative conditions which are sufficient to secure and maintain favorable water flow.

Goal #51 Each wildfire ignition will receive an appropriate response (confine, containment or control). The extent of suppression will be based on resource values, costs, burning conditions, safety, protection of private property, spread potential, and the fire organization commitment.

Goal #52 Establish and maintain fuel mosaics which result in an acceptable hazard and spread potential of wildfire, allow an appropriate wildfire suppression and contribute to other resource programs and aesthetics.

Goal #58 Perpetuate and protect Bristlecone pine.

Forest plan direction and standards and guidelines applicable to this project are shown below:

- Use prescribed fire by planned ignition when cost effective, to manipulate vegetation to benefit timber, wildlife, range or recreation.
- Prescribed burning will comply with state air quality standards.
- Fuels reduction program will be directed towards high risk areas and high valued facilities.
- Livestock grazing will not be allowed for two years following treatments, and/or seeding.
- Utilize fire as a tool to improve or maintain ecological conditions.
- Vegetation manipulation projects will be designed to consider the needs of wildlife.
- Vegetation manipulation projects will be permitted within key deer winter range to the extent they maintain or enhance the area for mule deer.
- Vegetation manipulation projects will be designed to create desirable edge effects and leave islands of untreated vegetation where needed for thermal and escape cover.
- Encourage commercial firewood sales in more remote areas.
- Provide for access where needed to harvest dead and green firewood.
- Maintenance and improvement of wildlife habitat will be incorporated into fuel wood harvesting programs.
- Mature aspen stands will be managed to increase regeneration.
- Protect wet areas around springs for wildlife habitat, livestock grazing, and recreation opportunities.
- Protect and encourage the reestablishment of riparian vegetation.

- Road closure rehabilitation standards will be developed on a site-specific basis.
- Protect wilderness character by maintaining natural vegetative composition and diversity.

1.8. Decision to be Made

Given the purpose and need, the deciding official reviews the proposed action and environmental analysis in order to make the following decisions:

1. Whether to approve the proposed Currant-Ellison Watershed Restoration Project as written or with modifications.
2. Whether or not the project has the potential for significant impacts and if an environmental impact statement would need to be prepared prior to issuance of any decision.

1.9. Public Involvement

Public involvement on this project has occurred throughout the planning and analysis process leading to this document. The proposed project has been listed on the Humboldt-Toiyabe National Forest Schedule of Proposed Actions (SOPA) since April, 2012.

- In December 2012, a scoping notice was sent to 116 individuals, groups, agencies and tribes providing an opportunity to comment on the upcoming Currant-Ellison Watershed Restoration Project on the Ely Ranger District.
- On January 10th, 2013 a scoping notice for the Currant-Ellison Watershed Restoration Project was published in the Ely Times. 13 comments were received during this comment period.
- In 2013, 2014 and 2015 an update on this project was provided to potentially affected Outfitter & Guide permit holders at the annual meeting.
- In 2013, 2014, and 2015 an update on this project was provided to potentially affected Livestock Permittees at the annual meetings.
- In December 2013, a Notice of Proposed Action was mailed to 87 individuals, groups, agencies and tribes providing an opportunity to comment. Four comments were received.
- On Jan. 10th, 2014 a legal notice requesting public comments was published in the Ely Times Newspaper.
- On January 23rd, 2014 a legal notice requesting public comments was published in the Elko Daily Free Press Newspaper.
- Brief updates on this project were presented at 12 Tri County (White Pine, Nye, and Lincoln) meetings between December 2012 and present.
- Brief updates on this project were presented at 12 Coordinated Resource Management (CRM) meetings between December 2012 and present.
- Brief updates on this project were presented at 8 White Pine County Water Advisory Committee meetings between December 2012 and present.
- Brief updates on this project were presented at 11 White Pine County Public Land Use Advisory Committee (PLUAC) meetings between December 2012 and present.

1.10. Identification of Issues

Through the scoping process, the public and other agencies identified concerns in response to the Proposed Action. Identification of issues included reviews of written and verbal comments, input from Forest Service resource specialists, review of the Forest Plan, and comments from state, federal agencies and tribal governments. Comments identified during scoping were evaluated against the following criteria to determine whether or not the concern would be a major factor in the analysis process.

- Has the concern been addressed in a previous site-specific analysis, such as in a previous Environmental Impact Statement or through legislative action?
- Is the concern relevant to and within the scope of the decision being made and does it pertain directly to the Proposed Action?
- Can the concern be resolved through design criteria (avoiding, minimizing, rectifying, reducing or eliminating, or compensating for the proposed impact)?

1.10.1. Unresolved Resource Conflicts

Although a number of concerns and potential issues were noted during scoping and the analysis, no unresolved resource conflicts were identified. As documented in Chapter 3 and this project's planning record, the Proposed Action would comply with all applicable laws, rules, regulations, and Forest Plan standards and guidelines.

All comments, and issues raised during the various scoping periods have been addressed and those documents have been included in the project record for the Currant-Ellison Watershed Restoration Project.

Based on public comment, consultation and interdisciplinary analysis, the following issues were identified and will be analyzed within the Environmental Assessment:

- The Proposed Action may result in effects upon wildlife species and/or their habitats including sensitive species, management indicator species, and migratory birds.
- The Proposed Action may result in effects upon vegetative communities including increased risks for noxious and invasive weeds.
- The Proposed Action may result in effects upon hydrologic resources including soils.
- The Proposed Action may result in effects upon wilderness areas.
- The Proposed Action may result in effects upon designated roadless areas.

Chapter 2 — Alternatives

2.1. Introduction

This chapter describes and compares the proposed action and no action alternatives. This chapter concludes with a comparative summary of the alternatives considered in detail. This comparison, combined with the more detailed disclosure of impacts in Chapter 3, provides the information necessary for the decision-maker to make an informed choice between alternatives.

2.2. Alternatives Eliminated from Detailed Study

In addition to the proposed action and no action alternatives evaluated in this document, other management approaches were considered by the IDT in response to preliminary concerns generated from internal and external scoping of the Proposed Action. These alternatives, which were not studied in detail, are described in this section along with an explanation of why the alternatives were not considered further.

2.2.1. Removal or reduction of livestock grazing

Under this alternative domestic livestock would be removed or numbers significantly reduced within the project area. This alternative does not restore fire adapted ecosystems. No treatments would occur to reduce pinyon-juniper densities or encroachment. This Alternative would not reduce fuel loads or reduce wildfire risks to private lands or other important resources. This alternative would also not restore sagebrush ecosystems which are important to species such as sage grouse. This alternative was eliminated because it doesn't allow for restoration within the project area and does not meet the purpose and need for action.

2.2.2. No Treatments within Roadless Areas or Wilderness Areas

Under this alternative no treatments would occur within roadless areas or wilderness areas. Alternative 3 was developed and analyzed to address no treatments within wilderness areas. Roadless Areas comprise a large portion of the project area and restoration treatments within these areas are critical to meet the purpose and need for this project. This alternative does not restore fire adapted ecosystems. Few treatments would occur to reduce pinyon-juniper densities or encroachment. This Alternative would not significantly reduce fuel loads or reduce wildfire risks to private lands or other important resources. This alternative would also not restore sagebrush ecosystems at a scale needed for species such as sage grouse and mule deer. This alternative was eliminated because it doesn't allow for the scale of restoration within the project area and does not meet the purpose and need for action.

2.3. Alternatives Considered in Detail

2.3.1. No Action Alternative

Under the No Action Alternative, current management plans would continue to guide management of the project area. No treatments would be implemented to improve wildlife habitats, reduce fuels or improve vegetation conditions. Wildfires would continue to occur and could be managed for resource benefits in accordance with existing policy and regulations.

Pinyon-Juniper will continue to increase in density across the landscape. Sagebrush communities would continue to age and will contain limited early seral components.

2.3.2. Proposed Action

The Ely Ranger District proposes to implement a variety of restoration treatments on a landscape scale within the Currant-Ellison Watershed Restoration Project Area. Appendix A contains a map of the project area. The following sections and Table 3 summarize the various treatments being proposed including total acres proposed for treatment.

2.3.2.1. Vegetation Treatments using Mechanical Methods

Up to 16,600 acres may be treated using various mechanical treatment methods. An additional 171 acres may be treated to eradicate halogeton and improve resource conditions. Mechanical treatments would generally occur on slopes less than 30%. Mechanical treatments will improve the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Areas or piles of heavy slash build-up following mechanical treatments may be burned or chipped to reduce the risk of wildfires. A variety of treatments methods will be used to meet site-specific objectives. Mechanical treatment methods may include:

- Hand cutting/thinning with chainsaws
- Personal or commercial fuelwood harvest
- Mastication, chipping, or similar mechanical methods
- Hand cutting of fuel breaks along roads or natural barriers
- Commercial green fuelwood harvest using low impact mechanized vehicles or other equipment.
- Slash created from treatments may be disposed through chipping, removal from the project area, or jackpot burning during periods of low fire risk.

Seeding may be done to restore perennial vegetation. Seed mixtures will emphasize native seed, however, non-native perennial species may be considered on a very limited basis such as restoration of a site heavily infested by halogeton or other species where the potential for success using native species is considered very low. Seed may be applied using hand seeders, rangeland drills or other similar mechanical methods.

Potential equipment that may be used would include chainsaws, three wheeled shears, tracked vehicles, rubber tire skidders and chippers. The work may be accomplished using contractors, Forest Service crews, stewardship contracts, commercial sales, volunteer groups or other similar methods. Existing roads will be used for access. Roads within the project area may be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. These actions would ensure the safety of both the public and project personnel.

Mechanical vegetation treatments will be used to:

- Restore or enhance Wildlife habitats with an emphasis on restoration of sagebrush ecosystems through treatment of pinyon-juniper.
- Treatment of pinyon-juniper to reduce fuels around and protect archeological and historical resources.
- Treatments to reduce fuels.
- Treatments to thin pinyon-juniper stands to enhance pinyon nut production and improve the health of the stands.

2.3.2.2. Vegetation Treatments using Prescribed Fire

Up to 13,500 acres may be treated using prescribed fire. Prescribed fire treatments may occur during any season of the year within established prescriptions. Prescribed fire treatments would be used to reduce pinyon-juniper densities, restore sagebrush and mountain brush communities through removal of pinyon-juniper, reduce fuels, and restore fire within wilderness areas. Burned openings will typically range from 1/4 to 200 acres in size and will create a mosaic pattern across the landscape. Larger openings may occur, particularly when utilizing prescribed fire as a tool due to somewhat unpredictable nature of fire. A variety of ignition methods may be used, including:

- Ground ignition-drip torches and/or flares
- Aerial ignition using helicopters-helitorch and/or Plastic Sphere Dispenser (PSD)
- Management of naturally occurring wildfires (unplanned ignitions).

Ground support staging areas will be on existing roads or designated areas. Hand lines will be discouraged; however, may be used to protect archeological resources, historic properties, private lands or other high value resources. In addition, firefighting resources would be present to ensure full containment of the prescribed fire within the project area. The primary target areas for the prescribed burn would be Phase I and Phase II pinyon/juniper stands, White fir communities, and wilderness areas.

Roads within the project area would be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. The project area would also be checked and cleared of any campers, hunters, or other recreational users. These actions would ensure the safety of both the public and project personnel.

2.3.2.3. Watershed and Riparian Restoration

Watershed and riparian restoration treatments will be implemented throughout much of the project area. Approximately 534.2 acres of stream and/or spring habitats will be treated/restored. Watershed and riparian treatments may include:

- Pinyon-Juniper treatments and/or thinning around springs and other riparian areas to restore riparian vegetation and increase water quantity and quality. Slash created will be utilized as natural barriers to grazing animals and ungulates as a way of limiting trampling, soil shearing and land wasting into the stream courses and springs. All slash will be placed into natural openings in the riparian vegetative corridor and other openings created by grazing animals.
- Stabilization/restoration of streambanks and headcuts which may involve the use of equipment.
- Planting of riparian vegetation including willows, sedge plugs, and seeding of native seed.
- Riparian exclosures
- Road relocation and/or rehabilitation to reduce sedimentation into streams as well as reduce soil erosion.

2.3.2.4. Road Rehabilitation

Road rehabilitation will be completed on closed user created vehicle routes. These treatments will consist of ripping roadbeds and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash will be installed along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. Up to 52 miles of closed routes may be rehabilitated under this project.

2.3.2.5. Road Maintenance

Road maintenance will be completed to address issues associated with designated, open routes such as adequate signing, failing culverts, washouts, stream crossings and non-functioning water bars or drain dips. Vegetation along open routes may also be cut back to provide for better sight lines for both directions of travel along the routes. All well-developed level III routes will be maintained every few years according to the Road Maintenance Schedule. High clearance Level II roads and motorized trails will be maintained only when needed to provide for public safety, to reduce erosion and sedimentation into riparian areas, or to address other resource concerns.

2.3.2.6. Abandoned Mine Closures

The project area contains numerous abandoned mines including open shafts and adits. Under this proposal the Forest service is proposing to close open shafts and adits to protect public safety on National Forest System lands. Closures will include the following options:

- Foam plugs, which completely seal the mine opening.

- Mine gates which prevent public access, but maintain habitats for bats and other wildlife species, which are using the shafts or adits.

2.3.2.7. Treatment Acres by Unit

Table 3. Proposed Action Treatment Acres by Unit

Treatment Type	Acreage/Mileage
Bald Mountain Unit (8208 Acres)	
Unauthorized Route Rehabilitation	Up to 0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Watershed Treatments	14.7 Acres
Cottonwood Unit (31,174 Acres)	
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 15 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5500 Acres
Watershed Treatments	199 Acres
Ellison Unit (21,241 Acres)	
Prescribed Fire	Up to 2500 Acres
Unauthorized Route Rehabilitation	Up to 30 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 3000 Acres
Watershed Treatments	281.5 Acres
Currant 1 Unit (25,925 Acres)	
Abandoned Mines	6.5 Acres
Prescribed Fire (No active ignition, potential fire movement from adjacent units)	Up to 1000 Acres
Currant 2 Unit (20,363 Acres)	
Abandoned Mines	26 Acres
Prescribed Fire	Up to 5000 Acres
Unauthorized Route Rehabilitation	0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1200 Acres
Watershed Treatments	6.5 Acres
Red Mountain Unit (34,904 Acres)	
Treatment Type	Acreage/Mileage
Unauthorized Route Rehabilitation	Up to 2 Miles
Prescribed Fire	Up to 2000 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1500 Acres
Watershed Treatments	19.5 Acres
White Pine Unit (23,479 Acres)	
Prescribed Fire	Up to 3000 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Unauthorized Route Rehabilitation	Up to 2 Miles
Watershed Treatments	13 Acres
Wilhoites Unit (19,627 Acres)	
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5000 Acres
Unauthorized Route Rehabilitation	Up to 2 Miles
Total Treatment Acres (184,921 Project Area Acres)	
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 52 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 16,600 Acres
Watershed Treatments	534.2 Acres
Prescribed Fire	Up to 13,500 Acres
Abandoned Mines	32.5 Acres

2.3.2.8. Priority for Treatments

The following are the priorities for treatments:

- Restoration of sagebrush steppe and mountain brush communities through the treatment of pinyon-juniper.
- Treatments to reduce fuels and create fuel breaks.
- Restoration and improvement of riparian communities.
- Restoration of fires role within wilderness.
- Reduction of soil erosion and sedimentation through road rehabilitation and improved road maintenance.
- Treatment of pinyon-juniper stands to improve stand health, protect archeological/historical resources, and to protect or enhance other resources.
- Regeneration and restoration of aspen communities.
- Improvement within mountain mahogany communities though the selective treatment and removal of pinyon-juniper.

2.3.2.9. Proposed Mitigation Measures

Mitigation measures have been developed to ensure the project maximizes the benefits and minimizes the risks to resources in the project area.

Wildlife:

- Establish a minimum of a 250-acre protection area around any active goshawk nests. Also, establish an appropriate aircraft buffer around any active goshawk nests during spring or early summer burns to prevent disturbance to the nesting birds. Goshawk nesting surveys will be done before prescribed fire is used in potential nesting habitat.
- No prescribed fire ignitions in pure mountain mahogany stands identified on the H-T current vegetation map and on the ground; avoid burning these stands which provide important wildlife habitat
- Prescribed fire and mechanical treatments will not target sagebrush communities which do not contain a pinyon-juniper or white fir component.
- Ensure that ignition activities for prescribed burning are less than 2 weeks in duration within treatment units to allow for migratory birds that may lose their nest to re-nest.
- If mechanical treatments are implemented during the breeding season (May 1 to July 15), nesting bird surveys will be done and breeding territories found will be flagged and avoided.
- Leave and maintain large, cone-bearing pinyon trees in patches within the treatment area for the pinyon jay, black-throated gray warbler, and the juniper titmouse. Large stands of pinyon will remain within and adjacent to the project area.
- Prescribed fire will not be used in occupied habitat for pygmy rabbits. Trees in these areas may be removed with chainsaws and be accessed by foot.

- Survey for bats prior to mine closures.

Heritage Resources:

- Avoid burning known historic wood features within the project area. Hand clearing of vegetation around these features may be done as needed to protect the sites.
- Avoid active ignition of other known cultural sites.

Noxious and Invasive Weeds:

- Prescribed fire treatments will be encouraged during spring; avoiding south facing slopes in areas where cheatgrass is abundant. If cheatgrass is present it will likely increase over time.
- Treatment of known infestations with herbicide before and after implementation will occur and will help limit the further establishment and spread of invasive and noxious weed species.
- Inventoried invasive and noxious weed infestations will be flagged and avoided to reduce the expansion of undesirable species.
- To mitigate ground disturbance during mastication, track equipment operators will avoid making abundant sharp right angle turns, instead utilize a gentle curved pattern with the lowest possible sharp angles during implementation to reduce ground disturbance.
- In areas where jackpot burning will be applied, monitoring will be implemented before and after treatment and any infestations of noxious or invasive weeds will be treated.
- The District Weed Coordinator will complete follow-up monitoring within the Currant-Ellison Watershed Restoration Project Area following completion and at regular intervals to determine the persistence, reoccurrence or spread of invasive and noxious weeds.
- Inventory of new and existing populations of undesirable species will continue to be recorded and treated along existing roads being used during and after project implementation.
- To ensure continuation of an integrated pest management program across the project area, additional funding opportunities will be pursued through collaboration with; Rocky Mountain Elk Foundation, Mule Deer Foundation, and other potential partnerships.
- During implementation, vehicles entering and leaving the project area will be washed to avoid transmission of invasive and/or noxious weed seeds.
- As needed, control of noxious weeds and invasive species would be done under the Forest's approved treatment program.

Vegetation:

- No ignition will occur on rocky outcrops to avoid burning rare plant communities
- Seeding of native grasses and forbs may be done following treatment to provide additional seed sources for vegetative recovery. Non-native species may be included in the seed mix for the Halogeton Treatments.

Range:

- In areas where prescribed fire and/or where re-seeding is employed, a mandatory two year rest will be implemented as designated by the Forest Plan.
- In areas where mechanical methods are used, adjustments will be made to lessen impacts by livestock. Adjustments may include temporary head month reductions, changes in rotation of livestock operations, and resting areas where re-seeding has occurred.

Soils/Air/Water

- Skidding or other activities that would tend to loosen the soils will not occur on slopes over 25%. Skidding across drainages will be avoided where feasible.
- Protect water quality through the use of BMPs, which are employed by the Forest Service and the State of Nevada to prevent water quality degradation and to meet state water quality objectives relating to non-point sources of pollution. In addition, use site-specific mitigation measures that relate directly to these BMPs to minimize erosion and resultant sedimentation.
- For ephemeral streams that do not show scour and deposition employ streamside management zone (SMZ) widths of 25'. Harvesting equipment is excluded from this area. Equipment may reach into the exclusion zone to remove material.
- Exclude equipment from channels, except at equipment crossings, unless specifically allowed for in the environmental document. Minimize the number of crossings. Crossings will be back-bladed after use, as necessary, to restore the natural relief and reduce erosion.
- Remove any slash generated by project activities from stream courses as soon as practicable unless specifically allowed for in the environmental document.
- Do not locate landings within channels. Mulch and then sub-soil landings and other disturbances within 200 feet of stream channels.
- Remove no trees adjacent to channels that provide bank stability and/or contribute to channel integrity (except for hazard trees).
- Drainages breached, rerouted, or infilled by existing and activity related landings, skid trails and temporary roads would be restored to their natural contour. This would occur during sub-soiling operations.
- Do not locate skid trails parallel to the bottom of swales. Treat swales as stream courses, crossing at right angles and skidding away from these features.
- Retain at least 90% of large woody debris in channels and leave 50-75% of the ground unburned within the interior 50' of drainages. Within these core areas, ensure that burned areas appear intermittent, not concentrated. Maintain a minimum of 75% ground cover over stream channels. Locate burn piles outside of the "green line" or at least 25' away from channels having evident scour and deposition, whichever is greater. Burn piles prior to under burning.

Public Safety:

- Roads within the project area may be closed to the public for the brief time that operations are in progress.
- Signs would be posted as would a notification through public media.
- Local residents and permittees would be notified.
- The project area would also be checked and cleared of any campers, hunters, and any other recreational users that could be impacted by any of the types of treatments.

Wilderness:

- The use of motorized or mechanized equipment related to unauthorized route rehabilitation is prohibited within wilderness areas.
- Non-native seed will not be used within wilderness areas.

2.3.3. Alternative 3 No Treatments within Wilderness

The Ely Ranger District proposes to implement a variety of restoration treatments on a landscape scale within the Currant-Ellison Watershed Restoration Project Area. Appendix A contains a map of the project area as well as individual unit maps. The following sections and Table 4 summarize the various treatments being proposed including total acres proposed for treatment.

2.3.3.1. *Vegetation Treatments using Mechanical Methods*

Up to 16,600 acres may be treated using various mechanical treatment methods. An additional 171 acres may be treated to eradicate halogeton and improve resource conditions. Mechanical treatments would generally occur on slopes less than 30%. Mechanical treatments will improve the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Areas or piles of heavy slash build-up following mechanical treatments may be burned to reduce the risk of wildfires. A variety of treatments methods will be used to meet site-specific objectives. Mechanical treatment methods may include:

- Hand cutting/thinning with chainsaws
- Personal or commercial fuelwood harvest
- Mastication, chipping, or similar mechanical methods
- Hand cutting of fuel breaks along roads or natural barriers
- Commercial green fuelwood harvest using low impact mechanized vehicles or other equipment.
- Slash created from treatments may be disposed through chipping, removal from the project area, or jackpot burning during periods of low fire risk.
- No mechanical treatments will occur within Wilderness.

Seeding may be done to restore perennial vegetation. Seed mixtures will emphasize native seed, however, non-native perennial species may be considered on a very limited basis such as restoration of a site heavily infested by halogeton or other species where the potential for success

using native species is considered very low. Seed may be applied using hand seeders, rangeland drills or other similar mechanical methods.

Potential equipment that may be used would include chainsaws, three wheeled shears, tracked vehicles, rubber tire skidders and chippers. The work may be accomplished using contractors, Forest Service crews, stewardship contracts, commercial sales, volunteer groups or other similar methods. Existing roads will be used for access. Roads within the project area may be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. These actions would ensure the safety of both the public and project personnel.

Mechanical vegetation treatments will be used to:

- Restore or enhance Wildlife habitats with an emphasis on restoration of sagebrush ecosystems through treatment of pinyon-juniper.
- Treatment of pinyon-juniper to reduce fuels around and protect archeological and historical resources.
- Treatments to reduce fuels.
- Treatments to thin pinyon-juniper stands to enhance pinyon nut production and improve the health of the stands.

2.3.3.2. Vegetation Treatments using Prescribed Fire

Up to 2,500 (Ellison Unit) acres may be treated using prescribed fire outside of Wilderness Areas. Prescribed fire treatments may occur during any season of the year within established prescriptions. Prescribed fire treatments would be used to reduce pinyon-juniper densities, restore sagebrush and mountain brush communities through removal of pinyon-juniper, and reduce fuels. Burned openings will create a mosaic pattern across the landscape. Larger openings may occur, particularly when utilizing prescribed fire as a tool due to somewhat unpredictable nature of fire. A variety of ignition methods may be used, including:

- Ground ignition-drip torches and/or flares
- Aerial ignition using helicopters-helitorch and/or Plastic Sphere Dispenser (PSD)
- Management of naturally occurring wildfires (unplanned ignitions).

Ground support staging areas will be on existing roads or designated areas. Hand lines will be discouraged; however, may be used to protect archeological resources, historic properties, private lands or other high value resources. In addition, firefighting resources would be present to ensure full containment of the prescribed fire within the project area. The target areas for the prescribed burn would be Phase I and Phase II pinyon/juniper stands, White fir communities, and wilderness areas.

Roads within the project area would be closed to the public for the brief time that operations are in progress. Proper signs would be posted, as would a notification through proper media (e.g., television, radio, and newspapers). Local residents, businesses and local governments would be notified. The project area would also be checked and cleared of any campers, hunters,

or other recreational users. These actions would ensure the safety of both the public and project personnel.

2.3.3.3. Watershed and Riparian Restoration

Watershed and riparian restoration treatments will be implemented throughout much of the project area. Approximately 534.2 acres of stream and/or spring habitats will be treated/restored. Watershed and riparian treatments may include:

- Pinyon-Juniper treatments and/or thinning around springs and other riparian areas to restore riparian vegetation and increase water quantity and quality. Slash created will be utilized as natural barriers to grazing animals and ungulates as a way of limiting trampling, soil shearing and land wasting into the stream courses and springs. All slash will be placed into natural openings in the riparian vegetative corridor and other openings created by grazing animals.
- Stabilization/restoration of streambanks and headcuts which may involve the use of equipment.
- Planting of riparian vegetation including willows, sedge plugs, and seeding of native seed.
- Riparian exclosures.
- Road relocation and/or rehabilitation to reduce sedimentation into streams as well as reduce soil erosion.
- No treatments will occur within wilderness areas.

2.3.3.4. Road Rehabilitation

Road rehabilitation will be completed on closed user created vehicle routes. These treatments will consist of ripping roadbeds and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash will be installed along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. Up to 52 miles of closed routes may be rehabilitated under this project. No unauthorized road rehabilitation will occur within wilderness areas

2.3.3.5. Road Maintenance

Road maintenance will be completed to address issues associated with designated, open routes such as adequate signing, failing culverts, washouts, stream crossings and non-functioning water bars or drain dips. Vegetation along open routes may also be cut back to provide for better sight lines for both directions of travel along the routes. All well-developed level III routes will be maintained every few years according to the Road Maintenance Schedule. High clearance Level II roads and motorized trails will be maintained only when needed to provide for public safety, to reduce erosion and sedimentation into riparian areas, or to address other resource concerns.

2.3.3.6. *Abandoned Mine Closures*

The project area contains numerous abandoned mines including open shafts and adits. Under this proposal the Forest service is proposing to close open shafts and adits to protect public safety on National Forest System Lands. Closures will include the following options:

- Foam plugs, which completely seal the mine opening.
- Mine gates which prevent public access, but maintain habitats for bats and other wildlife species, which are using the shafts or adits.

2.3.3.7. Treatment Acres by Unit

Table 4. Alternative 3 Treatment Acres by Unit

Treatment Type	Acreage/Mileage
Bald Mountain Unit (8208 Acres)	
Unauthorized Route Rehabilitation	Up to 0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Watershed Treatments	14.7 Acres
Cottonwood Unit (31,174 Acres)	
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 15 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5500 Acres
Watershed Treatments	199 Acres
Ellison Unit (21,241 Acres)	
Prescribed Fire	Up to 2500 Acres
Unauthorized Route Rehabilitation	Up to 30 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 3000 Acres
Watershed Treatments	281.5 Acres
Currant 1 Unit (25,925 Acres)	
Abandoned Mines	6.5 Acres
Prescribed Fire (No active ignition, potential fire movement from adjacent units)	0 Acres
Currant 2 Unit (20,363 Acres)	
Abandoned Mines	26 Acres
Prescribed Fire	0 Acres
Unauthorized Route Rehabilitation	0.5 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1200 Acres
Watershed Treatments	6.5 Acres
Red Mountain Unit (34,904 Acres)	
Unauthorized Route Rehabilitation	Up to 2 Miles
Prescribed Fire	0 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 1500 Acres
Watershed Treatments	19.5 Acres
White Pine Unit (23,479 Acres)	
Prescribed Fire	0 Acres
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 200 Acres (Fuel breaks along road corridors and outside Wilderness)
Unauthorized Route Rehabilitation	Up to 2 Miles
Watershed Treatments	13 Acres
Wilhoites Unit (19,627 Acres)	
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 5000 Acres
Unauthorized Route Rehabilitation	Up to 2 Miles
TOTAL TREATMENT ACRES (184,921 Project Area Acres)	
Halogeton Treatments/Drill Seeding	171 Acres
Unauthorized Route Rehabilitation	Up to 52 Miles
Vegetation Treatments (Mechanical/Hand Cutting)	Up to 16,600 Acres
Watershed Treatments	534.2 Acres
Prescribed Fire	Up to 2,500 Acres
Abandoned Mines	32.5 Acres

2.3.3.8. Priority for Treatments

Prescribed fire and/or mechanical treatments will restore vegetative communities, restore and improve wildlife habitats and reduce fuels. The following are the priorities for treatments:

- Restoration of sagebrush steppe and mountain brush communities through the treatment of pinyon-juniper.
- Treatments to reduce fuels and create fuel breaks.
- Restoration and improvement of riparian communities.
- Reduction of soil erosion and sedimentation through road rehabilitation and improved road maintenance.
- Treatment of pinyon-juniper stands to improve stand health, protect archeological/historical resources, and to protect or enhance other resources.
- Regeneration and restoration of aspen communities.
- Improvement within mountain mahogany communities through the selective treatment and removal of pinyon-juniper.

2.3.3.9. Mitigation Measures

Mitigation measures have been developed to ensure the project maximizes the benefits and minimizes the risks to resources in the project area.

Wildlife:

- Establish a minimum of a 250 acre protection area around any active goshawk nests. Also, establish an appropriate aircraft buffer around any active goshawk nests during spring or early summer burns to prevent disturbance to the nesting birds.
- Goshawk and Flammulated owl nesting surveys will be done before prescribed fire is used in potential nesting habitat.
- No igniting prescribed fire in pure mountain mahogany stands identified on the H-T current vegetation map; avoid burning these stands which provide important wildlife habitat
- Prescribed fire will not be used in occupied habitat for pygmy rabbits. Trees in these areas may be removed with chainsaws and be accessed by foot.
- Ensure that ignition activities for prescribed burning are less than 2 weeks in duration within treatment units to allow for migratory birds that may lose their nest to re-nest.
- If mechanical treatments are implemented during the breeding season (May 1 to July 15), surveys will be done and areas where concentrated bird nesting is occurring will be flagged and avoided.
- In areas where spring burning will occur, areas of high nesting activity will be avoided.

Heritage Resources:

- Avoid burning known historic wood features within the project area. Hand clearing of vegetation around these features may be done as needed to protect the sites.

- Avoid active ignition of other known cultural sites.

Noxious and Invasive Weeds:

- Prescribed fire treatments will be encouraged during spring; avoiding south facing slopes in areas where cheatgrass is abundant. If cheatgrass is present it will likely increase over time.
- Treatment of known infestations with herbicide before and after implementation will occur and will help limit the further establishment and spread of invasive and noxious weed species.
- Inventoried invasive and noxious weed infestations will be flagged and avoided to reduce the expansion of undesirable species.
- To mitigate ground disturbance during mastication, track equipment operators will avoid making abundant sharp right angle turns, instead utilize a gentle curved pattern with the lowest possible sharp angles during implementation to reduce ground disturbance.
- In areas where jackpot burning will be applied, monitoring will be implemented before and after treatment and any infestations of noxious or invasive weeds will be treated.
- The District Weed Coordinator will complete follow-up monitoring within the Currant-Ellison Watershed Restoration Project Area following completion and at regular intervals to determine the persistence, reoccurrence or spread of invasive and noxious weeds.
- Inventory of new and existing populations of undesirable species will continue to be recorded and treated along existing roads being used during and after project implementation.
- To ensure continuation of an integrated pest management program across the project area, additional funding opportunities will be pursued through collaboration with; Rocky Mountain Elk Foundation, Mule Deer Foundation, and other potential partnerships.
- During implementation, vehicles entering and leaving the project area will be washed to avoid transmission of invasive and/or noxious weed seeds.
- As needed, control of noxious weeds and invasive species would be done under the Forest's approved treatment program.

Vegetation:

- No ignition will occur on rocky outcrops to avoid burning rare plant communities
- Seeding of native grasses and forbs may be done following treatment to provide additional seed sources for vegetative recovery. Non-native species may be included in the seed mix for the halogeton treatments.

Range:

- Coordination with the affected livestock permittees within the allotments being treated would be conducted prior to any treatment occurring. Any livestock grazing closure for the purpose of the vegetation treatment would be done through the grazing decision or agreement process and would occur prior to the treatment.

- In areas where prescribed fire and/or where re-seeding is employed, a mandatory two year rest will be implemented as designated by the Forest Plan.
- In areas where mechanical methods are used, adjustments will be made to lessen impacts by livestock. Adjustments may include temporary head month reductions, changes in rotation of livestock operations, and resting areas where re-seeding has occurred.

Soils/Air/Water:

- Skidding or other activities that would tend to loosen the soils will not occur on slopes over 25%. Skidding across drainages will be avoided where feasible.
- Protect water quality through the use of BMPs, which are employed by the Forest Service and the State of Nevada to prevent water quality degradation and to meet state water quality objectives relating to non-point sources of pollution. In addition, use site-specific mitigation measures that relate directly to these BMPs to minimize erosion and resultant sedimentation.
- For ephemeral streams that do not show scour and deposition employ streamside management zone (SMZ) widths of 25'. Harvesting equipment is excluded from this area. Equipment may reach into the exclusion zone to remove material.
- Exclude equipment from channels, except at equipment crossings, unless specifically allowed for in the environmental document. Minimize the number of crossings. Crossings will be back-bladed after use, as necessary, to restore the natural relief and reduce erosion.
- Remove any slash generated by project activities from stream courses as soon as practicable unless specifically allowed for in the environmental document.
- Do not locate landings within channels. Mulch and then sub-soil landings and other disturbances within 200 feet of stream channels.
- Remove no trees adjacent to channels that provide bank stability and/or contribute to channel integrity (except for hazard trees).
- Drainages breached, rerouted, or infilled by existing and activity related landings, skid trails and temporary roads would be restored to their natural contour. This would occur during sub-soiling operations.
- Do not locate skid trails parallel to the bottom of swales. Treat swales as stream courses, crossing at right angles and skidding away from these features.
- Retain at least 90% of large woody debris in channels and leave 50–75% of the ground unburned within the interior 50' of drainages. Within these core areas, ensure that burned areas appear intermittent, not concentrated. Maintain a minimum of 75% ground cover over stream channels. Locate burn piles outside of the “green line” or at least 25' away from channels having evident scour and deposition, whichever is greater. Burn piles prior to under burning.

Public Safety:

- Roads within the project area would be closed to the public for the brief time that operations are in progress.

- Signs would be posted as would a notification through public media.
- Local residents and permittees would be notified.
- The project area would also be checked and cleared of any campers, hunters, and any other recreational users that could be impacted by any of the types of treatments.

Wilderness:

- No treatments will occur within wilderness areas.

2.3.4. Monitoring

Monitoring is proposed to 1) assess the effectiveness of treatments in achieving objectives; 2) identify unintended impacts to resources; and 3) determine success in achieving desired vegetation re-establishment. Monitoring documentation will be maintained within the project record in the central files.

Wildlife:

- Known or identified Goshawk nests will be monitored annually.
- Known Flammulated owl nests or areas will be monitored annually.
- Site visits will occur in treatment areas within habitat for sage grouse to assess use by the species.
- Photo points will be established to document change over time.
- Photo points will be established within aspen areas prior to treatment with prescribed fire, and then retaken for 10 years.

Heritage Resources:

- Cultural Resources—Conduct a post burn assessment on a minimum of three sites identified by the district archeologist to determine the effects of the treatments.

Noxious and Invasive Weeds:

- Annual site visits will be conducted of treatment areas and noxious weeds will be identified and treated.

Vegetation:

- Photo points will be established at representative locations within all vegetation communities. Photo point information and other monitoring data will be documented and tracked within a project specific monitoring folder.
- Random transects will be established within treatment areas to document vegetation response.

Wilderness and Roadless Areas:

- Treatment areas should be inspected annually for un-authorized vehicle use and /or development of unauthorized vehicle routes.
- Within roadless areas, photo points will be established to document recovery and visual changes over time.

2.4. Summary Comparison of Alternatives

Table 5 presents a comparative summary of the environmental effects for the alternatives being considered in detail.

Table 5. Comparison of Alternatives and Effects

Resources	Proposed Action	No Action	Alternative 3 No Treatment in Wilderness
Vegetation Communities			
Pinyon-Juniper Communities	Total acres within Phase I&II would be reduced to restore sagebrush communities. Phase III and some phase II would be thinned to reduce fuels in several areas.	No treatments would occur. Phase I&II pinyon-juniper would continue to expand and increase in density resulting in continued loss of sagebrush communities. No fuels treatments would occur around private lands or along roads.	Total acres within Phase I&II would be reduced to restore sagebrush communities. Phase III and some phase II would be thinned to reduce fuels in several areas. No pinyon-juniper would be treated within Wilderness resulting in increasing densities and loss of sagebrush communities.
Sagebrush Communities	Acres of sagebrush would increase as a result of treatments in pinyon-juniper. The diversity of age classes in sagebrush would also increase	Acres of sagebrush would continue to decrease as pinyon-juniper densities increase. Age classes of sagebrush would continue to move to mature stands with few areas of younger age classes.	Acres of sagebrush would increase as a result of treatments in pinyon-juniper. The diversity of age classes in sagebrush would also increase. Sagebrush communities within Wilderness Areas may decline with increased density of pinyon-juniper.
Aspen Communities	Some seral aspen stands which contain white fir would be regenerated and contain an abundance of young aspen. Some stable aspen stands would increase as prescribed fire bumps the outer edges and promotes regeneration.	Seral aspen stands would continue to decline as the stands move towards a community dominated by white fir. Many of these stands may be lost over time. The limited stable aspen stands would remain static.	Because a large portion of the aspen communities are within wilderness, these stands would continue to decline as the stands move towards a community dominated by white fir. Many of these stands may be lost over time. The limited stable aspen stands would remain static.
White Fir Communities	Acres of white fir would decrease as prescribed fire is implemented within wilderness.	Acres of white fir would increase as seral aspen communities move towards a stand dominated by fir.	Because no prescribed fire would occur within wilderness, acres of white fir would increase as seral aspen communities move towards a stand dominated by fir.
Mountain Mahogany Communities	Pinyon-juniper trees would be thinned from mountain mahogany stands maintaining those communities.	Mountain mahogany stands would remain static over the short term. Pinyon-juniper densities may increase within the stands over the long term.	Pinyon-juniper trees would be thinned from mountain mahogany stands maintaining those communities.
Riparian Communities	Treatments within pinyon-juniper and watershed treatments will restore riparian vegetation, stabilize stream banks and may increase water quantity	Pinyon-juniper will continue to increase in density and replace riparian vegetation. Stream bank stability may decline in localized areas and water quantity will remain static or decline.	Pinyon-juniper will continue to increase in density within wilderness and may replace riparian vegetation. Water quantity may remain static or decline within wilderness.

Resources	Proposed Action	No Action	Alternative 3 No Treatment in Wilderness
Watersheds/Hydrology/Soils			
Equivalent Roaded Acre (ERA) Values	5.63	4.06	5.41
Percent of Threshold of Concern (TOC)	47%	34%	45%
Noxious Weeds			
Acres of Noxious Weeds	Acres of noxious weeds may increase in the short term as a result of disturbance. Over the long term the total acres of noxious weeds should remain static or decline as a result of improved vegetation conditions and weed treatment efforts.	Acres of noxious weeds are expected to remain static or increase slightly over time if weed treatments do not occur due to funding constraints.	Acres of noxious weeds may increase in the short term as a result of disturbance. Over the long term the total acres of noxious weeds should remain static or decline as a result of improved vegetation conditions and weed treatment efforts.
Wildlife/Fisheries Species and Sensitive Plants			
Sage Grouse	Acres of sage grouse habitat would increase and improve in condition. Populations are expected to remain static or increase.	Acres of sage grouse habitat would decrease and populations are expected to remain static or decrease.	Acres of sage grouse habitat would increase and improve in condition. Populations are expected to remain static or increase.
Pygmy Rabbit	Potential habitat will increase as Phase I pinyon-juniper is treated to maintain sagebrush communities. Individuals may experience minimal disturbance during treatments.	Pygmy rabbit habitats would decrease as pinyon-juniper stands expand and increase in density.	Potential habitat will increase as Phase I pinyon-juniper is treated to maintain sagebrush communities. Individuals may experience minimal disturbance during treatments.
Bighorn Sheep	Treatments will result in an increase in bighorn sheep habitats.	Bighorn sheep habitats will decline as pinyon-juniper and white fir stands expand and increase in densities.	Bighorn sheep habitats within wilderness will continue to decline as pinyon-juniper and white fir stands expand and increase in densities.
Mule Deer	Availability and quality of habitats are expected to increase as sagebrush stands are restored and improved. Populations are expected to remain static or increase.	Availability and quality of habitats are expected to decline as sagebrush stands are lost to conifers. Populations are expected to remain static or decline.	Availability and quality of habitats are expected to increase as sagebrush stands are restored and improved. Some decline in habitats may occur within wilderness due to increase densities of conifers. Populations are expected to remain static.
Migratory Birds	Treatments will affect and may result in disturbance to individual birds. Some species habitats will increase and be improved such as sagebrush obligate species. Available habitats for species which utilize pinyon-juniper may be reduced. There will be no effects on the viability of any species.	Availability of habitats for sagebrush obligate species will decrease as pinyon-juniper expands and increases in density. Availability of habitat for species which rely upon pinyon juniper will increase.	Treatments will affect and may result in disturbance to individual birds. Some species habitats will increase and be improved such as sagebrush obligate species. Available habitats for species which utilize pinyon-juniper may be reduced. There will be no effects on the viability of any species.

Resources	Proposed Action	No Action	Alternative 3 No Treatment in Wilderness
Sensitive Plants	Individual plants may be impacted or disturbed during treatments. The proposed action will not affect the viability of any sensitive plant species.	There will be no direct or indirect effects upon sensitive plant species. There will be no effect on the viability of any sensitive plant species.	Individual plants may be impacted or disturbed during treatments. The proposed action will not affect the viability of any sensitive plant species.
Wilderness Areas and Roadless Areas			
Developments within Roadless Areas	None	None	None
Roadless Characteristics	There will be short term impacts as a result of smoke and visual impacts resulting from treatments in vegetation communities. Over the long term the visual impacts will be reduced as vegetation communities recover and revegetate.	There will be no impacts.	There will be short term impacts as a result of smoke and visual impacts resulting from treatments in vegetation communities. Over the long term the visual impacts will be reduced as vegetation communities recover and revegetate.
Wilderness Characteristics	This alternative will result in impacts upon several wilderness character attributes. These actions will increase the potential for natural processes to guide the management of several wilderness areas in the future.	There will be no impacts.	There will be no impacts.

Chapter 3 — Affected Environment and Environmental Consequences

3.1. Introduction

This chapter describes the existing conditions of the environment within the Currant-Ellison Watershed Restoration Project Area that may be affected by the alternatives presented in Chapter 2. The individual discussions are organized by resource.

This chapter also discloses the effects on the environment that would occur following implementation of the alternatives presented in Chapter 2. The direct, indirect and cumulative effects are discussed by resource area. Direct and indirect effects are caused by the action and occur at the same time and place or later in time or farther removed in distance, but is still reasonably foreseeable. Cumulative impacts result from the incremental impact of the action, when added to other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. For the purposes of the analysis below, short term will generally be three years or less while long term will generally be greater than three years unless otherwise noted below.

Pursuant to direction found at 40 CFR 1500.1(b) and 1500.4, the discussions presented here are summaries of the complete analysis and form the scientific and analytical basis for the alternatives' comparison at the end of Chapter 2. Unless specifically stated otherwise, additional supporting information, as well as, analysis assumptions and methodologies, is contained in the project planning record located at the Ely Ranger District.

3.2. Cumulative Effects Area

The Cumulative Effects Analysis Area for the Currant-Ellison Watershed Restoration Project includes all public lands and private lands located within the Project Boundary, as well as, BLM lands immediately adjacent (1 mile) to the USFS administered lands within the project area. This area is approximately 285,000 acres in size and includes Forest Service, BLM, and private lands. This area includes a wide range of habitats for various wildlife and fish species that may occur within the project area. This area also includes vegetation communities which represent those communities that typically occur within the project area. If an alternative Cumulative Effects Area is utilized for the analysis of a specific resource, that area will be described within the specific specialist report (see Appendix C, Cumulative Effects Map).

3.3. Vegetation

3.3.1. Affected Environment

Current, or existing, vegetation cover types were mapped for the project area (Gillham, et al. 2004); Table 6 reflects the acres mapped for various cover types.

Table 6. Vegetation Cover Types

Mapped Cover Type	Approximate acres	Percent
Pinyon-juniper, mixed woodland	132,218	71
Mixed Sage/brush species-Mountain big sage/mountain shrub, bitterbrush, Wyoming Big sage, Basin Big Sage, Black Sage, Mt. Shrub and Low Sage	36,588	20
Curleaf mountain mahogany	5,390	3
White fir	5,381	3
Riparian aspen, Grassland, Shrub, Basin Grassland (447 ac) Cottonwood (182 ac)	629	0.3
Other vegetation, agriculture, barren, mining and rock	4,794	2
Total acres within the project area	185,000	

3.3.1.1. Matrices

The Matrices are a scorecard developed by the Humboldt-Toiyabe National Forest for making community-type assessments (USDA FS 2009). The Matrices provide an ecological approach and include measurable parameters for soil, vegetation, hydrology, and disturbance factors that indicate whether a vegetation community, and the wildlife habitat it represents, is functioning, functioning-at-risk, or non-functioning (Table 7). The Matrices supply quantitative measures for field personnel to use to determine the ecological condition of various community types (for example, mountain big sagebrush, wet meadows, aspen, and mountain mahogany). Through the Matrices, a community type would be correlated to a plant alliance at the field data collection level (Table 8). The Matrices are based on field research, literature reviews, and National Resources Conservation Service (NRCS) ecological site descriptions. The criteria and process included in the Matrices was scientifically peer reviewed. The Matrices describe categories of specific conditions for these same vegetative types that would be considered to be in a declining state from functioning. The Matrices also describe categories of specific conditions for these same vegetative types that would be considered to be “functioning-at-risk” and “non-functioning” or unsatisfactory. Vegetative communities in either of these conditions would be considered less than desired. However, for vegetation communities that are functioning-at-risk or non-functioning, it is important to determine if the community condition is improving, stable, or declining.

Table 7. Crosswalk of Terms used in Humboldt Forest Plan and Scorecards

Forest Plan Ecological Condition	Rangeland Condition	Central Riparian Guide/Sagebrush-Grass Community	Matrices
Satisfactory	Excellent	High	Functioning
	Good	Moderate	
	Fair with an upward trend		Functioning-at-Risk
Unsatisfactory	Fair with a stable or downward trend	Low	Functioning-at-Risk to Non-functioning
	Poor	Very Low	

Table 8. Crosswalks vegetation cover types (Gillham et al. 2004) to the vegetation groups used by the Matrices (USDA FS 2009)

Category	Mapped Cover Type	Matrices Vegetation Group
Pinyon-Juniper	Pinyon	Pinyon-Juniper Woodland
	Juniper	
	Pinyon-Juniper	
	Mixed Woodland	
Riparian	Riparian Grassland	Dry-to-moist meadow Wet meadow
	Riparian Shrub	Stream
Aspen/Cottonwood	Cottonwood	Cottonwood
	Aspen	Aspen
Upland	Basin and mountain grassland	Appropriate upland vegetation group
	Black sagebrush	Black sagebrush
	Low sagebrush	Low sagebrush
	Mixed sagebrush/bitterbrush	None if sagebrush <50%
	Mountain big sagebrush	Mountain big sagebrush
		Mixed sagebrush/ bitterbrush
	Curly leaf mountain mahogany	Mountain mahogany
	Mountain brush	Mountain brush
	Wyoming big sagebrush	Wyoming big sagebrush
Other	Basin big sagebrush	None
	Isolated Conifer forest	None
	Non-vegetated – Barren, Snow, Mining, Urban, Agriculture	None

3.3.1.2. Pinyon Juniper

The lower elevations within the project area are currently dominated by pinyon juniper (p/j) cover type (Table 9). Pinyon dominates this mix. On the current vegetation map, RSAC (Remote Sensing Application Center), (see Appendix D), there are over 130,000 acres (71% of acres within project area) of pinyon–juniper (p/j) mapped on the current vegetation map. Pinyon dominates this mix. Since the pre-settlement period, the mid 1800’s, pinyon and juniper have expanded mainly downslope into sagebrush and to a lesser degree, other ecosystems (Tausch et. al. 1981). This rapid expansion is due to fire suppression, grazing practices, and a climate which favored the establishment and growth of these woodland species (ibid). It is estimated that 2/3’s of the area within the Great Basin currently occupied by p/j is expansion p/j; only 1/3 are historic woodlands (Miller, et. al. 2008). The expansion p/j lands are in various Phases of development. Miller et. al. 2008 defines the early, mid, and late Phases of pinyon-juniper woodland successional development as:

Phase I—trees are present but shrubs and herbs are the dominant vegetation that influence ecological processes on the site.

Phase II—trees are co-dominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site.

Phase III—trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site.

As Phase I and II transition into Phase III, the understory shrubs, grasses and forbs are lost as trees dominate and the tree’s canopy cover increases and dominates the site. The loss of the

ground vegetation and increased density of canopy fuels marks a shift in biomass to crown fuels which can significantly affect fire severity. The more trees dominated the woodlands become, the less likely they are to burn under moderate conditions. In addition, Phase III pinyon-juniper has lost much of the seed source necessary to regenerate understory herbs, grasses and shrubs following a disturbance (Miller et. al. 2008). As stated above, it is estimated that 2/3 of the landscape dominated by p/j is a phenomenon of recent expansion; formerly these areas were dominated by sagebrush. As pinyon-juniper mature and increase in density shrub and herbaceous species decline, reducing critical habitat components for many wildlife species, including mule deer, elk, sage grouse and other sagebrush dependent species. In Table 9, pinyon/juniper low, medium and high canopy designations correspond to Phase I, II, and III, respectively. The low, medium, and high, canopy designations correspond to the canopy closure classes for woodland vegetation in the existing vegetation map. These canopy closure breakouts are low = 10–20%, medium = 21–40%, and high = 41%+ (Gillham et. al. 2004).

Table 9. Acreage by Dominant Community Type

Community Type	Approximate Acres in Project Area
Pinyon-Juniper and Mixed Woodland	1,602
Phase 1	60,845
Phase 2	56,950
Phase 3	12,821
Total acres	132,218 acres
Cottonwood	182
Riparian- Riparian Aspen, Riparian Grassland, and Shrub	428
Uplands	41,997
Mountain Big Sagebrush/Mountain Shrub	15,307
Wyoming Big Sagebrush ^a	14,767
Low Sagebrush	4,214
Basin Big Sagebrush	866
Mixed Sage/ Bitterbrush	674
Mountain Mahogany	5,390
Black Sagebrush ^a	11
Mixed Shrub/Basin Shrub	749
Basin Grasslands	19
Isolated conifer forest (White Fir)	5,381
Other (barren/snow/isolated conifer forests/mining/Urban/Agriculture, Bristlecone Pine, White Bark/Limber Pine other vegetation)	4,794
Total	185,000

^aAcreage was calculated using Remote Sensing Applications Center (RSAC), Existing Vegetation Map of Humboldt-Toiyabe National Forest. Several years of ground verification has found an error pertaining to the abundance of Black sagebrush across the Ely District. In many instances Black sagebrush was misidentified as Wyoming sagebrush; thus, overestimating the presence of Wyoming sagebrush and underestimating Black sagebrush community types.

3.3.1.3. Mixed Sagebrush Species

The project area includes approximately 36,588 acres of various sagebrush cover types. Sagebrush communities provide critical habitat components for many wildlife species, including mule deer, sage grouse and other sagebrush dependent species. A portion of these vegetation communities

are slowly being replaced by Phase I and II pinyon-juniper. Objectives for sagebrush cover types include:

- Increase age class and species diversity within stands.
- Maintain stands through removal of phase I and II pinyon-juniper.

3.3.1.4. Curl-leaf Mountain Mahogany

The project area includes approximately 5,390 acres of mountain mahogany cover type. Mountain mahogany is a shade intolerant, long lived species. It has value as a big game forage species and provides thermal cover. Generally, mountain mahogany is a sparse reproducer. It mainly reproduces by seed, and while seed production can be high, the germination requirements are rather specific and the seedlings are preferred browse. Few seedlings grow to maturity. The species is also sensitive to fire; the bark is thin and easily killed by fires. The species does not sprout after fire (Fire Effects Information System). Objectives for mountain mahogany cover types include:

- Maintain stands through removal of pinyon-juniper encroachment.

3.3.1.5. White Fir/Seral Aspen

The project area includes approximately 5,381 acres of White Fir cover type. In a number of locations the white fir cover types are intermixed with seral aspen communities and mapping of these cover types is somewhat difficult. Seral aspen is defined as those stands where aspen are actively replaced over time by conifers. In other areas white fir occurs without an aspen component. In part due to fire suppression, white fir is encroaching slowly into high elevation mountain big sagebrush and other communities such as limber pine. White fir is a prolific seeder and provides dense shade; however, it is very susceptible to fire mortality. The absence of fire on this landscape has allowed fir to establish itself and dominate sites more so than would have happened with a functioning fire regime.

Objectives for White Fir cover types include:

- Where stands are associated with seral aspen communities, restore fire into the communities to maintain and enhance the aspen component.
- Where white fir is encroaching into mountain sagebrush cover types allow fire to interact along this edge to maintain these high elevation sagebrush basins.
- Restore fires natural role within these cover types.

3.3.1.6. Riparian Areas

Riparian areas are scattered in small areas throughout the project area. In a number of locations riparian cover types are intermixed with seral and stable aspen and cottonwood communities. Mapping of these cover types is somewhat difficult due to their small size. Objectives for riparian cover types include:

- Reduce pinyon-juniper encroachment within riparian areas. Within these areas encourage the dominance of species such as aspen, cottonwood, willow and herbaceous species.
- Restore hydrologic and stream function within these systems.

- Restore and/or maintain riparian vegetation

3.3.2. Existing Conditions by Project Unit

The following sections summarize the current condition and trends for the various vegetative groups within the project area.

3.3.2.1. White Pine Unit

Vegetative communities being analyzed include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Black sagebrush, Mountain shrubs, Basin big sagebrush, Mountain Mahogany, Aspen/Cottonwood, Pinyon/Juniper, White Fir and riparian meadow/shrubland.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel's professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the project area.

- Meadow systems are functioning-at-risk.
- Aspen/Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk
- Noxious weeds are limited to small isolated patches;

3.3.2.1.1. Riparian

Meadows

Within this unit, meadow systems are limited. Inventory sites were placed on both wet and dry-to-moist meadow types. Site data for these community types were collected during 2003, 2006, and 2009. In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plots 23019 and 316-005 are dry to moist meadow sites. Soil structure in plot 23019 is blocky to platy indicating compaction, which may be a result of prolonged snow pack. The rooting depth is 29 cm, falling within the desired range; however, the present bare ground is 6%, slightly more than the desired range of 0–5%. Most vegetative attributes are within the desired range; however, the relative cover of species indicative of not functioning or management problems exceed the desired range by 7%; such species include common dandelion (*Taraxacum officinale*), common yarrow (*Achillea millefolium*), Western Mountain aster (*Symphotrichum spathulatum*), and long stalk clover (*Trifolium longipes*). Hydrologic attributes are in desired condition. This plot is located near the wilderness boundary and experiences light use from wild horses. In plot 316-005 the soil structure is blocky to platy and rooting depth is 3 cm, indicating compaction. Less than 1% of the groundcover is bare ground, indicating functionality. In general, the vegetative attributes are within the desired range; however, the relative cover of species indicative of management problems exceed the desired range; such species include common dandelion (*Taraxacum officinale*), common yarrow (*Achillea millefolium*), and Kentucky bluegrass (*Poa pratensis*). Hummocks are abundant within this site but no head-cutting is present.

3.3.2.1.2. *Stream Group*

Stream systems within White Pine Unit are extremely limited. Based on district staff's observations, these systems are being impacted by a low water table resulting from multiple years of drought. Vegetation composition and/or removal of desirable species along streambanks are apparent. In addition, when water is present these vegetation communities experience heavy utilization by wild horses. In general, these sites are functioning-at-risk.

3.3.2.1.3. *Uplands*

Sagebrush

Within the White Pine unit, these communities make up the second largest vegetation type within this unit. This vegetation community includes Wyoming big sagebrush, Low sagebrush, Mountain big sagebrush, Basin big sagebrush, and Black sagebrush. Inventory sites were placed in Black sagebrush and Mountain big sagebrush types. Site data for these community types were collected during 2006 and 2008 (Table 10). In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plots 315-001, 315-002, and 327-002 are Black sagebrush sites. In plot 315-001 the soil surface of decomposing organic matter and/or biological crust is absent, indicating soil is unstable. The groundcover is made up of 69% bare ground and pavement, slightly more than the desired range of 0-60%. Vegetative attributes indicate an undesirable species composition; majority of the relative cover is made up of species indicative of management problems; species include cheatgrass (*Bromus tectorum*), halogeton (*Halogeton glomeratus*), and mustard (*Brassica spp*). Ecological conditions within this site are distressed which may be contributed to yearlong grazing by wild horses outside of designated wild horse territories. Bare ground and pavement make up 35% of the groundcover in plot 315-002. Most of the vegetative attributes are within desired condition; however, the percent of shrub species indicative of management problems exceed the desired level by 22%; such species include yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus vermiculatus*). Bare ground and pavement make up 59% of the groundcover in plot 327-002, falling within desired range. Vegetative attributes show the abundance of desirable grass and forb species are nearly absent, identifying a low similarity to PNC. Cheatgrass (*Bromus tectorum*) is the dominant grass species and yellow rabbitbrush (*Chrysothamnus viscidiflorus*) accounts for 7% of the shrub cover.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities, 645 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. They are not believed to have been noticeably impacted by cattle grazing in the recent past due to their

locations. Based on district staff’s observations, these sites are generally functioning and relatively stable.

Table 10. Data Summary for the White Pine Unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
327-002	7/12/2006	White River Pass Canyon	Black Sagebrush	Functioning-At-Risk
315-001	7/13/2006	Mustang Spring	Black Sagebrush	Not Functioning
315-002	7/11/2006	Freeland Canyon	Black Sagebrush	Functioning-At-Risk
316-005	8/5/2009	Blackrock Willow Spring	Dry To Moist Meadow	Functioning-At-Risk

Pinyon-Juniper Communities

Pinyon -juniper woodlands are the dominant cover type within this unit (70%), mostly Phase I and II; with a smaller portion in Phase III (Table 11). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 11. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation type	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	2,507 acres	7,887 acres	5,786 acres	24 acres	248 acres

3.3.2.2. Currant Unit 1

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Black sagebrush, Basin big sage, Mountain brush, Mountain Mahogany, Cottonwood, and riparian meadow/shrubland.

3.3.2.2.1. Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel’s professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the unit. Nonuse for resource benefit has been implemented for several years in anticipation of restoring rangeland health.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.

- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches

3.3.2.2.2. *Riparian*

Meadows

Within the Currant 1 unit, meadow systems are limited. Site data for these community types were collected during 2003, 2006, and 2009 (Table 12). In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plots 327-001 and 336-001 are wet meadow sites. In plot 327-001 the present bare ground is 27% and rooting depth is 6 cm, both outside the desired range. Vegetative attributes show poor species composition with a high percentage of species indicative of not functioning and management; such species include few flower spike rush (*Eleocharis quinqueflora*) and common dandelion (*Taraxacum officinale*). In plot 336-001 the soil structure and bare ground are within the desired range; however, rooting depth is 3 cm which is less than the desired 20 cm. The vegetative attributes indicate a poor species composition. The relative cover of species indicative of management problems exceed the desired range by 58%; species include American yellowrocket (*Barbarea orthoceras*), Wood's Rose (*Rosa woodsii*), and Kentucky bluegrass (*Poa pratensis*). No headcuts were observed; however, hummocks are present within this site.

Stream Group

Stream systems within the Currant 1 unit are extremely limited. Based on district staff's observations, these systems are being impacted by a low water table resulting from multiple years of drought. Vegetation composition and/or removal of desirable species along stream banks are apparent. In addition, when water is present these vegetation communities experience heavy utilization by wild horses. In general, these sites are functioning-at-risk.

3.3.2.2.3. *Uplands*

Sagebrush

Within the Currant 1 unit, these communities make up the following vegetation types: Wyoming big sagebrush, Low sagebrush, Mountain big sagebrush, Basin big sagebrush, and Black sagebrush. Wyoming big sage is the dominant sage brush community within this unit (~3,158 acres). On plot 327-002 bare ground and pavement make up 59% of the groundcover in the plot falling within desired range. Vegetative attributes show the abundance of desirable grass and forb species are nearly absent, identifying a low similarity to PNC. Cheatgrass (*Bromus tectorum*) is the dominant grass species and yellow rabbitbrush (*Chrysothamnus viscidiflorus*) accounts for 7% of the shrub cover.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities on the Currant 1 unit, approximately 1,430 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Based on district staff’s observations, these sites are generally functioning and relatively stable.

Table 12. Data Summary for the Currant 1 Unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
327-001	7/13/2006	Sawmill Spring	Wet Meadow	Functioning-At-Risk
327-002	7/12/2006	White River Pass Canyon	Black Sagebrush	Functioning-At-Risk
336-001	7/30/2009	Silver Spring	Wet Meadow	Functioning-At-Risk

3.3.2.2.4. *Pinyon-Juniper Communities*

Pinyon -juniper woodlands are the dominant cover type within this unit (58%), mostly Phase I and II; with a smaller portion in Phase III (Table 13). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 13. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation type	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	2,533 acres	4,763 acres	7,617 acres	n/a	219 acres

3.3.2.2.5. *White Fir*

Within the Currant 1 unit there are approximately 3,171 acres of white fir. These acres were derived from the RSAC vegetation map. All of these acres are within the Currant Mountain Wilderness area. Some of the white fir has a component of late seral aspen.

3.3.2.3. Currant Unit 2

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain

Mahogany, Cottonwood, pinyon-juniper communities, White fir, pinyon-juniper woodlands and riparian meadow/shrubland.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel's professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the unit.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches;

3.3.2.3.1. *Riparian*

Meadows

Seeps, springs, and meadow complexes within the Currant 2 unit are limited. Meadows adjacent to streams are common and provide important habitat for wildlife species such as sage grouse. These vegetative communities were severely impacted by historical grazing practices during the 1800s. Inventory sites were placed on both wet and dry-to-moist meadow types. Site data for these community types were collected during 2002 and 2009. In general, these sites are functioning-at-risk due to undesirable species composition and/or undesirable soil attributes.

Plots 22999 and 337-006 are wet meadow sites. In plot 22999 the soil structure is firm, rooting depth is 7 cm, and soil saturation is 62+ cm, indicating severe compaction and potential for erosion; however, the present bare ground is 1%, falling within the desired range. The vegetative attributes indicate a poor species composition. The relative cover of species indicative of management problems exceeds the desired range; such species include Sandberg bluegrass (*Poa secunda*) and common dandelion (*Taraxacum officinale*). Understory species are limited, which may be a result of phase II and phase III Juniper encroachment within the site. Head-cuts with incisions greater than 50 cm are present within the site, indicating increased erosion.

In plot 337-006 the soil structure is firm, rooting depth is 2 cm, and present bare ground is 35%, all of which indicating severe compaction and potential for erosion. The vegetative attributes show a large percent of the total species composition is made up of species indicative of management problems; species include Kentucky bluegrass (*Poa pratensis*), Rocky Mountain iris (*Iris missouriensis*), and common dandelion (*Taraxacum officinale*). Hummocks and head-cuts are absent; however, more than 40% of the area has been affected by road disturbance.

Cottonwood

Cottonwood stands represent a small percentage of the total vegetative communities, 8 acres. Based on district staff's observations, stands are affected by roads and some campsites. Recreation affects these stands by creating ground compaction and increasing the amount of present bare ground; however, many of the disperse campsites are showing signs of natural re-vegetation. More than 5% of the canopy cover is made up of shrub species indicative of

compaction and/or drying; the primary species includes Wood's Rose (*Rosa woodsii*). In general, these sites are functioning-at-risk.

Stream Group

Stream systems within the Currant 2 Unit are extremely limited. These vegetative communities were severely impacted by historical grazing practices on this allotment during the 1800s. Based on district staff's observations, these systems are being impacted by a low water table resulting from multiple years of drought. Vegetation composition and/or removal of desirable species along streambanks are apparent. In general, these sites are functioning-at-risk.

3.3.2.3.2. *Uplands*

Sagebrush

Within the Currant 2 Unit, these communities make up the second largest vegetation type in this unit. This vegetation community includes Wyoming big sagebrush, low sagebrush, Mountain big sagebrush, and Basin big sagebrush. Inventory sites were placed in the Mountain big sagebrush type. Site data for this community type were collected during 2006 (Table 14). In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plot 337-005 is a Mountain big sagebrush site. In plot 337-005 the present bare ground is 56%, greatly exceeding the desired range by 36%. The amount of erosion pavement is 1%, falling within the desired range. Vegetative attributes indicate an unbalanced species composition. The percent of desired grasses and forbs within the site are insufficient; majority of the vegetative component is made up of species indicative of management problems; species include cheatgrass (*Bromus tectorum*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), and rubber rabbitbrush (*Ericameria nauseosa*). Crested wheatgrass (*Agropyron cristatum*) is the dominant grass species within this site; based on the abundance, this area was previously established as a seeding and shows potential to naturally recover back to a Mountain big sagebrush site. This site is actively being encroached by pinyon-juniper and as a result ecological conditions within this vegetation community may become distressed; this phenomenon is common in lower elevations across the Currant 2 unit.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities in the Currant 2 Unit, ~1,954 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Based on district staff's observations, these sites are generally functioning and relatively stable.

Table 14. Data for the Currant 2 Unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
337-005	6/28/2006	Currant Creek 004	Mountain Big Sagebrush	Functioning-At-Risk
337-006	7/29/2009	Currant Creek Meadow 337005	Wet Meadow	Functioning-At-Risk
22999	7/18/2002	Current Creek	Wet Meadow	Not Functioning

3.3.2.3.3. *Pinyon-Juniper Communities*

Pinyon -juniper woodlands are the dominant cover type within this unit (54%), mostly Phase I and II; with a smaller portion in Phase III (Table 15). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 15. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation types	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	1,625 acres	4,394 acres	4,934 acres	n/a	78 acres

3.3.2.3.4. *White Fir*

Within the Currant 2 unit there are approximately 2,168 acres of white fir. These acres were derived from the RSAC vegetation map. All of these acres are within the Currant Wilderness area. Some of the white fir has a component of late seral aspen and due to limitations of the vegetation map, there are white fir stands that contain an unidentified aspen component.

3.3.2.4. *Wilhoites Unit*

Vegetative communities being analyzed within this allotment include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain Mahogany, Cottonwood, riparian meadow/shrubland and pinyon-juniper communities.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel's professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the unit.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches;

3.3.2.4.1. *Riparian*

Meadows

Seeps, springs, and meadow complexes do not exist within the Wilhoites unit. There are no perennial streams within this unit.

3.3.2.4.2. *Uplands*

Sagebrush

Within the Wilhoites Unit; the communities includes Wyoming big sagebrush, Low sagebrush, Mountain big sagebrush, and Basin big sagebrush. Inventory sites were placed in the Mountain big sagebrush type. Site data for this community type were collected during 2006. In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5% (Table 16).

Plots 337-001, 337-002, are Mountain big sagebrush sites Groundcover in plot 337-001 is made up of 21% bare ground and 26% erosion pavement, slightly more than the desired range. The vegetative attributes indicate a low similarity to potential natural community, the percent of desired grasses and forbs within the site are insufficient. In 1976 this area was approved and established as the Triangle Seeding; hence, the dominant grass species is Crested wheatgrass (*Agropyron cristatum*). Due to prescribed fire efforts in this area, the seeding has been rested for multiple years starting in 2007. Groundcover in plot 337-002 is made up of 41% bare ground and 13% erosion pavement, exceeding the desired range. Vegetative attributes indicate a low similarity to potential natural community. The relative cover of desired grasses and forbs within the site are limited. Crested wheatgrass (*Agropyron cristatum*) is the dominant grass species within this site; based on the abundance this area was previously established as a seeding. This site is actively being encroached by pinyon-juniper and as a result ecological conditions within this vegetation community may become distressed; this phenomenon is common in lower elevations across the unit.

Table 16. Data for the Wilhoites Unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
337-001	6/19/2006	Horse Range 003	Mountain Big Sagebrush	Functioning-At-Risk
337-002	6/20/2006	Horse Range 004	Mountain Big Sagebrush	Functioning-At-Risk

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. They are not believed to have been noticeably impacted by cattle grazing in the recent past due to their locations. Based on district staff’s observations, these sites are generally functioning and relatively stable.

Pinyon-Juniper Communities

Pinyon -juniper woodlands are the dominant cover type within this unit (79%), mostly Phase I and II; with a smaller portion in Phase III (Table 17). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 17. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation type	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	255 acres	5,828 acres	9,374 acres	7 acres	122 acres

3.3.2.5. Red Mountain Unit

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain Mahogany, Cottonwood, riparian meadow/shrubland and pinyon-juniper communities.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel’s professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the allotment.

- Meadow systems are functioning-at-risk.

- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches;

3.3.2.5.1. *Riparian*

Meadows

Seeps, springs, and meadow complexes within the Red Mountain Unit are limited. Meadows adjacent to streams are common and provide important habitat for wildlife species such as sage grouse. These vegetative communities were severely impacted by historical grazing practices in this unit during the 1800s. Inventory sites were placed on both wet and dry-to-moist meadow types. Site data for these community types were collected during 2002 and 2009. In general, these sites are functioning-at-risk due to undesirable species composition and/or undesirable soil attributes.

Cottonwood

Cottonwood stands represent a small percentage of the total vegetative communities, approximately 117 acres. Based on district staff's observations, up to 40% of stands are affected by roads and some campsites. Recreation effects these stands by creating ground compaction and increasing the amount of present bare ground; however, many of the disperse campsites are showing signs of natural re-vegetation. More than 5% of the canopy cover is made up of shrub species indicative of compaction and/or drying; the primary species includes Wood's Rose (*Rosa woodsii*). In general, these sites are functioning-at-risk.

Stream Group

Stream systems within the Red Mountain Unit are extremely limited. White River Designated Monitoring Area (DMA) 041709-08-006 determined ecological status as mid seral. Dominant species within the site are Nebraska sedge (*Carex nebrascensis*) and Baltic rush (*Juncus arcticus*); however, woody species such as willow and cottonwood make up a moderate portion of the species composition. The percent bank stability is 84%, and site wetland rating is 78% indicating functionality; however, bank alteration and willow regeneration do not meet the desired criteria. These vegetative communities were severely impacted by historical grazing practices on this area during the 1800s. Based on district staff's observations, these systems are being impacted by a low water table resulting from multiple years of drought. Vegetation composition and/or removal of desirable species along streambanks are apparent. In general, these sites are functioning-at-risk.

3.3.2.5.2. *Uplands*

Sagebrush

Within the Red Mountain Unit, these communities make up the second largest vegetation type in this unit. This vegetation community includes Wyoming big sagebrush, low sagebrush, Mountain big sagebrush, and Basin big sagebrush. Inventory sites were placed in the Mountain big sagebrush type. Site data for this community type were collected during 2006. In general, these

sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5% (Table 18).

Plots 329-001, 329-002, 337-003 and 337-004 are Mountain big sagebrush sites. In plot 329-001 the soil attributes show percent bare ground and erosion pavement are within the desired range, indicating functionality. Most of the vegetative attributes are within desired condition; however, the relative cover of yellow rabbitbrush (*Chrysothamnus viscidiflorus*), a shrub species indicative of management problems, exceeds the desired level by 5% and desirable graminoid species are nearly absent. This site is actively being encroached by pinyon-juniper and as a result ecological conditions within this vegetation community may become distressed. In plot 329-002 the present bare ground is 50%, exceeding the desired range by 30%; however, the amount of erosion pavement is 6% falling within the desired range. Vegetative attributes indicate a poor species composition. The percent of desired species within the site are extremely limited and species indicative of management problems exceed the desired range; species include cheatgrass (*Bromus tectorum*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus vermiculatus*). Crested wheatgrass (*Agropyron cristatum*) is the dominant grass species within this site; based on the abundance this area was previously established as a seeding.

In plot 337-003 the present bare ground is 48%, greatly exceeding the desired range by 28%; however, the amount of erosion pavement is 0%, falling within the desired range. Vegetative attributes indicate a good species composition with a moderate similarity to PNC; however, the abundance of desirable forbs is slightly less than desired. In plot 337-004 the present bare ground is 31%, slightly more than the desired range; however, the amount of erosion pavement is 0%, falling within the desired range. Vegetative attributes indicate a moderate similarity to PNC; however, the desired forb abundance is slightly less than desired. Cheatgrass (*Bromus tectorum*) is abundant within this site and makes majority of the relative grass cover.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities, within this unit. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities at approximately 276 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Based on district staff's observations, these sites are generally functioning and relatively stable.

Table 18. Data for the Red Mountain unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
329-001	6/28/2006	Currant Creek 005	Mountain Big Sagebrush	Functioning-At-Risk
329-002	6/28/2006	White River 001	Mountain Big Sagebrush	Not Functioning
337-004	6/13/2006	Secret Springs 001	Mountain Big Sagebrush	Functioning-At-Risk
337-003	6/13/2006	North Of Hidden Springs 002	Mountain Big Sagebrush	Functioning-At-Risk

Table 19. MIM Stream Data

Study Name	Date	Ecological Status	Wetland Rating	% Bank Alteration	% Stable Bank
White River	10/15/2006	Mid	Good	Moderate	Excellent

3.3.2.5.3. Pinyon-Juniper Communities

Pinyon -juniper woodlands are the dominant cover type within this unit (90%), mostly Phase I and II; with a smaller portion in Phase III (Table 20). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 20. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation types	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	2,997 acres	14,153 acres	14,236 acres	45 acres	149 acres

3.3.2.6. Cottonwood Unit

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain Mahogany, Cottonwood, and riparian meadow/shrubland.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel's professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the allotment.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches.

3.3.2.6.1. *Riparian*

Meadows

Meadows adjacent to streams are common in this unit and provide important habitat for wildlife species such as sage grouse. These vegetative communities were severely impacted by historical grazing practices on this allotment during the 1800's. These areas are important communities that can be challenging to manage under a livestock grazing program. Inventory sites were placed on both wet and dry-to-moist meadow types. Site data for these community types were collected during 2002, 2006, 2009 and 2013 (Table 21). In general, these sites are functioning-at-risk due to amount of head-cutting, undesirable species composition, and/or the amount of bare ground exceeding 5%.

Plots 26083 and 317-001 are dry to moist meadow sites. The soil structure within plot 26083 is blocky to platy. The present bare ground is 2% and the rooting depth is 12 cm, indicating functionality. Most vegetative attributes are in desired condition; however, the relative cover of desired grass species are limited and the percent of species indicative of management problems exceed the desired range by 37%; species include rubber rabbitbrush (*Ericameria nauseosa*) and crested wheatgrass (*Agropyron cristatum*). Head-cuts and hummocks are not present within the site; however, this site was historically plowed and irrigated. This site has the potential to return to desired condition naturally and based on present vegetation shows signs of improvement; however, this area experiences moderate yearlong use from wild horses. In plot 317-001 the soil structure is soft to granular and present bare ground is 0%, indicating functionality. Vegetative attributes indicate an unbalanced species composition. The relative cover of desirable graminoid species is 17%, greatly less than the desired range by 58%. The relative cover of species indicative not functioning or management problems exceed the desired levels; species include Kentucky bluegrass (*Poa pratensis*), Mountain iris (*Iris missouriensis*), common yarrow (*Achillea millefolium*), and slender cinquefoil (*Potentilla gracilis*). These species indicate a drying trend. Head-cuts and hummocks are not present within the site.

In 2013 Plot 22996 was repeated and it came up as a dry to moist meadow site. In 2002 it was rated out as a wet meadow site. The soil structure within plot 22996 is blocky to platy. Percent of bare ground is 5% and the rooting depth is 7 cm, indicating functionality. Most vegetative attributes indicate a downward trend in species composition. The relative cover of species indicative of not functioning or management problems exceeds the desired levels; species include Meadow foxtail (*Hordeum brachyantherun*), Western mountain Aster (*Symphotrichum*),

dandelion (*Taraxacum officinale*), slender cinquefoil (*Potentilla*), and common yarrow (*Achillea millefolium*). These species indicates a drying trend. Hummocks present but no head-cuts present within the site.

Plots 22996 (2002) and 22998 are wet meadow sites. In plot 22996 the soil structure is blocky to platy, rooting depth is 15 cm, and soil saturation is 58+ cm, indicating severe compaction and potential for erosion; however, the present bare ground is 4%, falling within the desired range. The vegetative attributes indicate a poor species composition. The relative cover of desired grass species is undesired and the percent of species indicative of management problems exceed the desired range; species include Kentucky bluegrass (*Poa pratensis*), and common yarrow (*Achillea millefolium*). Head-cuts with incisions less than 50 cm are present within the site, indicating increased erosion. In plot 22998 the soil structure is soft, granular and the rooting depth falls within the desired range at 28 cm; however, present bare ground is 7% and the soil saturation is 58 cm, falling outside the desired range. Most of the vegetative attributes are within desired condition; however, the relative cover of shrub species indicative of management problems exceed the desired level by 6%; species include Western Mountain aster (*Symphyotrichum spathulatum*) and common yarrow (*Achillea millefolium*) Head-cuts with incisions less than 50 cm are present within the site, indicating increased erosion.

Cottonwood

Cottonwood stands represent a small percentage of the total vegetative communities, approximately 34 acres. Majority of these stands receive limited grazing and are located along heavily wooded streams protected by willow and rose. Based on district staff's observations, approximately 30–50% of stands are infected with disease and up to 40% of stands may be affected by roads and campsites. Recreation affects these stands by creating ground compaction and increasing the amount of present bareground. Shrub species indicative of management problems account for up to 30% of the canopy cover; primary Wood's Rose (*Rosa woodsii*). In addition, these sites exhibit less than 5% regeneration of cottonwood saplings or suckers; thus, stands are comprised of mostly old growth. In general, these sites are functioning-at-risk.

Stream Group

Stream systems within the Cottonwood unit are limited. Cattle grazing have historically and may continue to impact vegetation conditions. Site data for this community type were collected during 2006. In general, these sites are functioning-at-risk due to species composition and head-cutting.

Ellison DMA 041709-08-005 determined ecological status as being at potential natural community. Dominant species within the site are Nebraska sedge (*Carex nebrascensis*) and Baltic rush (*Juncus arcticus*). The percent bank stability is 84% and site wetland rating is 91% indicating functionality; however, bank alteration is 28 falling below the desired criteria.

3.3.2.6.2. Uplands

Sagebrush

Within the Cottonwood unit, the vegetation communities includes; Wyoming big sagebrush, low sagebrush, Mountain big sagebrush, and Basin big sagebrush. Inventory sites were placed in the Mountain big sagebrush type. Site data for this community type were collected during 2006 and

2009. In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plot 329-003 is Mountain big sagebrush sites. In plot 329-003 the present bare ground is within the desired range; however, the amount of erosion pavement is 37% greatly exceeding the desired range by 25%. Vegetative attributes indicate poor species composition. The percent of desirable species within the site are considerably insufficient; majority of the vegetative component is made up of shrub species indicative of management problems; species include yellow rabbitbrush (*Chrysothamnus viscidiflorus*) and greasewood (*Sarcobatus vermiculatus*). No rills are present, except possibly on steep slopes; however, pedestals around rocks and plants are abundant. In plot 337-003 the present bare ground is 48%, greatly exceeding the desired range by 28%; however, the amount of erosion pavement is 0%, falling within the desired range. Vegetative attributes indicate a good species composition with a moderate similarity to PNC; however, the abundance of desirable forbs is slightly less than desired.

Plot 317-002 is a Wyoming big sagebrush site. The amount erosion pavement is 0% and the soil surface decomposing organic matter or biological crust is present, acting to stabilize the soil. The present bare ground is 41%, slightly exceeding the desired range of 0–20%. Most vegetative attributes are within the desired range; however, the relative cover of desirable forb species is nearly absent. No rills are present, except possibly on steep slopes; however, pedestals around rocks and plants are active in flow paths, interspaces, and exposed areas.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities, approximately 206 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Due to the lack of fire, mountain mahogany stands are expanding and have encroached on other vegetation communities including sagebrush and mountain brush. Most mountain mahogany stands in this unit are characterized by a core of mature trees surrounded by a band of young trees expanding into other vegetative communities. Based on district staff's observations, these sites are functioning.

Table 21. Data for the Cottonwood Unit. Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
26083	6/7/2006	Ellison Pasture	Dry To Moist Meadow	Functioning-At-Risk
317-001	6/30/2009	Ellison Meadow	Dry To Moist Meadow	Functioning-At-Risk
317-002	7/13/2009	Mustang Spring 317002	Wyoming Big Sagebrush	Functioning-At-Risk
329-003	8/4/2009	White River Upland	Mountain Big Sagebrush	Functioning-At-Risk
22996	7/17/2002	Copper Creek 1	Wet Meadow	Functioning-At-Risk
22998	7/17/2002	Copper Creek 2	Wet Meadow	Functioning-At-Risk

Table 22. MIM Results

Study Name	Date	Ecological Status	Wetland Rating	% Bank Alteration	% Stable Bank
Ellison	10/16/2006	PNC	Very Good	Moderate	Excellent

3.3.2.6.3. Pinyon-Juniper Communities;

Pinyon-juniper woodlands are the dominant cover type within this unit (86%), mostly Phase I and II; with a smaller portion in Phase III (Table 23). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 23. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation types	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	1,847 acres	12,497 acres	12,347 acres	63 acres	72 acres

3.3.2.7. Ellison Unit

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain Mahogany, Cottonwood, riparian meadow/shrubland and pinyon-juniper.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel's professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the unit.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches.

3.3.2.7.1. *Riparian*

Meadows

Within the Ellison Unit meadows are located along Ellison Creek and portions of Copper Creek. Meadows adjacent to streams are common in this unit and provide important habitat for wildlife species such as sage grouse. These vegetative communities were severely impacted by historical grazing practices during the 1800's. Inventory sites were placed on both wet and dry-to-moist meadow types. Site data for these community types were collected during 2002, 2006, and 2009. In general, these sites are functioning-at-risk due to amount of head-cutting, undesirable species composition, and/or the amount of bare ground exceeding 5% (Table 24).

Plots 328-004 and 328-002 are dry to moist meadow sites. In plot 328-002 the soil structure is soft to granular and the present bare ground is 0%, indicating functionality; however, the desired rooting depth is 10 cm or greater and the rooting depth within this site is 2 cm. Vegetative attributes indicated an undesired species composition. The percent of desirable graminoid species is inadequate and species indicative of not functioning and management problems exceed the desired levels; species include Kentucky bluegrass (*Poa pratensis*), Rocky Mountain iris (*Iris missouriensis*), and common dandelion (*Taraxacum officinale*). Plot 328-004 and 23019 are in dry to moist meadow sites. The soil structure is soft to granular and present bare ground is 2%, indicating functionality. The desired rooting depth is 10 cm or greater and the rooting depth within this site is 5 cm, indicating compaction. Vegetative attributes show an unbalanced species composition with a high percentage of species indicative of not functioning and management problems; such species include Kentucky bluegrass (*Poa pratensis*), Rocky Mountain iris (*Iris missouriensis*), common yarrow (*Achillea millefolium*), and slender cinquefoil (*Potentilla gracilis*). Hummocks are abundant and head-cuts with incision less than 50 cm are present; however, this site has the potential to return to desired condition naturally. Soil structure in plot 23019 is blocky to platy indicating compaction, which may be a result of prolonged snow pack. The rooting depth is 29 cm, falling within the desired range; however, the present bare ground is 6%, slightly more than the desired range of 0-5%. Most vegetative attributes are within the desired range; however, the relative cover of species indicative of not functioning or management problems exceed the desired range by 7%; such species include common dandelion (*Taraxacum officinale*), common yarrow (*Achillea millefolium*), Western Mountain aster (*Symphyotrichum spathulatum*), and long stalk clover (*Trifolium longipes*). Hydrologic attributes

are in desired condition. This plot is located near the wilderness boundary and experiences light use from wild horses

Plot 328-003 is a wet meadow site. In plot 328-003 the soil structure is soft and granular. The present bare ground is 12% exceeding the desired range by 7%. The desired rooting depth is 20 cm or greater; however, the rooting depth within this site is 3 cm, indicating compaction. The vegetative attributes indicate a poor species composition. The relative cover of desired species is inadequate and the relative cover of species indicative of management problems exceeds the desired range; species include Kentucky bluegrass (*Poa pratensis*), Rocky Mountain iris (*Iris missouriensis*), slender cinquefoil (*Potentilla gracilis*), and Wood's Rose (*Rosa woodsii*). No hummocks are present within this site; however, head-cutting is starting to occur.

Cottonwood

Cottonwood stands represent a small percentage of the total vegetative communities. Majority of these stands receive limited grazing and are located along heavily wooded streams protected by willow and rose. Based on district staff's observations, 30–50% of stands are infected with disease. Recreation affects these stands by creating ground compaction and increasing the amount of present bareground. Shrub species indicative of management problems account for up to 30% of the canopy cover, primary Wood's Rose (*Rosa woodsii*). In addition, these sites exhibit less than 5% regeneration of cottonwood saplings or suckers; thus, stands are comprised of mostly old growth. In general, these sites are functioning-at-risk.

3.3.2.7.2. Stream Group

Stream systems within the Ellison Unit are limited. Cattle grazing have historically and may continue to impact vegetation conditions. Site data for this community type were collected during 2006. In general, these sites are functioning-at-risk due to species composition and head-cutting.

Copper Creek DMA 041709-08-004 determined ecological status as late seral. Dominant species within the site include Nebraska sedge (*Carex nebrascensis*), Kentucky bluegrass (*Poa pratensis*), and Baltic rush (*Juncus arcticus*). The percent bank stability is 73%, bank alteration is 5%, and site wetland rating is 75% indicating functionality; however, woody regeneration and hydric herbaceous cover do not meet desired criteria. Over the past several years, efforts have been made to protect head-cut sites along Copper Creek with electric fence. Beginning in 2010 more extensive restoration efforts were made.

3.3.2.7.3. Uplands

Sagebrush

Within the Ellison Basin unit, these communities make up the second largest vegetation type within this unit. This vegetation community includes Wyoming big sagebrush, low sagebrush, Mountain big sagebrush, and Basin big sagebrush. Inventory sites were placed in the Mountain big sagebrush type. Site data for this community type were collected during 2006 and 2009. In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground exceeding 5%.

Plot 316-004 and 316-002 are Mountain big sage sites. In plot 316-004 the soil surface of decomposing organic matter and/or biological crust is diminished, found where protected. The present bare ground is 36%, slightly exceeding the desired range of 0–20%; however, the amount of erosion pavement is 2%, falling within the desired range. Most vegetative attributes are within the desired range; however, the abundance of desirable graminoid species is nearly absent. Crested wheatgrass (*Agropyron cristatum*) is the dominant grass species within this site; based on the abundance this area was previously established as a seeding. No rills are present, except possibly on steep slopes; however, pedestals around rocks and plants are active in flow paths, interspaces, and exposed areas. Plot 316-002 is a Mountain big sagebrush site. The groundcover is made up of 14% bare ground and 31% pavement, indicating moderate similarity to PNC. The vegetative attributes indicating a moderate similarity to PNC; however, the percent of desired grasses and forbs within the site are limited. In general, this community type is actively being encroached by pinyon-juniper and as a result ecological conditions within this vegetation community may become distressed.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff’s observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities within this unit, approximately 738 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Due to the lack of fire, mountain mahogany stands are expanding and have encroached on other vegetation communities including sagebrush and mountain brush. Most mountain mahogany stands are characterized by a core of mature trees surrounded by a band of young trees expanding into other vegetative communities. Based on district staff’s observations, these sites are functioning.

Table 24. Data for the Ellison Unit: Data collected for the development of ecological scorecards and analyzed with criteria set up by the Matrices. Data and analysis is included in the project file.

Plot Code	Date	Plot Name	Community Type	Condition
23019	8/11/2003	Corduroy Basin	Dry To Moist Meadow	Functioning-At-Risk
328-002	7/22/2009	Deer Springs	Dry To Moist Meadow	Functioning-At-Risk
328-003	8/3/2009	Saddle Sprng	Wet Meadow	Functioning-At-Risk
328-004	8/4/2009	Currant Creek Meadow	Dry To Moist Meadow	Functioning-At-Risk
316-004	7/13/2009	Tom Plain Big Spring	Mountain Big Sagebrush	Functioning-At-Risk
316-002	3/20/2008	Freeland Spring	Mountain Big Sagebrush	Functioning-At-Risk

Table 25. MIM Results

Study Name	Date	Ecological Status	Wetland Rating	% Bank Alteration	% Stable Bank
Copper Creek	10/15/2006	Late	Good	Low	Good

3.3.2.7.4. Pinyon-Juniper Communities

Pinyon -juniper woodlands are the dominant cover type within this unit (41%), mostly Phase I and II; with a smaller portion in Phase III (Table 26). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 26. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation types	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	620 acres	3,519 acres	4,106 acres	n/a	529 acres

3.3.2.8. Bald Mountain Unit

Vegetative communities being analyzed within this unit include Mountain big sagebrush, Wyoming big sagebrush, Low sagebrush, Basin big sagebrush, Mountain brush, Mountain Mahogany, Cottonwood, pinyon-juniper and riparian meadow/shrubland.

Summary of Current Vegetation Conditions/Trends

Based on review of all available data sources, site visits, and district personnel’s professional observations and knowledge of the project area, the Interdisciplinary Team was able to determine condition for each dominant vegetation type across the unit.

- Meadow systems are functioning-at-risk.
- Cottonwood communities are functioning-at-risk.
- Woody riparian/Stream systems are functioning-at-risk.
- Upland vegetation communities are functioning-at-risk.
- Noxious weeds are limited to small isolated patches.

3.3.2.8.1. *Riparian*

Meadows

Seeps, springs, and meadow complexes within the Bald Mt. unit are primarily located in the headwaters of each of the drainages. These vegetative communities were severely impacted by historical grazing practices. In general, these sites are functioning-at-risk due to undesirable species composition and/or the amount of bare ground.

3.3.2.8.2. *Stream Group*

Stream systems within the unit are limited. Cattle grazing have historically and may continue to impact vegetation conditions. In general, these sites are functioning-at-risk.

3.3.2.8.3. *Uplands*

Sagebrush

Within the Bald Mountain unit, the vegetation communities include: Wyoming big sagebrush, Low sagebrush, Mountain big sagebrush and Basin big sagebrush.

Mountain Brush

Mountain brush communities represent a small percentage of the total vegetative communities, approximately 621 acres. In general, mountain brush communities are located on higher elevation mountain slopes and have high species diversity. These communities are dominated by snowberry, currant, chokecherry, rose, and other associated species. Based on district staff's observations, these sites are generally healthy and determined to be functioning.

Mountain Mahogany

Mountain mahogany stands represent a small percentage of the total vegetative communities at approximately 140 acres. Mountain mahogany stands occur on steep, rocky hill slopes and ridges. Due to the lack of fire, mountain mahogany stands are expanding and have encroached on other vegetation communities including sagebrush and mountain brush. Most mountain mahogany stands are characterized by a core of mature trees surrounded by a band of young trees expanding into other vegetative communities. Based on district staff's observations, these sites are functioning.

3.3.2.8.4. *Pinyon-Juniper Communities*

Pinyon-juniper woodlands are the dominant cover type within this unit (83%), mostly Phase I and II; with a smaller portion in Phase III (Table 27). Phase II is characterized by active expansion of pinyon-juniper, moderate to high seed production, active tree recruitment, and a nearly intact understory layer (Miller et al. 2007, Miller et al. 2000). Phase III is characterized by reduced expansion of pinyon-juniper, low to moderate seed production, limited tree recruitment, and a dead/thinning understory (Miller et al. 2007, Miller et al. 2000). Mixed woodlands, pinyon and juniper make up a smaller portion of the acres within the pinyon-juniper communities.

Canopy cover shows that Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I, II, with Phase III across the project area will

ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Table 27. Distribution of Pinyon-Juniper Woodland by Phases, mixed woodland, pinyon and juniper within each unit; this table represents only the mapped pinyon-juniper cover types.

Vegetation types	Pinyon-Juniper High (Phase 3)	Pinyon-Juniper Medium (Phase 2)	Pinyon-Juniper Low (Phase 1)	Mixed Woodlands	Pinyon Juniper
Total acres	438 acres	3,908 acres	2,445 acres	n/a	16 acres

3.3.3. Environmental Consequences Proposed Action

3.3.3.1. Pinyon Juniper and Sagebrush Communities (meadow systems, woody riparian/stream systems, and uplands communities)

Approximately 30,100 acres of pinyon juniper and sagebrush steppe and mountain brush cover types are proposed for treatment. These treatments will target the removal of expansion pinyon-juniper from sagebrush and pinyon juniper focal areas and improve the distribution of vegetation classes in the sagebrush steppe focal area.

Mechanical Treatment

The majority of the 16,600 mechanical treatment acres will occur in pinyon juniper cover type that has expanded into sagebrush communities, meadow and woody riparian/stream systems. Mechanical treatments will be used on slopes <30%. These treatments will either fell all, or thin (remove only some of the trees), expansion pinyon. The trees cut will range in size from small seedlings (less than 4.5' tall) in Phase I stands to much larger trees found in Phase II and III stands. In historic pinyon juniper, treatments will have the objective of protecting and maintaining the historic pinyon. Smaller, younger trees may be cut to reduce ladder fuels and reduce competition for water and nutrients. No identifiable pre-settlement trees will be targeted for removal. These trees are identified by their flattened, rounded and/or asymmetrical crowns. Also, they are taller than the surrounding younger trees which usually have conical crowns - stronger apical dominance typical of younger trees.

Mechanical treatments would be emphasized on slopes less than 30% and around private lands to reduce the risk from wildfire, improve the health and diversity of vegetation, and to improve wildlife habitats in areas where prescribed fire would be difficult to implement or achieve desired objectives. A variety of treatments will be used to meet site specific objectives. For example; thinning of pinyon-juniper with more even spacing may occur around private lands or developments to reduce fuels and meet visual objectives in that area. Another example may use crews and chainsaws to selectively cut young trees in a specific area to maintain sagebrush communities for sage grouse and mule deer.

Treatments may range from hand treatments such as chainsaw felling and either leaving the tree lie, or cutting the tree up and lopping and scattering the slash; or mechanical treatments such as masticators; or low impact harvest machinery or personal use fuelwood that will remove the trees from the site. Mechanical methods will follow Best Management Practices to protect soil and water resources. Prescribed burning may follow mechanical treatment to reduce slash. Slash also may be reduced by chipping.

Prescribed Fire

Prescribed fire will be used on approximately 13,500 acres to treat pinyon-juniper particularly at mid elevations, white fir on slopes greater than 30% and small areas of sagebrush/shrub communities. Prescribed fires will be used in mosaic patterns to improve and create diversity within mountain sagebrush communities at higher elevations.

Burned openings will occur in a mosaic pattern. Size of openings will vary widely depending upon the specific vegetation community and intensity of burn prescriptions. Treatment will be scattered across the landscape.

Prescribed treatments may include: ground ignition-drip torches and/or flares, aerial ignition using helicopters-helitorch and/or Plastic Sphere Dispenser (PSD), management of naturally occurring (unplanned ignitions) wildfires for resource benefits

Ground support staging areas will occur on existing roads or in designated areas. Hand lines may be used on a limited basis to protect historic properties, important resources or to contain fire movement. In addition, firefighting resources would be present to ensure full containment of the prescribed fire within the project area. The target areas for prescribed fire treatments include Phase I and Phase II pinyon/juniper stands, white fir and mountain sagebrush communities. There will be no intentional ignition of pre-settlement trees, however, due to their adjacency to Phase I and II pinyon juniper, some trees may be scorched or killed. Steep south facing slopes that have lost their herbaceous understory vegetation and are at high risk for dominance by cheatgrass will not be treated using prescribed fire.

3.3.3.2. White Fir/Aspen Stands

The white fir vegetation types (RSAC mapping) in Currant 1-2, unit's to be treated are approximately 5,339 acres, but field observations have revealed an understory of aspen in small sections of the white fir stands. Removal of the fir will allow the aspen to regenerate. Successful regeneration of aspen relies on three components: hormonal stimulation, growth environment, and protection of suckers. Fire meets all these requirements. It stimulates suckering by killing overstory stems and interrupting the flow of auxin to the roots. Auxin is the hormone which suppresses suckering. Fire removes competing overstory vegetation and conifers allowing the sunlight to reach the forest floor. The burned vegetation provides a pulse of nutrients and the blackened soil warms the roots. Dense suckering over a large area can provide a deterrent to wide spread browsing (Shepperd, 2001).

Prescribed Fire

Prescribed fire will be used to treat approximately 1,500 acres of white fir. The white fir that still has an understory of aspen prescribed fire will be used to regenerate the aspen.

3.3.3.3. Mountain Mahogany

Minor amounts of mechanical treatment are proposed in selected mountain mahogany stands. The treatment will be removal of pinyon which has expanded into mahogany. The effect of not doing this treatment will not be immediately evident; it will take time for the pinyon to out compete the mahogany. The longer term consequences are pinyon will continue to establish itself and crowd out the mahogany. Also, the pinyon component will provide an additional fuel component and make the stands more susceptible to stand replacement fire.

3.3.4. Environmental Consequences No Action Alternative

3.3.4.1. *Pinyon Juniper and Sagebrush Communities (meadow systems, woody riparian/stream systems, and uplands communities)*

Pinyon juniper currently dominates the lower elevations and is moving up in elevation within the project area. Without treatment the pinyon juniper will continue to progress towards Phase III. As the stands move towards Phase III, the grass, herbaceous, and sagebrush understories in the expansion area will die off. The understory components cannot persist with Phase III pinyon. The increasing tree density will be accompanied by an increase in crown fuels which can significantly affect fire severity. Phase II and III woodlands are less likely to burn under moderate conditions. A severe fire accompanied with loss of understory plants and seed sources will make it much more likely that the post burn stand will be dominated by invasive nonnative plants (Miller et. al.2001).

The mountain big sagebrush will continue in the closed shrub condition, lack age class diversity, and the herbaceous component will continue to be non-existent. Pinyon, juniper will continue to expand into this sage brush system, and as the pinyon fills in, there will be further loss of understory shrub, grass and herbaceous components.

The no action alternative (current management) will promote the status quo of the current vegetation development. Sagebrush will continue to be a homogeneous cover of older, decadent sagebrush. Pinyon juniper will continue to grow occupying the site and out-competing the understory components. Fuels reduction will not occur near ranches, habitat improvement will not occur, the ability of this system to respond favorably after disturbance, such as wildfire, will decrease over time as the diversity of understory vegetation decreases.

3.3.4.2. *White Fir*

No action alternative will affect the white fir only slightly. The main effect will be on the vegetation types that the white fir is outcompeting, the seral aspen and fringes of the mountain sage community where white fir has expanded.

3.3.5. Environmental Consequences Alternative 3 No Treatments within Wilderness

Under Alternative 3, mechanical and/or prescribed fire treatments will create diversity of vegetation age classes and structure, improve the health of vegetation communities, improve and/or restore wildlife habitats, reduce fuels and minimize the risk of catastrophic wildfire. This alternative would not allow treatments within wilderness areas.

3.3.5.1. *Pinyon juniper and sagebrush communities (meadow systems, woody riparian/stream systems, and uplands communities)*

Approximately 19,100 acres of pinyon juniper and sagebrush steppe and mountain brush cover types are proposed for treatment. These treatments will target the removal of expansion pinyon-juniper from sagebrush and pinyon juniper focal areas and improve the distribution of vegetation classes in the sagebrush steppe focal area.

Mechanical Treatment

The majority of the 16,600 mechanical treatment acres will occur in pinyon juniper cover type that has expanded into sagebrush communities, meadow and woody riparian/stream systems. Mechanical treatments will be used on slopes <30%. These treatments will either fell all, or thin (remove only some of the trees), expansion pinyon. The trees cut will range in size from small seedlings (less than 4.5' tall) in Phase I stands to much larger trees found in Phase II and III stands. In historic pinyon juniper, treatments will have the objective of protecting and maintaining the historic pinyon. Smaller, younger trees may be cut to reduce ladder fuels and reduce competition for water and nutrients. No identifiable pre-settlement trees will be targeted for removal. These trees are identified by their flattened, rounded and/or asymmetrical crowns. Also, they are taller than the surrounding younger trees which usually have conical crowns - stronger apical dominance typical of younger trees.

Mechanical treatments would be emphasized on slopes less than 30% and around private lands to reduce the risk from wildfire, improve the health and diversity of vegetation, and to improve wildlife habitats in areas where prescribed fire would be difficult to implement or achieve desired objectives. A variety of treatments will be used to meet site specific objectives. For example; thinning of pinyon-juniper with more even spacing may occur around private lands or developments to reduce fuels and meet visual objectives in that area. Another example may use crews and chainsaws to selectively cut young trees in a specific area to maintain sagebrush communities for sage grouse and mule deer.

Treatments may range from hand treatments such as chainsaw felling and either leaving the tree lie, or cutting the tree up and lopping and scattering the slash; or mechanical treatments such as masticators; or low impact harvest machinery or personal use fuelwood that will remove the trees from the site. Mechanical methods will follow Best Management Practices to protect soil and water resources. Prescribed burning may follow mechanical treatment to reduce slash. Slash also may be reduced by chipping.

Prescribed Fire in Non-wilderness Areas

Prescribed fire will be used to treat 2,500 acres pinyon-juniper particularly at mid elevations. Prescribed fires will be used in mosaic patterns to improve and create diversity within mountain sagebrush communities at higher elevations

Size of openings will vary widely depending upon the specific vegetation community and intensity of burn prescriptions. Treatment will be scattered across the landscape.

Prescribed treatments may include: ground ignition-drip torches and/or flares, aerial ignition using helicopters-helitorch and/or Plastic Sphere Dispenser (PSD), management of naturally occurring (unplanned ignitions) wildfires for resource benefits

Ground support staging areas will occur on existing roads or in designated areas. Hand lines may be used on a limited basis to protect historic properties, important resources or to contain fire movement. In addition, firefighting resources would be present to ensure full containment of the prescribed fire within the project area. The target areas for prescribed fire treatments include Phase I and Phase II pinyon/juniper stands, and sagebrush communities. There will be no intentional ignition of pre-settlement trees, however, due to their adjacency to Phase I and II pinyon juniper, some trees may be scorched or killed. Steep south facing slopes that have lost

their herbaceous understory vegetation and are at high risk for dominance by cheatgrass will not be treated using prescribed fire.

Mountain Mahogany

Treatments will selectively remove pinyon-juniper that has expanded into the mountain mahogany stands.

3.3.6. Cumulative Effects

Mining/Mineral Exploration and Energy Development

Mining and mineral exploration has been limited within the Currant-Ellison cumulative effects area. Most of the past activity in the area occurred during the late 1800s and early 1900s. Mining activities were generally small and focused around limited underground activities with associated homesteads and very small communities. Historic mining activities were generally focused on Forest Service lands in the Griffin Mine area. There are currently no known active mining operations within the cumulative effects area, therefore there would be no cumulative impacts from these activities.

There is currently an exploration project occurring at the Griffin Mine within the cumulative effects area. At this time there is no plan to expand beyond the exploratory nature of the project.

Under Alternative 1, potential mineral, oil/gas, and geothermal exploration would continue within the cumulative effects. Noxious and invasive weed infestations would continue to occur and in site specific areas with high disturbance. Monitoring and continued treatment would identify areas of concern. Management adjustments outlined under Alternative 1 would move resources towards desired conditions, giving desired plant species greater opportunity to compete with the noxious and invasive weeds.

Livestock Grazing and Range Developments

Historically the project was grazed heavily by large numbers of both sheep and cattle. Historical grazing was often unmanaged and resulted in considerable resource impacts. During the 1900s livestock numbers were reduced and grazing systems were implemented to improve management of the resources in the area. Under the proposed action ecological systems would move towards desired condition. Livestock grazing and associated activities would continue to provide a source of disturbance across the project area; however, the mandatory minimum two year rest will provide time for desirable vegetation to re-establish when prescribed fire and/or seeding treatments occur in accordance with the Forest Plan.

The Ely Ranger District completed the NEPA analysis on the Ely Westside Rangeland Project EIS in 2014 in accordance with the Forest Range Rescission Schedule. This analysis and decision provides guidance for grazing management on the Forest Service allotments within this area as well as other portions of the District. NEPA analysis is completed on BLM range allotments within the cumulative effects area.

Livestock Developments include fences, water developments (both troughs and ponds) and other structures that may have been developed to improve the management of livestock. Many of these developments were first constructed during the early to mid- 1900's as Allotments were first developed to manage livestock grazing on the Ely Ranger District. The number of water developments and fences increased throughout the 1900's to improve the control and

management of livestock on the District as well as on adjacent BLM and private lands. Historically, many livestock water developments were placed close to springs or seeps. Heavy grazing in these areas results in the depletion of native vegetation. Monitoring and continued assessments would identify areas of concern.

Existing allotment fences and water developments are currently being maintained on both Forest Service and BLM administered lands. Existing Forest Service range allotments are shown on the map in Appendix H. Additional fences and water developments are also located on BLM and private lands within the cumulative effects area. Private lands often have higher fence densities compared to surrounding public lands. This increased density is due to the location of private lands and land use patterns and management activities.

Maintenance of existing livestock developments will continue to occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area aside from riparian enclosures. There are also no known plans for new developments on BLM administered lands. Additional fences could be constructed on private lands, however, no specific plans are known.

Under Alternative 1, range developments would remain on allotments within the cumulative effects area to ensure appropriate management of livestock; thus, noxious and invasive weed infestations would continue to occur in site specific areas with high concentrated use. Livestock grazing would continue to provide a source of disturbance and vector for weed movement across the project area. Monitoring and continued treatment would identify areas of concern. Management adjustments outlined under Alternative 1 would move resources towards desired conditions, giving desired plant species greater opportunity to compete with the noxious and invasive weeds. The spread of noxious and invasive species would be slower under Alternative 3 compared to Alternative 2 due to increased acres of prescribed fire treatments under Alternative 2. At this time there are no new range improvements proposed within the project area.

Special Uses

Historically the Ely Ranger District has had minimal Special Uses activities within the cumulative effects area. Activities include Outfitting and Guiding permits, water developments or ditch easements, power lines, and road right of ways. Most special use activities have the potential to act as a vector to spread weeds out of road prisms and into other areas by way of pack animals, vehicles, equipment, or other by human interactions. Most permits require rehabilitation plans or commitment to follow mitigation measures or preventative action plans.

Special use activities would continue to provide a source of disturbance and vector for weed movement across the project area. Monitoring and treatments would continue to identify areas of concern and provide treatments. Weed populations would likely remain stable or decline in areas within intensive weed management. Under Alternatives 1, 2 and 3 there would not be any changes to current management.

Fuelwood Harvest

The Ely Ranger District has historically allowed and continues to allow the harvesting of fuelwood in the cumulative effects area. Fuelwood permits allow only cutting of dead and down pinyon, juniper, aspen and white fir. Off road travel can create disturbed sites and bare ground where noxious weeds can become established. Weed seed can be accidentally transported into an

area resulting in a new noxious weed infestation. Harvesting of forest products considered minimal with only limited impacts.

In general, the harvesting of forest products on the Ely Ranger District will continue and may increase in the future. These activities have the potential to create soil disturbance that can easily become infested by noxious weeds. Off road travel can contribute to the movement of noxious weed infestations. Monitoring and treatment would continue to target noxious and invasive weeds.

Alternative 1 would allow opening of areas to green fuelwood cutting, for Alternative 2 there would be no changes to current management and Alternative 3, current management would allow designated green fuelwood cutting areas outside of wilderness areas.

Wildfire

Historically fires within the cumulative effects area have been small and isolated. Most fires have been less than 1 acre in size. Over the past 30 years only two wildfires greater than 100 acres have occurred within the cumulative effects area. In 2001, the Smith Creek Fire (located in the Bald Mtn. Wilderness) occurred and burned approximately 1,800 acres. In 2013, the White Pine Fire burned around 1,300 acres within the Currant Mtn. Wilderness. Other larger fires have recently occurred within the White Pine Division; however, these fires are outside of the Cumulative Effects area (See Appendix E: fire history map).

As pinyon-juniper and white fir stands increase in densities, the potential for larger uncharacteristic wildfires will increase in the future. Additionally, sagebrush and mountain brush stands will continue to mature and increase in densities.

Wildfire can change the vegetation on these sites and make them more vulnerable to noxious weeds or other impacts. In most cases, communities recover following wildfires; however, recovery can be slowed due to the size and intensity of the fires, and the possible of encroachment and dominance of cheatgrass following the fire. Although fires have always been a natural occurrence in the Great Basin grasslands, they normally occurred no more than every 60 to 100 years, while cheatgrass has a fire cycle of every 3 to 5 years (Kaczmariski 2000). Native plants cannot recover from such frequent burnings. After a few cycles, a cheatgrass monoculture develops, which further induces the wildfire/annual grass cycle (Kaczmariski 2000). Impacts from wildfire have been shown to increase the competitive advantage of plants such as cheatgrass. Historically fires within the cumulative effects area have been small and isolated. Most fires have been less than 1 acre in size. Over the past 30 years only two wildfires greater than 100 acres have occurred within the cumulative effects area.

Rehabilitation actions usually consist of seeding native species, repairing fences, and aggressively treating noxious weeds to minimize infestations. Rehabilitation activities following wildfires have assisted in restoring perennial vegetation in burned areas. Two or more years of rest have allowed vegetation resources including riparian areas to recover following fires. Two years of rest are mandatory following a wildfire.

Wildfires and associated activities will likely continue to impact resources within the cumulative effects area by creating areas of disturbance and providing vectors for transport. The locations and timing of potential wildfires in the future cannot be predicted and are therefore not foreseeable. Noxious and invasive species will continue to expand following wildfires; however,

in areas where rehabilitation and weed treatments are implemented, the rate of spread would be at a slower rate. Monitoring and treatment would continue to target noxious and invasive weeds. Under Alternative 1 and 3, noxious and invasive species will continue to expand following wildfires; however, in areas where rehabilitation and weed treatments are implemented, the rate of spread would be at a slower rate than under Alternative 2.

Wildlife

Over the past 30 years wildlife populations have fluctuated within the cumulative effects area. Elk populations have increased steadily within the area until just recently. Current elk numbers appear to be stable. Elk can have localized impacts on vegetation communities such as aspen and riparian areas. Mule deer populations have declined historically in the area and have recently stabilized. Mule deer can also affect vegetation such as aspen, however, with numbers at current levels there are minimal to no impacts. Pronghorn populations have increased over the past 30 years and continue to increase. Pronghorn utilize sagebrush communities at lower elevations.

Elk and mule deer populations are expected to remain stable within the cumulative effects area in the future. Pronghorn populations should increase slightly and then stabilize over the long term.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014–2015.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

Wild horse numbers in the area are expected to decline as management actions are taken to manage horses to the Appropriate Management Level in the Monte Cristo WHT and adjacent Forest Service and BLM lands. Under Alternative 1 and 3, noxious weeds infestations would continue to spread until wild horse populations are managed to appropriate levels. Wild horses have the potential to deplete native vegetation; thus, increasing susceptibility to invasive and noxious weeds infestations. The rate of spread would be at a slower rate than under Alternative 2.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed burning and mechanical treatments would continue within the project area. The goal of these projects is to reduce decadent sagebrush cover, and improve overall vegetative composition including the growth of forbs, perennial grasses and health of shrubs. The risk for invasion by noxious/invasive weeds is dependent upon location; therefore, monitoring and

mitigation strategies need to be developed prior to project implementation. Treatment areas will be monitored annually to ensure that no weed infestations are identified. In general, spraying and inventory of invasive and noxious weeds will continue and/or increase within the project area for the next 2-3 years due to potential future projects.

Under Alternative 1, noxious and invasive species will continue to expand following ground disturbing activities; however, in areas where rehabilitation and weed treatments are implemented, the rate of spread would be at a slower rate than under Alternative 2. Over the long-term, implementation of prescribed burns and other vegetative treatments should reduce the amount of bare ground and giving desired plant species greater opportunity to compete with the noxious and invasive weeds. Under Alternative 3 you would have the same effects except the acres within the wilderness areas where no prescribed fire would be allowed.

Noxious Weed Treatments

The Humboldt-Toiyabe National Forest utilizes an integrated pest management program that includes early detection, mapping, mechanical, biological, and herbicide treatments. Surveys conducted from 2009 through the 2013 field seasons found the majority of the project area to be relatively free of noxious and/or invasive weeds with the exception of a few isolated infestations. Noxious weed infestations within the cumulative effects area are less than 5 acres in size and generally occur along roadways, near campsites, along riparian zones, and near sites where livestock or people concentrate. The Ely Ranger District in its entirety has not been surveyed so these acres are not inclusive. It can be expected to find other species and more locations of current species within the treatment units during implementation or in future inventories.

Noxious weeds occurring in small populations within the cumulative effects area include, Russian knapweed (*Acroptilon repens*), scotch thistle (*Onopordum acanthium*), hoary cress (*Cardaria draba*) musk thistle (*Carduus nutans*), spotted knapweed (*Centaurea biebersteinii*), Canada thistle (*Cirsium arvense*), salt cedar (*Tamarix ramosissima*) and perennial pepper weed (*Lepidium latifolium*). Invasive plants present in the cumulative effects area include bull thistle (*Cirsium vulgare*), cheatgrass (*Bromus tectorum*), yellow spine thistle (*Cirsium ochrocentrum*) and halogeton (*Halogeton glomeratus*.)

Funding obtained through the Southern Nevada Public Lands Management Act and Secured Rural School Act have increased and strengthened aggressive inventory and treatment of noxious and invasive on all lands with within the Cumulative Effects area over the past several years.

The Ely Ranger District has made a commitment to include noxious weed inventory and treatment within the budget of project treatments under this proposal and within the cumulative effects area. Inventory and treatment will continue under current management direction on an annual basis or as funding allows.

Monitoring and continued treatment would identify areas of concern. Management adjustments outlined under Alternative 1 and 3 would move resources towards desired conditions, giving desired plant species greater opportunity to compete with the noxious and invasive weeds.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use

area in White River that includes some picnic tables and fire rings. Due to the light to moderate use there would be no cumulative impacts expected from these activities

Private Lands Management/Development

Private land parcels are generally located at lower elevations within the area. Private land parcels are found along the very southern portions and eastern portion of the cumulative effects area. A number of these parcels contain either full time residences or summer home sites. Several small farms are also located along the eastern edges of the area.

Most private landowners maintain some level of noxious and invasive weed treatment program; therefore, the potential risk of spread from private land is small. Currently no new construction is proposed to take place within the cumulative effects area, therefore there would be no cumulative impacts from these activities

3.4. Noxious Weeds and Range Management

3.4.1. Affected Environment

3.4.1.1. Range Management

The Currant-Ellison Watershed Restoration project area contains all or parts of four grazing allotments. Allotments within the project area are depicted in Appendix H of this document. The season of use on these allotments ranges from June 11 to October 15. Permitted livestock within the project area include 1,276 head of cattle for a total of 4,901 head months (HMs). Permitted use for each allotment is shown in Table 28.

Table 28. US Forest Service Grazing Allotments and Permitted Use within the Project Area

Allotment Name	Type	On Date	Off Date	Number Of Animals	Head Months
Blackrock C&H	Cow/Calf	6/16	10/15	122	409
Currant Creek C&H	Cow/Calf	6/15	9/30	295	1,047
Ellison C&H	Cow/Calf	6/11	10/10	359	1,440
Tom Plain C&H*	Cow/Calf	6/11	10/10	500	2,005
Permitted Livestock Grazing Totals				1,276	4,901

*Only a portion of the project area lies within the Tom Plain C&H Allotment.

3.4.1.2. Range Conditions

Rangeland conditions within the project area were determined by a variety of studies, inventory methods, monitoring protocols and scorecards. Such methods included line intercept, point intercept, ocular analysis, nested frequency, repeat photo points, GAWS, Parker 3-steps and R1/R4 stream bank guidelines. Of the 31 plots established on the four allotments within the project area (Black Rock, Currant Creek, Ellison Basin and Tom Plain), 27 sites were found to be Functioning-at-Risk, 3 sites were determined to be Non-Functioning and 1 site was determined to be Functioning.

Higher elevations of Forest Service allotments have been used much lighter by livestock due to steep terrain and a shorter growing season. When accessible, watering areas and areas within close proximity to water have been grazed heaviest. Over the years, sensitive riparian sites,

especially in lower elevations, have experienced considerable conifer encroachment. As a result available forage across Forest System lands for both wildlife and livestock has been reduced.

Livestock grazing on the allotments within the project area are in compliance with the terms and conditions of the current grazing permits. In all allotments within the project area, the permittees use a deferred rotation system that allows rest in various portions of pastures at different times of the year. Permittees also make use of authorized water haul sites to encourage livestock use in areas previously not utilized.

3.4.1.3. Wild Horse and Burro Management

The Currant-Ellison Watershed Restoration project area contains 40,144 acres (42%) of the Monte Cristo Wild Horse Territory (WHT.) The Monte Cristo Wild & Free Management Plan, created in 1977, established an Appropriate Management Level of 72–120 horses between Forest Service and BLM lands within the Monte Cristo WHT. The 1982 Humboldt National Forest Land and Resource Management Plan amended the Appropriate Management Level to 72–96 horses to better reflect the horses utilizing the forest. Presently the Monte Cristo WHT lies entirely on USFS lands and is part of the larger Pancake complex administered by the BLM. The Monte Cristo WHT was last gathered in 2006.

There will not be any horses actively excluded during the implementation of this project. It is anticipated that this project will benefit all ungulates by creating more available forage in the long term. Wild horses on the Forest will continue to be managed in accordance with federal law.

3.4.1.4. Noxious Weed Management

There are 47 plant species designated as noxious by the State of Nevada (NAC 2012). Noxious weeds are highly invasive plants that generally possess poisonous, toxic, parasitic, invasive, and aggressive characteristics. Noxious weeds are capable of producing highly viable seeds, which can persist in the soil for several decades (D’Antonio and Meyerson 2002). The presence of noxious weeds signifies an area is at risk from a health and sustainability viewpoint, whether or not the landscape is disturbed or pristine (O’Brien et al. 2003). Infestations reduce the amount of available forage for wildlife and livestock, and have the ability to take over large areas of land, reducing valuable public land resources (NAC 2012).

The Humboldt-Toiyabe National Forest (USFS) utilizes an integrated pest management program that includes early detection, mapping, mechanical, biological, and herbicide treatments. Surveys conducted from 2009 through 2013 field seasons found the majority of the project area to be relatively free of noxious and/or invasive weeds with the exception of a few isolated infestations (Table 29). Noxious weed infestations within the cumulative effects area are less than 5 acres in size and generally occur along roadways, near campsites, along riparian zones, and near sites where livestock or people concentrate.

The Ely Ranger District in its entirety has not been surveyed so these acres are not inclusive. It can be expected to find other species and more locations of current species within the treatment units during implementation or in future inventories. Noxious weeds occurring in small populations across the project area include; Hoary Cress (*Cardaria draba*), Musk Thistle (*Carduus nutans*), Scotch Thistle (*Onopordum acanthium*), Spotted Knapweed (*Centaurea biebersteinii*), Canada Thistle (*Cirsium arvense*), Hardheads (*Acroptilon repens*), Salt Cedar (*Tamarix ramosissima*), and Perennial Pepper weed (*Lepidium latifolium*). Invasive weeds in the

project area include Bull Thistle (*Cirsium vulgare*) and Yellow Spine Thistle (*Cirsium ochrocentrum*). Other invasive weeds that occur in the project area include Cheat Grass (*Bromus tectorum*) and Halogeton (*Halogeton glomeratus*). These species typically dominate areas after major disturbances such as fire, overgrazing, or heavy recreational use. Inventory and treatment will continue under current management direction on an annual basis or as funding allows. Known noxious and invasive weed populations across the project area are depicted in Appendix G.

Table 29. Total Acres of Noxious and Invasive Weeds by Species occurring within the Project Area

Common Name	Scientific Name	Total Acres in Project Area
Hoary Cress	<i>Cardaria draba</i>	29.7
Musk Thistle	<i>Carduus nutans</i>	1.9
Spotted Knapweed	<i>Centaurea biebersteinii</i>	<1
Canada Thistle	<i>Cirsium arvense</i>	19.8
Hardheads	<i>Acroptilon repens</i>	2.7
Scotch Thistle	<i>Onopordum acanthium</i>	1.6
Yellow Spine Thistle	<i>Cirsium ochrocentrum</i>	29.5
Perennial Pepper Weed	<i>Lepidium latifolium</i>	2.4
Bull Thistle	<i>Cirsium vulgare</i>	7.7
Cheat Grass	<i>Bromus tectorum</i>	Unknown
Halogeton	<i>Halogeton glomeratus</i>	Unknown
Salt Cedar	<i>Tamarix ramosissima</i>	<1
Total Acreage		>202

3.4.1.4.1. Cheat grass

The impacts of cheatgrass (*Bromus tectorum*) have been widely documented. Chambers et al. (2007) citing several authors conclude that the magnitude of the invasion and effects on native ecosystems makes this possibly the most significant plant invasion in North America. Chambers et al. (2007) also discuss the various adaptive characteristics that make this annual plant so successful including prolific seed production, rapid root growth at low temperature, high nutrient uptake rates, and, most significantly, a ready adaptation to frequent fire. It is known that cheatgrass occurs at most elevations and along roadways across the vast majority of the project area. The location of past cheatgrass treatments is mapped; however, it is not indicative of its total occurrence.

3.4.1.4.2. Spread of Noxious Weeds

Invasive and noxious weeds can be introduced into the area through several vectors such as road materials, mulch, and machinery. Noxious weeds can occupy existing or potential native plant habitat and degrade watershed functions. Trunkle and Fay (1999), Parendes and Jones (2000), and Gelbard and Belnap (2003) showed vehicles and roads were major vectors for noxious weed dispersal.

Native ungulates and livestock have predictable patterns of habitat selection; hence, animal-dispersed seeds are likely to be spread among environmentally similar sites. Consequently, invasive plants are often deposited in conditions similar to sites where such plants are already established (Howe and Smallwood 1982). Malo et al. (2000) concluded that the effect of seed

input to the seed bank from ungulate transport may be low at large and medium-sized spatial scales, but very important at small scales and for colonization processes. Long distance seed dispersal between pastures may occur when cattle are rotated (Couvreur et al. 2004).

Seeds from noxious weeds can get stuck in ungulate hooves, be consumed, or become attached to the hair of wild horses, wildlife species, and livestock. As the animals travel around the district, the seeds can fall off the animals or be excreted in feces and can establish at new locations. Recreation can also affect the spread of noxious weeds. Seeds can become attached to people and domesticated horses in the same manner as wild horses and livestock.

3.4.1.4.3. *Soil Disturbance*

Another factor that can aid in the spread of noxious weeds is soil disturbance. Direct physical effects such as trampling, creation of bare soil can influence the success of native species (Augustine and McNaughton 1998); this influence can also affect the “invisibility” of plant communities by non-native species (Lonesdale 1999). The consumption of plant material such as grass leaves, forbs and browse reduce the amount of material that could be converted to litter. Substantial litter reduction can cause a subsequent increase in bare ground (Schulz et al. 1990). This increase in bare soil will aid in soil erosion and the lack of litter will favor the establishment of invasive plants (Sheley and Petroff 1999). However germination requirements for cheatgrass are enhanced when there is a litter layer, or when there is a rough microtopography (Young and Evans 1973, 1970). Cheatgrass seeds germination rate is lower when in direct contact with a hard soil surface, the microtopography that is needed can be caused by hoof depression on bare soil. Areas that are more prone to heavy disturbance include riparian areas (wet and dry meadows), Forest entry/ exit points, and livestock congregation sites; water and fence developments, salting sites, and bedding grounds.

Another function of soil disturbance is how it affects weed seed banks. Renne and Tracy (2007) observed that previous disturbance which resulted in weed seed bank augmentation increases pasture vulnerability to weed recruitment.

3.4.1.4.4. *Noxious Weed Risk Assessment*

Acres of known weed populations found within each treatment unit are shown by species in Table 30. Acres of cheat grass listed indicate only those acres that have been inventoried and treated, mostly along roadways.

Table 30. Noxious Weeds by Unit

Species	Total Acres
Bald Mountain Unit (8,208 Acres)	
Broadleaved Pepperweed	0.532
Whitetop	8.611
Cheatgrass	30.222
Total Acres	39.363
Cottonwood Unit (31,172 Acres)	
Canada Thistle	5.410
Broadleaved Pepperweed	1.147
Bull Thistle	1.934
Hardhead	0.151
Nodding Plumeless Thistle	0.972
Whitetop	13.182
Cheatgrass	53.901
Total Acres	76.697
Currant 1 Unit (25,925 Acres) = No Known Weeds	
Currant 2 Unit (20, 363 Acres)	
Canada Thistle	0.612
Broadleaved Pepperweed	0.041
Hardheads	0.105
Nodding Plumeless Thistle	0.972
Whitetop	0.122
Bull Thistle	2.452
Yellowspine Thistle	28.366
Total Acres	32.67
Ellison Unit (21, 241 Acres)	
Canada Thistle	8.686
Scotch Cottonthistle	1.625
Broadleaved Pepperweed	0.445
Bull Thistle	3.263
Hardheads	0.048
Whitetop	5.885
Yellowspine Thistle	1.153
Cheatgrass	21.877
Total Acres	42.982
Red Mountain Unit (34,904 Acres)	
Canada Thistle	5.180
Spotted Knapweed	0.099
Broadleaved Pepperweed	0.176
Bull Thistle	0.100
Hardheads	2.092
Whitetop	1.338
Total Acres	8.985
White Pine Unit (23,479 Acres)	
Hardheads	0.065
Whitetop	0.590
Total Acres	0.655

Species	Total Acres
Willhoites Unit (19,627 Acres)	
Broadleaved Pepperweed	0.081
Hardheads	0.215
Total Acres	0.296
Project Area Total Inventoried Weed Acres	202

The Noxious Weeds Risk Assessments have been completed for the ‘Currant-Ellison Watershed Restoration project by treatment unit. The weed risk assessment procedures assess the level of likelihood and consequence of adverse effects and assigns values of very low (none), low, moderate, and high. The weed assessment is summarized in Table 31. Treatment units with a very low (none) or low risk rating will proceed as planned and initiate control treatments on undesirable plant populations that are established in the area. All treatment units that have a moderate or high rating will require a preventative management plan that identifies what measures will be taken to control any new problems that might develop and identify what disciplines will fund the project. In addition, these units require at least 3 consecutive years of monitoring and must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

Adverse effects such as expansion of infestation within project area would result from the increased number of vectors for weeds entering into the area during project implementation. Early treatment with herbicides will help limit the further establishment and spread of noxious weed species. Ground disturbing activities increase potential for some areas to become infested with undesirable plant species even when preventative management actions are followed.

The District weed coordinator will complete follow-up monitoring within the project area following project completion at regular intervals to determine the reoccurrence or spread of invasive and noxious weeds. Inventory of new and existing population of undesirable species will continue to be recorded and treated along existing roads being used during and after project implementation.

The overall potential for weed spread as a result of project implementation is low to moderate. The majority of the project area is relatively free of noxious and/or invasive weeds with the exception of a few isolated infestations. The proposed action will likely increase the spread of noxious and invasive weeds in the area. If new weed infestations establish within the allotments, they would adversely affect the native plant communities.

Table 31. Summary of Weed Risk Assessments for Treatment Units

Unit	Rating	Action
Bald Mountain	Low (5)	Proceed as planned. Initiate control treatments on undesirable plant populations that are established in the area.
Cottonwood	Moderate (25)	Develop preventative management measures for the proposed project to reduce the risk of introduction or spread of undesirable plants into the area. Monitor the area for at least 3 consecutive years and provide for control of new infestations.
Currant 1	Low (1)	Proceed as planned. Initiate control treatments on undesirable plant populations that are established in the area.
Currant 2	Moderate (25)	Develop preventative management measures for the proposed project to reduce the risk of introduction or spread of undesirable plants into the area. Monitor the area for at least 3 consecutive years and provide for control of new infestations.
Ellison	Low (5)	Proceed as planned. Initiate control treatments on undesirable plant populations that are established in the area.
Red Mountain	Moderate (25)	Develop preventative management measures for the proposed project to reduce the risk of introduction or spread of undesirable plants into the area. Monitor the area for at least 3 consecutive years and provide for control of new infestations.
White Pine	Low (5)	Proceed as planned. Initiate control treatments on undesirable plant populations that are established in the area.
Wilhoites	Low (5)	Proceed as planned. Initiate control treatments on undesirable plant populations that are established in the area.

3.4.2. Environmental Consequences Proposed Action

3.4.2.1. Direct/Indirect Effects

3.4.2.1.1. Range Management

According to “Humboldt National Land and Resource Management Plan,” livestock grazing will not be allowed for two years following prescribed fires, plantings, and seeding. In the short term (2 years) entire pastures may be rested or livestock rotations may be modified to accommodate this requirement. Resting units and/or allotments following treatments will cause some hardship for permittees because they will not be able to graze the permitted amount of livestock for consecutive years. Additional losses may transpire if frequent site visits are necessary to maintain a temporary structure or aggressively manage livestock away from treated areas. With at least a two years rest from livestock after prescribed fire and/or seeding, it is anticipated that the recovery will enhance the range condition based on increased ground cover and diversity of the recovering plant community. The proposed projects would increase distribution of livestock across the landscape, thereby reducing concentrated impacts to areas with more desirable vegetation.

The proposed actions are expected to result in the permittees improved ability to comply with their term grazing permit which will improve rangeland health in the long-term. Because of the improved condition of the rangeland, the proposed action’s positive effect is expected to outweigh the negative inconveniences for the average Forest land user.

3.4.2.1.2. *Noxious Weeds*

Infestations of noxious weeds occur within most vegetative communities to varying degrees within the project area. Infestations in mountain brush, low sagebrush, and higher elevation mountain sagebrush communities are generally isolated and limited in size. Wyoming big sagebrush and lower elevation mountain big sagebrush communities have more infestations of larger size and are at greater risk for infestation of noxious weeds.

Potential direct effects of the proposed prescribed burning and mechanical treatments may be an increase in weed population by displacing native vegetation and associated ground-disturbing activities. Noxious weeds have a competitive advantage in areas where the native bunchgrasses and forbs are stressed and degraded, which can result in areas of disturbance. The simplest effect of some invasions is the displacement of native plant species by simple crowding, competition for resources, or other mechanisms (USDI BLM 1998). An aggressive identification and treatment program on the district has minimized the cumulative effects of noxious weeds on these upland vegetation communities. Known weed populations in the project area are currently small and found near roadways.

Potential indirect effects of the proposed action may be to promote resistance to weed invasion. Phase I, II and III pinyon-juniper are intermingled throughout the project area. The intermingling of the Phase I and II with Phase III across the project area will ensure that adjacent, native seed sources are available for understory recovery after potential treatment of the overstory fuels.

Over the long-term, implementation of prescribed burns and other vegetative treatments should reduce the amount of bare ground and promote healthier understory and ecosystem communities; thus, giving desired plant species greater opportunity to compete with the noxious and invasive weeds.

The methods of treatment of the halogeton infestation could be a mixture of chemical treatment or a combination of chemical/mechanical and reseeding; depending on plant diversity and the scope of the treatment area. The method of treatment will be determined by an interdisciplinary team of specialist.

3.4.2.2. *Cumulative Effects*

The Cumulative Effects Analysis Area for the Currant-Ellison Watershed Restoration Project includes all public lands and private lands located within the Project Boundary, as well as, BLM lands immediately adjacent (1 mile) to the USFS administered lands within the project area. This area is approximately 285,000 acres in size and includes Forest Service, BLM, and private lands. This area includes a wide range of habitats for various wildlife and fish species that may occur within the project area. This area also includes vegetation communities which represent those communities that typically occur within the project area. If an alternative Cumulative Effects Area is utilized for the analysis of a specific resource, that area will be described within the specific specialist report.

3.4.2.2.1. *Livestock Grazing*

Past

As with much of the Great Basin, the cumulative effects area historically was grazed heavily by large numbers of both sheep and cattle. Historical grazing was often unmanaged and resulted in

considerable resource impacts. During the 1900’s livestock numbers were reduced and grazing systems were implemented to improve management of the resources in the area.

Present

Table 32 describes the existing Forest Service and BLM allotments, seasons, and numbers for each of the Allotments within the cumulative effects area.

Table 32. Grazing Allotments

Allotment	Season	Permitted Numbers	Comments
Forest Service Allotments			
Tom Plain C&H Allotment	6/11-10/10	500 Cow/Calf	Only a portion of the allotment occurs within the cumulative effects area.
Ellison Basin C&H Allotment	6/11-10/10	359 Cow/Calf	Ellison Basin C&H lies entirely within the cumulative effects area.
Blackrock C&H Allotment	6/21-9/30	122 Cow/Calf	Majority of the Blackrock allotment lies within the cumulative effects area.
Currant Creek C&H Allotment	6/15-9/30	295 Cow/Calf	Currant Creek C&H lies entirely within the cumulative effects area.
BLM Allotments			
Duckwater (4 use areas)	11/1-9/30	4,934 Cattle	Only a portion of four use areas: Green Springs Valley, Bull Creek, Broom Canyon and Red Mountain occurs within the cumulative effects area.
Douglas Point	4/1-5/31	368 Cattle	Only a portion of the allotment occurs within the cumulative effects area.
North Cove	12/1-5/15	1,004 Cattle	Only a portion of the allotment occurs within the cumulative effects area.
Douglas Canyon	6/1-9/15	175 Cattle	Only a portion of the allotment occurs within the cumulative effects area.
Tom Plain	10/1-6/30	6,036 Cattle	Only a portion of the allotment occurs within the cumulative effects area
McQueen Flat	4/15-11/15	495 Cattle	Only a portion of the allotment occurs within the cumulative effects area

Note: Due to forage availability the operators have not activated full use of their AUMs. On the Tom Plain Allotment, 1,597 AUMs have been placed into voluntary non-use until 2018 at which time the native range will be evaluated

The Ely Ranger District completed the NEPA analysis on the Ely Westside Rangeland Project EIS in 2014 in accordance with the Forest Range Rescission Schedule. This analysis and decision provides guidance for grazing management on the Forest Service allotments within this area as well as other portions of the District. NEPA analysis is completed on BLM range allotments within the cumulative effects area.

Livestock grazing can spread noxious weeds through the transport of seed, soil disturbance, and impacts to native vegetation. Because noxious weed infestations tend to be smaller in acreages and scattered, and because the District has an aggressive treatment program, the cumulative effects of this project and livestock grazing on noxious weeds will be limited.

3.4.2.2.2. *Livestock Developments*

Past

Livestock Developments include fences, water developments (both troughs and ponds) and other structures that may have been developed to improve the management of livestock. Many of these developments were first constructed during the early to mid- 1900's as Allotments were first developed to manage livestock grazing on the Ely Ranger District. The number of water developments and fences increased throughout the 1900's to improve the control and management of livestock on the District as well as on adjacent BLM and private lands.

Present

Existing allotment fences and water developments are currently being maintained on both Forest Service and BLM administered lands. Existing Forest Service Range developments and allotments are shown on the enclosed maps. Additional fences and water developments are also located on BLM and private lands within the cumulative effects area. Private lands often have higher fence densities compared to surrounding public lands. This increased density is due to the location of private lands and land use patterns and management activities.

Foreseeable Future

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area aside from riparian enclosures. There are also no known plans for new developments on BLM administered lands. Additional fences could be constructed on private lands, however, no specific plans are known.

3.4.2.2.3. *Wild Horses*

Past and Present

The cumulative effects area includes a portion of the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2016.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established Appropriate Management Levels (AMLs). It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 3–5 year rotating schedule.

3.4.3. Environmental Consequences No Action Alternative

3.4.3.1. Direct/Indirect Effects

3.4.3.1.1. Range Management

Permitted livestock would continue to graze on USFS lands, with minor adjustments being made annually if needed. In the long term, forage species for livestock and wildlife would continue to diminish as pinyon-juniper encroachment would continue and desirable grasses and forbs populations continue to decline. Forage quality and quantity would decline over the long term which could result in a reduction of livestock numbers in grazing permits.

3.4.3.1.2. Weed Management

Over the past 30 years only two wildfires greater than 100 acres have occurred with the cumulative effects area. In 2001 the Smith Creek Fire burned approximately 1800 acres in the Bald Mountain Wilderness. In 2013 the White Pine Fire burned approximately 1300 acres in the Currant Mountain Wilderness. The Humboldt-Toiyabe National Forest utilizes an integrated pest management program that includes early detection, mapping, mechanical, biological, and herbicide treatments. Infestations will continue to be monitored and treated with herbicides and other methods as permitted under current management direction. Inventory and treatment efforts will continue but may be limited due to funding or staffing constraints.

3.4.3.2. Cumulative Effects

Under the No Action alternative, noxious weed infestations may continue to increase in size and disperse from the originating sites. Halogeton would remain untreated and likely expand further onto Forest and BLM lands. Animals, vehicles, and humans affect noxious weeds by both serving as a vector to introduce new populations and species, as well as creating conditions that may contribute to weed establishment. Currently, weed populations are low, and the majority of the project area is in Phase II, indicating that an understory still exists which is capable of recovery after a disturbance. Regarding post wildfire cheat grass threat, vulnerability to cheat grass invasion is lowest on sites with relatively high cover of perennial herbaceous species (Chambers et. al. 2007). Delaying treatment and allowing further degradation of the native understory will increase the likelihood of invasive species dominating the site following a ground disturbing event.

3.4.4. Environmental Consequences No Treatments within Wilderness

3.4.4.1. Direct/Indirect Effects

3.4.4.1.1. Range Management

As with the proposed action, according to “Humboldt National Land and Resource Management Plan,” livestock grazing will not be allowed for two years following prescribed fires, plantings, and seeding. This rule will apply to all treated lands outside of the wilderness. In the short term, entire pastures may be rested or livestock rotations may be modified to accommodate this requirement. Resting units and/or allotments following treatments will cause some hardship for permittees because they will not be able to graze the permitted amount of livestock for

consecutive years. Additional losses may transpire if frequent site visits are necessary to maintain a temporary structure or aggressively manage livestock away from treated areas. With at least a two years rest from livestock after treatment, it is anticipated that the recovery will enhance the range condition based on increased ground cover and diversity of the recovering plant community. Under Alternative 3, forage species for livestock and wildlife would continue to diminish as pinyon-juniper encroachment would continue and desirable grasses and forbs populations continue to decline within the wilderness areas. Forage quality and quantity would decline over the long term in wilderness areas which could result in the reduction of livestock numbers in grazing permits. The implementation of Alternative 3 is expected to result in the permittees improved ability to comply with their term grazing permit and increase forage health over the long term outside of the wilderness, but not to the extent of the proposed action. Alternative 3's positive effect is expected to outweigh the negative inconveniences for the average Forest land user.

3.4.4.1.2. Weed Management

The implementation of Alternative 3 is expected to have similar impacts as those described in the Proposed Action with the exception of impacts to wilderness. With no project activities being conducted within wilderness areas (i.e., decommissioning unauthorized roads, abandoned mines work, watershed treatments, prescribed fire, etc..) the vectors of potential weed spread and establishment of noxious and invasive weeds in the short term are reduced. Depending on the nature of the proposed activities, (especially prescribed fire,) the weed assessment for some treatment units would likely be reduced from a moderate to low rating. However, delaying treatment and allowing further degradation of the native understory in the wilderness will increase the likelihood of invasive species dominating the site following a ground disturbing event. Halogeton treatments would still continue under Alternative 3.

3.4.4.2. Cumulative Effects

The cumulative effects of Alternative 3 are similar to those of the Proposed Action and No Action Alternatives. Animals, vehicles, and humans affect noxious weeds by both serving as a vector to introduce new populations and species, as well as creating conditions that may contribute to weed establishment. Currently, weed populations are low, and the majority of the project area is in Phase II, indicating that an understory still exists which is capable of recovery after a disturbance. Regarding post wildfire cheat grass threat, vulnerability to cheat grass invasion is lowest on sites with relatively high cover of perennial herbaceous species (Chambers et. al. 2007). Delaying treatment and allowing further degradation of the native understory in the wilderness will increase the likelihood of invasive species dominating the site following a catastrophic ground disturbing event. Long term degradation to a site would likely result in a reduction of livestock numbers.

There are 47 plant species designated as noxious by the State of Nevada (NAC 2010). Noxious weeds are highly invasive plants that generally possess poisonous, toxic, parasitic, invasive, and aggressive characteristics. Noxious weeds are capable of producing highly viable seeds, which can persist in the soil for several decades (D'Antonio and Meyerson 2002). The presence of noxious weeds signifies an area is at risk from a health and sustainability viewpoint, whether or not the landscape is disturbed or pristine (O'Brien et al. 2003). Infestations reduce the amount of

available forage for wildlife and livestock, and have the ability to take over large areas of land, reducing valuable public land resources (NAC 2010).

3.5. Watershed/Hydrology

3.5.1. Affected Environment

3.5.1.1. Methodology and Analysis Process

3.5.1.1.1. Water Erosion Prediction Project (WEPP)

The main pollutant to surface waters on FS managed lands is sediment. Management treatments such as those proposed in the Current-Ellison Project, can cause erosion and lead to increased sedimentation of surface waters. To estimate erosion produced by the Alternatives, the Water Erosion Prediction Project (USDA 2006) Fuel Management interface (WEPP FuME) was used. WEPP is a set of interfaces designed to allow users to quickly evaluate erosion. The WEPP FuME model is used to estimate erosion increases caused by fuel management activities (including thinning and prescribed fire) and the impact of wildfire. The series of WEPP models can be found online at <http://forest.moscowfsl.wsu.edu/fswcpp/>. Assumptions that were made to perform this WEPP analysis are shown in Table 33.

Table 33. Assumptions used for Water Erosion Prediction Project (WEPP) analysis

Characteristic	Assumption
Soil Texture	Clay loam
Hillslope Length	500 ft
Hillslope Gradient	Top: 50% Mid: 30% Toe: 10%
Buffer Length	50 ft
Wildfire Cycle	50 years
Prescribed Fire Cycle	20 years
Thinning Cycle	20 years
Road Density	0.5 mi/mi ²
Climate	Custom climate was created using options in WEPP

3.5.1.1.2. Proper Functioning Condition (PFC)

The Bureau of Land Management (1998 and 1999), along with the Natural Resources Conservation Service (NRCS) and Forest Service, have developed an approach to evaluate on the ground condition of riparian areas and wetlands. This approach, known as Proper Functioning Condition (PFC), is a qualitative assessment of how well the physical processes of the ecosystem are functioning. PFC uses two similar protocols: one used for riparian ecosystems supported by running water and one for groundwater dependent ecosystems. The protocol identifies ecosystems as functioning, functioning-at-risk and not functioning. PFC data was collected in the project area in the summer of 2014.

3.5.1.1.3. *Multiple Indicator Monitoring (MIM)*

The BLM (2011) have developed a protocol called Multiple Indicator Monitoring of Stream Channels and Streamside Vegetation (MIM). The protocol is intended to monitor the impacts of livestock and other large herbivores on streambanks, stream channels and streamside vegetation on wadeable streams (usually less than 10m wide). MIM data was collected in the project area in the summer of 2006. The creek names in the MIM discussion refer to the reaches of the creek analyzed and not the corresponding watershed; Upper & Lower Ellison Creek and Copper Creek are all contained in the Upper Ellison Watershed.

3.5.1.1.4. *Groundwater Dependent Ecosystems (GDE)*

The Forest Service (2012) has developed an assessment protocol specific to Groundwater-Dependent Ecosystems (GDE). The GDE assessment method is composed of two levels: level one is intended to document the size shape and basic characteristics of a site while level two is intended to more comprehensively characterize the vegetation, geology, hydrology and soils of the site. The level one GDE survey consists of a qualitative checklist similar to PFC, in addition to quantitative data (ex. water quality parameters such as pH and temperature) and additional quantitative data (ex. GDE type and lithology). The PFC and GDE protocols were used to assess the current condition of riparian areas and wetlands within the project area. GDE data was collected in the project area in the summer of 2013.

3.5.1.1.5. *Equivalent Roaded Acres (ERA)*

For this analysis, the effects of past, present, and reasonably foreseeable future impacts were assessed using the Region Five Cumulative Off-site Watershed Effects Analysis (USDA Forest Service 1988a). This methodology was originally developed for evaluating timber harvest projects on timbered forests and analyzed cumulative effects using equivalent roaded acres (ERA).

ERA is a conceptual unit of measure used to assess effects from management actions and represents an acre of road surface. Acres of management activities such as timber harvest, prescribed fire and grazing are converted to ERAs using numerical coefficients (ex: the numeric coefficient used for a wildfire is 0.3, meaning 1 acre of wildfire is equivalent to 0.3 ERA). The disturbance coefficients used in this analysis are shown in Table 34. Activities analyzed in this analysis include:

- Livestock grazing
- Existing roads
- White Pine Fire (2013); Smith Creek fire (2001) was omitted due to its recovery
- Past mechanical treatments (White Pine Sagebrush Mowing)
- Proposed prescribed fire
- Proposed mechanical treatment

In this analysis, an ERA is calculated for each activity in the analysis area, these individual ERA values are then summed together to form a single ERA for the analysis area. Additionally, an amount of acceptable impact must be established to compare the final ERA value; this acceptable

level of degradation is called the Threshold of Concern (TOC). As disturbances approach the TOC, there is an increased loss of soil porosity and soil cover, resulting in greater runoff potential and higher peak flows. When ERA values exceed the TOC, susceptibility for significant adverse cumulative effects is high. Water quality may be degraded to such extent that the water is no longer acceptable for established uses, such as municipal water supplies and fisheries habitat. The TOC is generally expressed as a fraction of the watershed, and for this analysis, the TOC for the project area is 12%.

Table 34. Disturbance Coefficients used for Currant-Ellison cumulative effects analysis

Activity	Coefficient Used	Recovery Time (Years)	Justification
Roads	1	N/A	Road coefficient
Livestock Grazing	0.05	N/A	Assumed to be same as moderate intensity wildfire
Wildfire	0.3	15	Assumed to be crown intensity
Sagebrush Mowing	0.07	3	Assumed to be the same as disking
Prescribed Fire	0.04	4	Broadcast Burning/Prescribed Fire coefficient
Mechanical Treatments	0.15	15	Mechanical Treatment coefficient

3.5.1.2. Existing Conditions

This section describes the existing conditions within the project area to provide a basis for assessing the projected environmental effects of the alternatives.

3.5.1.2.1. Climate

The Currant-Ellison project will occur on NFS lands located on the White Pine mountain range, and situated within the Great Basin. The elevation ranges from 5,000 feet to 11,513 feet (Currant Peak) and the White Pine range is generally oriented north-south. Mean annual precipitation in the Great Basin averages approximately 10 to 24 inches (Antevs, 1956). Long, cold (averages in teens) winters produce moderate to heavy snow fall, which usually melts by mid-to-late May. Summers consist of warm days (averages in eighties) and cool nights and often produce short-duration, high-intensity convective rain and thunderstorms. The highest stream flows typically occur in the spring, often March through June.

3.5.1.2.2. Water Features

The analysis area contains 14 HUC-6 watersheds with water from the west side flowing into Railroad Valley North Watershed, and water from the eastside of the project area draining into White River Valley. Within the project area, there are three perennial streams (White River, Ellison Creek and Currant Creek) in addition to approximately 142 springs. However, due to recent drought, some historical springs no longer produce water and some creek sections that have historically been perennial have become intermittent. Watersheds are shown in Table 35 and Figure 2.

Table 35. Watersheds in the Currant Ellison project area, their HUC-6 number, major streams and area

Watershed Name	HUC-6 Number	Major Stream Name	Total Area (Acres)	Area Within Project (Acres)	Fraction within Project (%)
Cottonwood Creek	150100110201		11226	11182	99.6
Upper Ellison Creek	150100110202	Ellison Creek	33724	33347	98.9
Lower Ellison Creek	150100110203		23213	1999	8.6
Secret Spring	150100110301		29331	16757	57.1
Saddle Spring – White River	150100110302	White River	32779	25157	76.7
Unnamed	150100110503		13854	2197	15.9
Unnamed	150100110504		12098	4369	36.1
Manzone Well	160600121102		13438	3846	28.6
Freeland Canyon Wash	160600121205		26167	9798	37.4
Black Canyon Wash	160600121206		12456	10793	86.6
Lower Bull Creek	160600121207		75849	23980	31.6
Upper Currant Creek	160600121401	Currant Creek	35715	28527	79.9
Silver Spring	160600121402		33219	9466	28.5
Lower Currant Creek	160600121403		18432	3498	19.0

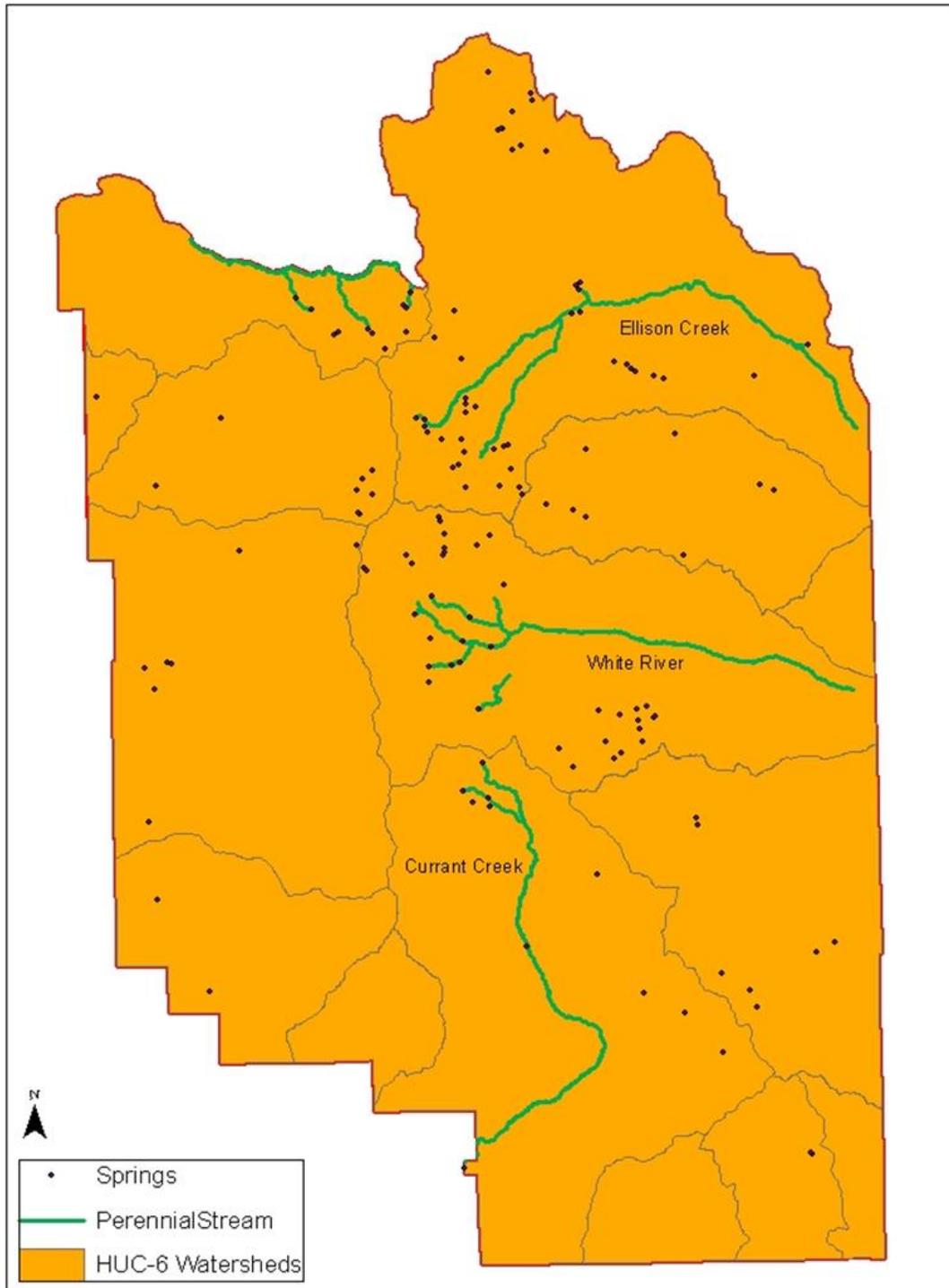


Figure 2 HUC-6 subwatersheds, springs and perennial streams within the Currant-Ellison Project

3.5.1.2.3. Riparian Assessment

PFC (Table 37), GDE and MIM (Table 36) assessments within project area indicate that riparian areas and wetlands are generally functioning or functioning at risk with a few areas that are not functioning. The most common impacts include: trampling, hummucking, vegetation conversion/transition, streambank alteration and vegetation overutilization. These impacts typically occur in riparian areas or wetlands that are not protected by enclosure fencing. Examples of the most impacted springs include Mustang, Vanover # 1 and Deer Springs. 2006 MIM data indicates that many streams have at least one component that is functioning at risk or. Many streams that are functioning at risk are approaching a threshold in one or more of their characteristics:

- Copper Creek (73%) didn't meet the Forest's bank stability standard (80%), and Lower Ellison (36%) was far below the standard and may indicate the creek is not functioning
- Lower Ellison (44%) and White River (40%) were moderate-high regarding bank alteration.
- Upper Ellison is near the minimum alteration standard to maintain stable banks, placing them on the verge of instability.
- White River and Copper Creek rated moderate on the vegetation erosion index

Table 36. 2006 MIM results for selected streams

Stream	Bank Stability (%)	Bank Alteration (%)	Site Wetland Rating	Vegetation Erosion Index
Upper Ellison	84%	28%	91%	8.16
Lower Ellison	36%	44%	91%	7.77
White River	84%	40%	78%	6.80
Copper Creek	73%	5%	75%	6.73

Notes (BLM, 2008):

For bank stability: >80% is excellent, 50-79% is good, 24-49% is fair, <25% is bad

For bank alteration: <20% is low, 20-49% is moderate, 50-74% is high, >75% is extreme

For site wetland rating: 0-15 is very poor, 16-40 is poor, 41-60 is fair, 61-85 is good, 85+ is very good

For vegetation erosion index: 0-2 is very poor, 3-4 is poor, 5-6 is moderate, 7-8 is good, 9-10 is very good

PFC analysis indicates that some springs are functioning at risk (FAR) and at least two springs are not functioning (NF). Several springs are also in proper function condition (PFC). Often springs have been developed to provide water for livestock without concentrating livestock use around sensitive spring habitats. Unfortunately, many of these developments have gone unmaintained and are no longer function.

Table 37. Springs evaluated with PFC, their PFC rating, whether the spring is developed or not and the condition of those developments

Spring Name	PFC Rating	Developed	Development Condition
Rock	FAR – Downward	No	N/A
Willow	PFC	Yes: enclosure, spring box, trough	Damaged gate; non-functioning trough; enclosure is functioning
Mustang	NF	Yes: impoundment	Impoundment is full of sediment and is non-functioning
Vanover #1	NF	Yes: impoundment	Impoundment is functioning
Vanover #2	FAR – Downward	No	N/A
Blackrock	PFC	Yes: Enclosure, “spring box” and trough	Spring box and trough are functioning
Freeland	PFC	Yes: Enclosure, pipe, trough	Enclosure fence has been cut; pipeline to the trough is damaged and non-functioning, trough would be functioning (?) if pipe was also
Birch	FAR – Downward	Yes: water tunnel, concrete structure (dam?)	Enclosure and water tunnel are functioning; historical dam(?) is non-functional but not impacting spring or water availability
Sawmill	PFC	Yes: enclosure, spring box, trough	Enclosure and spring box are functioning; trough is non-functioning
Cherry	PFC	Yes: enclosure, spring box, trough	Enclosure is non-functioning, spring box is functioning but is very old, pipe has been disconnected near spring box, and trough is non-functioning

Note: PFC = Properly Functioning Condition, FAR = Functioning at Risk, NF = Not Functioning

3.5.1.2.4. Livestock Developments

Livestock Developments include fences, water developments (both troughs and ponds) and other structures that may have been developed to improve the management of livestock. Many of these developments were first constructed during the early to mid- 1900s as Allotments were first developed to manage livestock grazing on the Ely Ranger District. The number of water developments and fences increased throughout the 1900s to improve the control and management of livestock on the District as well as on adjacent BLM and private lands.

Livestock developments affect a very small portion of the landscape and typically improve soil and watershed conditions. These developments are typically constructed to protect springs, riparian areas and wetlands from livestock impacts. Developments occur on a relatively small area but have a large positive impact for riparian/wetland resources when they are functioning. Many of these developments are in disrepair and are no longer functioning as intended.

3.5.1.2.5. Roads

There are approximately 160 miles of roads distributed through eleven of the twelve HUC 6 watersheds within the project area. Road densities within the project area are generally low ranging from 0 to 0.84 mi/mi² and average 0.45 mi/mi². Road-stream crossing densities are also generally low, ranging from 0 to 0.26 crossings/mi². Road density and road-stream crossing density in the project area are shown in Table 38 for each HUC 6 watershed.

Table 38. Road density and road-stream crossing density for each HUC 6 watershed

Watershed	Miles of road	Road density (mi/mi ²)	Number of road/stream crossings	Road-stream crossing density (crossings/mi ²)
Cottonwood Creek	7.6	0.43	0	0
Upper Ellison Creek	42	0.81	6	0.12
Lower Ellison Creek	0	0	0	0
Secret Spring	12.4	0.47	0	0
Saddle Spring – White River	30.6	0.78	7	0.18
150100110503	2.9	0.84	0	0
150100110504	4.6	0.67	0	0
Manzone Well	0	0	0	0
Freeland Canyon Wash	10	0.65	4	0.26
Black Canyon Wash	9.8	0.58	0	0
Lower Bull Creek	13.8	0.37	0	0
Upper Currant Creek	18.3	0.41	8	0.18
Silver Spring	4	0.27	0	0
Lower Currant Creek	0	0	0	0

3.5.1.2.6. Beneficial Uses

Existing beneficial uses of surface waters within basins affected by the project area can be found online at <http://water.nv.gov>. Watersheds in the project area drain into two valleys in White Pine and Nye Counties: White River Valley on the east side and Northern Railroad Valley on the west side.

White River Valley

White River Valley has a perennial yield of 37,000 AFY (acre-feet yearly) and the total amount of water allocated is 35,557.54 AFY (96%). Beneficial uses in White River Valley include:

- Irrigation—31,228 AFY, 84.3%
- Irrigation (DLE)—3,744.43 AFY, 10.5%
- Other uses under 1% include: stock watering, quasi-municipal, commercial, construction and recreation

Northern Railroad Valley

Northern Railroad Valley has a perennial yield of 75,000 AFY and the total amount of water allocated is 26,746.64 AFY (36%). Beneficial uses in Northern Railroad Valley include:

- Irrigation—21,573 AFY, 28.8%
- Irrigation (DLE)—2,929 AFY, 3.91%
- Recreation—1,994 AFY, 2.7%
- Other uses all under 1% include: quasi-municipal, stock watering, commercial, industrial and mining and milling

3.5.1.2.7. *Landforms and Soils*

Primary landform types in the Project Area include hills, mountains and fan piedmont (NRCS). Soils in the project area are closely associated with these primary landform types. The hill and mountain regions rise 1,000 to 6,000 feet above the surrounding valleys and comprise the majority of the project area of the Project area (Table 39). Fan piedmonts border the mountain areas and are comprised of alluvial deposits transported from the mountains over many thousands of years. Basin floor landforms lie at the lower portions of the main intermountain valleys and consist of stream, lake, and wind deposits. Most of the landforms in the Currant-Ellison project area consist of mountains, fan piedmonts and hills, with mountains representing nearly 70% of the project area (NRCS, 2014).

Loamy soil textures are found throughout the project area and typically include a coarser component such as cobble, gravel or stone. Depth to a restrictive layer, often a duripan, is typically greater than 200 centimeters (cm). Most of the soils in the project area are considered well drained with very few soils being considered moderately well drained. Similarly, the depth to the water table is generally >200 cm but can be much less in soils that are adjacent to perennial springs and creeks. Soils in the project area typically have between 1.5% and 3% organic matter, although some are as low as 0.25 and as high as 5. The NRCS has mapped soil associations throughout the project area (NRCS, 2014). The most abundant soil associations mapped by the NRCS within the project area include:

- Uputed-Atlow-Douhide associations 6752 (14972 acres, ~8% of project area)
- Rock outcrop-Mattier-Jackrock association 4510 (14780 acres, ~8%)
- Mattier-Rock outcrop-Douhide association 6487 (13245 acres, ~7%)
- Tecomar-Pookaloo-Zimbob association 6120 (12628 acres, ~7%)
- Rock outcrop-Mattier-Segura association 6490 (11097 acres, ~6%)
- Palinor-Yody-Broland association 6288 (10172 acres, ~5%)

Table 39. Landforms within the Currant Ellison project area

Landform	Fraction of project area	Acres
Mountains	68.22%	128,099
Fan Piedmont	20.90%	39,240
Hills	9.54%	17,908
Uplands	1.08%	2,031
Lake Plain	0.18%	343
Other	0.06%	117
Bolson	0.02%	32

3.5.1.2.8. *Soils on Hills and Mountains*

Mountain landforms are the most prevalent landform in the project area, representing approximately 68%. Hills represent the third most abundant landform type (9.5%). The elevations of hill and mountain landforms ranges from 6,000 to 11,000 feet and landforms represent approximately 75% of the project area. The hill and mountain soils are on steep (25% to 40%) to very steep (>40%) slopes. Soil depth ranges widely, from less than 10 inches to more than 80 inches, and is generally shallower at higher elevations.

Mass wasting is not a dominant process in the Project area. However, rock fall, shallow landslides, deep-seated landslides, and debris flows may be potential hazards to roads and other facilities in the hill and mountain portions of the Project area. In very steep terrain (greater than 40% slope), cut and fill slopes for roads and well pads may be vulnerable to slope failure and related surface erosion because of their excessive heights and slopes (White Pine & Grant-Quinn Oil and Gas Leasing Project FEIS, 2007).

Almost all of the forested land in the Project area occurs in the hill and mountain areas. Forested areas have a sparse understory and are vulnerable to erosion if the trees are removed. Water and wind erosion hazard is minimal for undisturbed soils. When disturbed, these soils are subject to erosion.

3.5.1.2.9. *Soils on Fan Piedmont*

Fan piedmont landforms generally range in elevation from 5,400 to 7,800 feet and are the second most abundant landform type in the project area, representing approximately 21%. Fan piedmont landforms occur on low (0-10%) to moderate (10-25%) slopes. The soils range from shallow (10 to 20 inches) to moderate (20 to 40 inches) depths over a duripan (subsurface layer of silica and lime cementation) or are shallow to very deep when no duripan is present. These soils are moderately coarse textured to very gravelly in the surface layer and fine textured in the subsoil and well drained with medium runoff. Many of the soils exhibit duripan layers in the substratum, and some have an accumulation of clay in the subsoil. These soils formed in alluvium are generally on stable geomorphic surfaces. They can be subject to flooding on active alluvial fans. In undisturbed sites, these soils have a slight erosion hazard due to protective cover from vegetation and surface gravel, but they soils have a high erosion hazard in disturbed areas (White Pine & Grant-Quinn Oil and Gas Leasing Project FEIS, 2007).

3.5.1.2.10. *Soil Erosion Hazard*

A simple method to classify soil erosion risk is using slope:

- slopes of 0–10% are estimated to have low erosion risk
- slopes of 10–25% are estimated to have moderate erosion risk
- slopes of 25–40% are estimated to have high erosion risk
- slopes greater than 40% are estimated to have very high erosion risk

Based on the project areas slope, approximately half of the project area has a high or very high soil erosion risk (Table 40 and Figure 3).

Table 40. Soil erosion risk within the Currant-Ellison project area

Soil Erosion Risk	Slope Range (%)	Acres in Project Area	Fraction of Project Area
Low	<10	34,024	19 %
Moderate	10-25	59,960	32 %
High	25-40	43,402	23 %
Very High	>40	47,512	26%

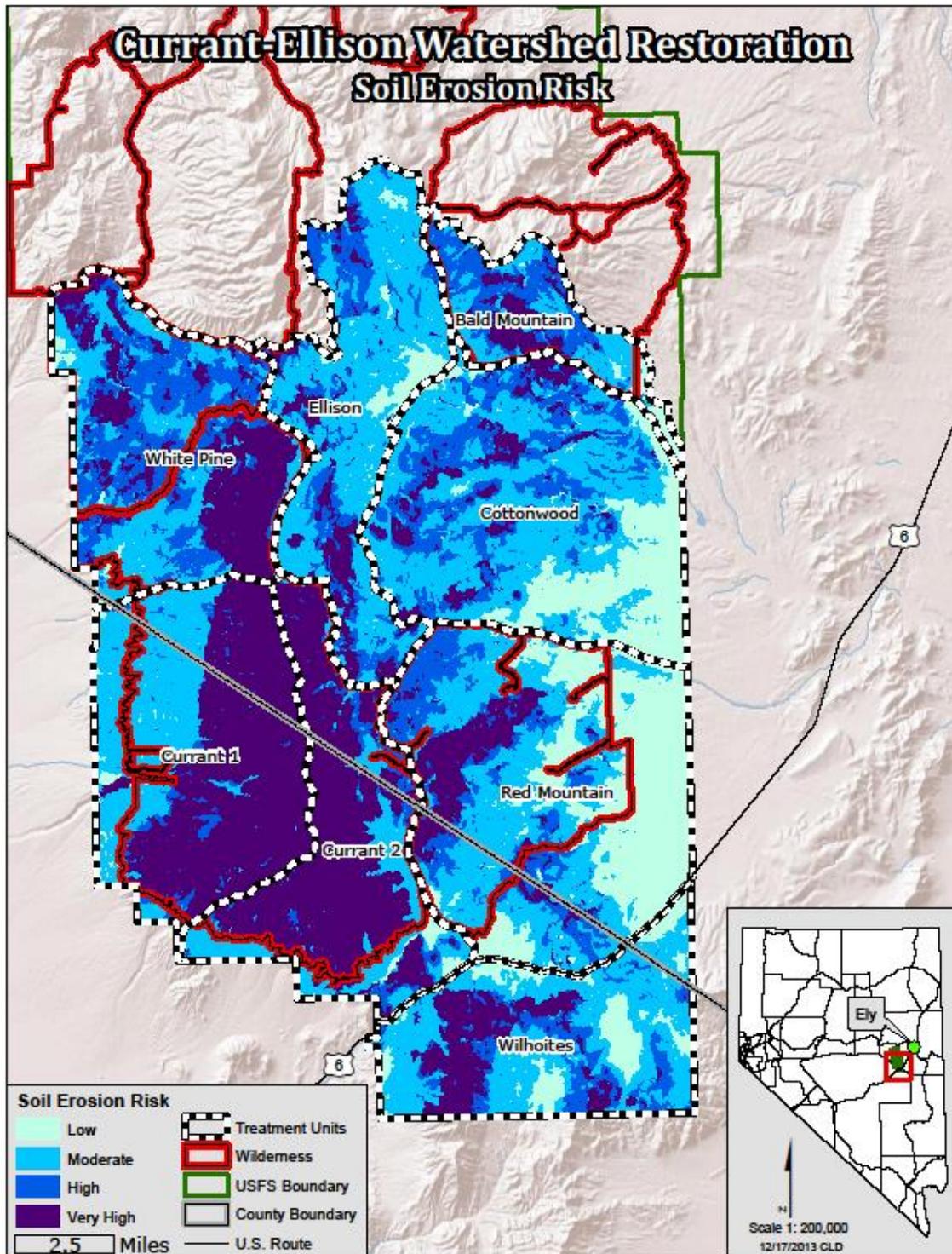


Figure 3. Erosion risk based on slope within the Currant-Ellison project area

3.5.2. Environmental Consequences Proposed Action

3.5.2.1. Direct Effects

The direct effects of proposed mechanical vegetation treatments include: reduced evapotranspiration, increased soil compaction, increased organic cover. Reducing the density of pinyon-juniper will reduce the overall evapotranspiration occurring in the project area. Driving vehicles and/or mechanical equipment off-road will increase soil compaction, but the scale of these impacts will be minor across the landscape and through the use of BMPs. Treatments such as mastication and chipping will greatly increase organic cover in the immediate vicinity of the activities.

The direct effects of prescribed fire treatments include: reduced evapotranspiration, increased hydrophobic soils, reduced organic cover. Reducing the density of pinyon-juniper may reduce the overall evapotranspiration occurring in the project area. Hydrophobic soils will likely be generated and may be limited to the immediate vicinity around burned trees if severity is low, or across a greater portion of the landscape if fire behavior is more severe. Additionally, prescribed fire will consume organic matter on the landscape.

The direct effects of proposed watershed restoration treatments include: stabilized banks and headcut features, protected riparian/wetland vegetation and increased compaction. Treatments requiring heavy equipment and/or overland travel will increase compaction; however, these effects will be localized to treatment areas and will be small in scale. Some of these treatments will address unstable banks and headcuts and stabilize these features. Other treatments will protect riparian/wetland areas by constructing enclosure fences or barricading access with vegetation harvested within the vicinity.

3.5.2.2. Indirect Effects

The indirect effects of proposed mechanical vegetation treatments may include: increased water quantity, decreased infiltration and increased surface runoff, decreased water quality. Reduced evapotranspiration from pinyon-juniper would potentially increase water quantity. Soil compaction may slightly reduce infiltration rates; however, these effects will be limited to areas that are driven on by vehicles and/or equipment. Reduced infiltration means that more water will become surface runoff, which may increase erosion and in-stream turbidity, which may have a minor effect on water quality. However, if mechanical treatments (such as mastication) result in increased organic matter on the ground, there will likely be increased infiltration and reduced surface runoff and erosion. This is because the organic matter can absorb water, preventing it from running off, and allowing it to infiltrate. WEPP predicted that the erosion increase from mechanical treatments would be negligible in the year of implementation and into the future; prescribed fire would increase erosion by 12.8 tons/mi² in the first year and 0.6 tons/mi² until the site has recovered.

Indirect effects of prescribed fire include: increased water quantity, increased surface runoff, and decreased water quality. Increased surface runoff will increase erosion and likely increase in-stream turbidity. However, the effect to water quality will be short-term, and as the area recovers erosion rates will approach background erosion rates. Increased water quantity is associated with diminished evapotranspiration.

The indirect effects of proposed watershed restoration projects include: improved water quality, elevated water table. Protecting riparian/wetland sites and associated vegetation will improve water quality by preventing contamination and allowing natural processes to filter contaminants. Additionally, stabilizing banks and headcuts will reduce erosion from these features which will reduce in-stream turbidity. Restoring gullied meadow systems with in-stream treatments can elevate the water table within the meadow.

3.5.3. Environmental Consequences No Action

3.5.3.1. Direct Effects

The No Action alternative would have no direct effects on watershed resources within the project area.

3.5.3.2. Indirect Effects

The No Action alternative may result in considerable effects to watershed resources in the event of a severe wildfire, as discussed in the soils section. This alternative will likely promote continued pinyon-juniper expansion and stand density increase, both of which increase the probability of severe wildfire. Additionally, the continued expansion of pinyon-juniper may result in less water available at springs and in streams due to increasing evapotranspiration. WEPP predicted that the event of a wildfire would increase erosion by approximately 96 tons/mi² of immediately following the fire and an additional 1 ton/mi² until the site has recovered (Table 41).

The indirect effects of not implementing the proposed exclosure fencing will include: impaired riparian and wetland function, greater levels of in-stream turbidity and potentially diminished water quality. Ungulate overuse will continue in sensitive riparian and wetland areas without constructing/maintaining exclosure fences and water developments (ex. troughs). This overuse will continue to impact the stability of riparian/wetland vegetation and impair the functionality of the feature. Additionally, impaired riparian/wetland vegetation will result in greater erosion and in-stream turbidity. Water quality may be impacted if riparian or wetland systems are impacted to the point that they become non-functioning or if animal waste, including dead animals, sufficiently accumulate in these areas.

The indirect effects of not implementing watershed restoration projects such as headcut stabilization and stream bank stabilization include: increased in-stream turbidity, lowered water table within gullied meadows, gully expansion (as the headcut continues to migrate upstream). The increased in-stream turbidity is a result of gullied stream banks continuing to erode into the channel and the associated headcut migrating upstream. Gullies lower the water table within meadow systems as the water table has to meet the new level of the stream channel; drier soils typically lead to colonization by non-desired, non-riparian vegetation.

Table 41. Predicted sediment increase for proposed actions and wildfire. (This table applies to all alternatives)

WEPP Project Sediment Increases		
	Sediment Increase, Year of Disturbance (ton mi-2)	Average Annual Sediment Increase (ton mi ⁻² y ⁻¹)
No action		
Wildfire	96	1.0
Proposed Actions		
Vegetation Management	negligible	negligible
Prescribed Fire	12.8	0.6

3.5.4. Environmental Consequences No Treatments within Wilderness

Alternative 3 will have impacts that are similar to those of the Proposed Action, with the exception that these impacts will not occur in Wilderness.

3.5.4.1. Direct Effects

The direct effects of proposed mechanical vegetation treatments include: reduced evapotranspiration, increased soil compaction, increased organic cover. Reducing the density of pinyon-juniper may reduce the overall evapotranspiration occurring in the project area. Driving vehicles and/or mechanical equipment off-road will increase soil compaction, but the scale of these impacts will be minor across the landscape and through the use of BMPs. Treatments such as mastication and chipping will greatly increase organic cover in the immediate vicinity.

The direct effects of prescribed fire treatments include: reduced evapotranspiration, increased hydrophobic soils, reduced organic cover. Reducing the density of pinyon-juniper will reduce the overall evapotranspiration occurring in the project area. Hydrophobic soils may be generated but will likely be limited to the vicinity immediately around burned trees if the burn severity remains low, or across a greater portion of the landscape if fire behavior is more severe. Additionally, prescribed fire will consume organic matter on the landscape.

The direct effects of proposed watershed restoration treatments include: stabilizing banks and headcut features, protecting riparian/wetland vegetation and increasing compaction. Treatments requiring heavy equipment and/or overland travel will increase compaction; however, these effects will be localized to treatment areas and will be small in scale. Some of these treatments will specifically target unstable banks and headcuts and stabilize these features. Other treatments will protect riparian/wetland areas by constructing enclosure fences or barricading access with vegetation harvested within the vicinity.

3.5.4.2. Indirect Effects

The indirect effects of proposed mechanical vegetation treatments may include: increased water quantity, decreased infiltration and increased surface runoff, decreased water quality. Reduced evapotranspiration from pinyon-juniper would potentially increase water quantity. Soil compaction may slightly reduce infiltration rates; however, these effects will be limited to areas that are driven on by vehicles and/or equipment. Reduced infiltration means that more water will become surface runoff, which may increase erosion and in-stream turbidity, which may have a minor effect on water quality. However, if the mechanical treatment results in increased organic

matter on the ground, there will likely be increased infiltration, reduced surface runoff and erosion. This is because the organic matter can absorb water, preventing it from running off, and allowing it to infiltrate.

Indirect effects of prescribed fire include: increased water quantity, increased surface runoff, and decreased water quality. Increased surface runoff will increase erosion and likely increase in-stream turbidity. However, the effect to water quality will be short-term, and as the area recovers erosion rates will approach background erosion rates. Increased water quantity is associated with diminished evapotranspiration.

The indirect effects of proposed watershed restoration projects include: improved water quality, elevated water table. Protecting riparian/wetland sites and associated vegetation will improve water quality by preventing contamination and allowing natural processes to filter contaminants. Additionally, stabilizing banks and headcuts will reduce erosion from these features which will reduce in-stream turbidity. Restoring gullied meadow systems with in-stream treatments can elevate the water table within the meadow.

3.5.5. Equivalent Roaded Acres (ERA) Analysis

The ERA analysis indicates that no alternative will cause the project area to approach or pass the Threshold of Concern (TOC). Grazing was identified as the greatest contributor to ERA, contributing 3.75 ERA, or 31% of the TOC. The total background ERA was 4.07, approximately 34% of the TOC. The combined activities of the Proposed Action will increase the ERA by 1.57, or 12.7% of the TOC. The combined activities of Alternative 3 would increase ERA by 1.35, or 11.2% of the TOC. The ERA values calculated in this analysis and their contribution to the TOC are shown in Table 42 and Table 43.

Table 42. ERA contributions of proposed activities and background effects

Activity or Impact	ERA	ERA as % of TOC
Background		
Grazing	3.75	31
Wildfire	0.21	2
Roads	0.1	1
Sagebrush Mowing	0.0055	negligible
Alternative 1		
Mechanical	1.28	10.7
Prescribed Fire	0.29	2
Alternative 2		
Mechanical	1.35	11.2

Table 43. Cumulative ERA by alternative

Alternative	ERA	ERA as a % of TOC
Alternative 1: Proposed Action	5.63	47
Alternative 2: Current Management	4.06	34
Alternative 3: no Rx fire in wilderness	5.41	45

3.5.6. Cumulative Effects

3.5.6.1. Cumulative Effects Area

The Cumulative Effects Analysis Area for the Currant-Ellison Watershed Restoration project is contained within fourteen HUC 6 sub-watersheds. The analyzed area consisted of the proposed project area and is approximately 185,000 acres in size. This area includes a wide range of habitats for various wildlife and vegetation species that may occur within the project area.

The assessment area for the Currant-Ellison Watershed Restoration Past management activities were analyzed to determine the cumulative amount of land disturbance that has occurred in each sub-watershed. The amount of land impacted by past management activity was converted to an equal area of road surface, providing an ERA estimate. This assessment does not analyze activities or impacts that occurred before 2004.

3.5.6.2. Cumulative Effects by Activity

3.5.6.2.1. Mining/Mineral Exploration and Energy Development

Past

Mining and mineral exploration has been limited within the Currant-Ellison cumulative effects area. Most of the past activity in the area occurred during the late 1800s and early 1900s. Mining activities were generally small and focused around limited underground activities with associated homesteads and very small communities. Historic mining activities were generally focused on Forest Service lands in the Griffin Mine area.

Present

There are currently no known active mining operations within the cumulative effects area. There is also no active exploration occurring within the area.

Foreseeable Future

There is currently an exploration project occurring at the Griffin Mine within the cumulative effects area. At this time there is no plan to expand beyond the exploratory nature of the project.

Disturbances associated with current and historical mining/mineral exploration affect very small portions of the landscape and create minimal surface disturbance. The effect of these historical, current and projected activities to soils and watershed resources within the Currant-Ellison project area are insignificant.

3.5.6.2.2. Livestock Grazing

Past

As with much of the Great Basin, the cumulative effects area historically was grazed heavily by large numbers of both sheep and cattle. Historical grazing was often unmanaged and resulted in considerable resource impacts. During the 1900's livestock numbers were reduced and grazing systems were implemented to improve management of the resources in the area.

Present

Table above contains descriptions of the existing Forest Service and BLM grazing allotments, seasons, and numbers. The Ely Ranger District has completed the NEPA analysis on the Ely Westside Rangeland Project EIS in 2014 in accordance with the Forest Range Rescission Schedule. This analysis and decision will provide updated guidance for grazing management on the Forest Service allotments within this area as well as other portions of the District. NEPA analysis is completed on BLM range allotments within the cumulative effects area.

3.5.6.2.3. *Wildfire*

Past and Present

Historically fires within the cumulative effects area have been small and isolated. Most fires have been less than 1 acre in size. Over the past 30 years only two wildfires greater than 100 acres have occurred within the cumulative effects area. In 2001, the Smith Creek Fire (located in the Bald Mtn. Wilderness) occurred and burned approximately 1,800 acres. In 2013, the White Pine Fire burned around 1,300 acres within the Currant Mtn. Wilderness. Other larger fires have recently occurred within the White Pine Division; however, these fires are outside of the Cumulative Effects area.

Foreseeable Future

As pinyon-juniper and white fir stands increase in densities, the potential for larger uncharacteristic wildfires will increase in the future. Additionally, sagebrush and mountain brush stands will continue to mature and increase in densities.

The Smith Creek fire was not assessed in the ERA analysis due to the length of time since the fire occurred and the likelihood of the area recovering; the White Pine fire was included in the ERA analysis.

3.5.6.2.4. *Wild Horses*

Past and Present

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is scheduled to be completed by 2016.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

Foreseeable Future

Wild horse numbers in the area are expected to decline as management actions are taken to manage horses to the Appropriate Management Level in the Monte Cristo WHT and adjacent Forest Service and BLM lands.

3.5.6.2.5. Prescribed Fire, Fuels and Vegetation Treatments

Past

Until the mid-1970s, the main vegetation treatments were chaining and seeding, with some prescribed burning throughout the project area. In 1974, research was started in the Horse Track Springs area to observe the response of vegetation to prescribed burning. In 1975, five sites were treated for a total of 104 acres. Over the past 20 years, vegetation treatments have included prescribed fires, mechanical treatments; seedings have been limited.

In 2007, the Currant Prescribed Burn project was implemented. This project approved up to 3,700 acres of treatment in pinyon-juniper community to create a diversity of age classes and structures to reduce the risk of large wildfires. The Currant project was completed in the spring of 2010. Treatment was approximately 600 acres. This project was within the Currant Creek Allotment.

In 2009, the Currant Triangle pinyon-juniper cutting project was implemented in the Currant Creek Allotment. The objective of this project was to cut and leave approximately 300 acres of pinyon-juniper that were expanding into an old chaining/seeding area. The White River and Ellison mowing and seeding project was also implemented in 2009 in the Ellison Basin Allotment. This project involved mowing and seeding approximately 200 acres of mountain and basin big sage brush communities to improve the sagebrush habitats for sage grouse, mule deer and elk.

In 2010, the White Pine Sagebrush Restoration project commenced. This project involves cutting and leaving or removing pinyon-juniper on up to 5,000 acres within the 19,000 acre project area, which includes portions of the Ellison Basin and Currant Creek Allotments. Approximately 2,000 acres were treated in 2010 with about 3,000 acres completed in 2011-2012. Also in 2010, the Central White Pine Pinyon-Juniper removal project began in the Illipah, Tom Plain, Ellison Basin and Currant Creek Allotments. This project involves cutting and leaving the small trees on up to 12,000 acres.

Within the last ten years the Forest Service has completed a number of projects within the cumulative effects area. In 2007, 43 acres near Ellison Spring had pinyon and juniper trees cut to improve sage grouse habitat. Along White River and Ellison Creeks sagebrush treatments were done on 200 acres of sage brush to revitalize it in 2009. From 2009 to 2012, 4,003 acres of pinyon-juniper were cut within the White Pine Sagebrush Project to benefit sage grouse, along with 226 acres along Highway 6 in 2013.

Present

The White Pine Sagebrush Restoration project area involves approximately 1,000 acres to address pinyon-juniper expansion in that area. The majority of these acres will receive a variety of mechanical treatments and some areas will be jackpot burned. Continue to treat approximately 2,000 acres in the Central White Pine Pinyon-Juniper Removal project to address pinyon-juniper

expansion. Trees would be cut and left on site. Also, in this project area, we will be treating the cheat grass with herbicide along the road edges and fencing out 5 springs.

Part of the Central White Pine Sage Grouse Restoration Project is within the CEA of the Currant-Ellison Project. Since 2011 this project has cut pinyon-juniper on 3,858 acres within the CEA. In 2014 three riparian areas were fenced and about 500 addition acres of pinyon-juniper were cut.

Foreseeable Future

It is reasonably foreseeable that fuels/vegetation treatments will likely occur on a limited basis on private lands in coordination with the treatments proposed through this analysis. Currently there are no known proposals being developed.

Projects that involve hand cutting pinyon-juniper are considered to have no impact in the ERA analysis and are therefore excluded. Projects that involve masticating pinyon-juniper or mowing sagebrush are included in the ERA analysis.

3.5.6.2.6. Developed and Dispersed Recreation

Past and Present

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

The eastern and western boundaries of the cumulative effects area are bounded by graveled roads not suitable for passenger car travel but 4x4's predominantly. Several graveled access roads on the western edge of the area are suitable for cars. Remaining roads within the area are considered high clearance roads. Recreational use of roads is generally very light with an increase in use during the fall hunting season. The cumulative effects area includes several motorized recreational trails. Trail use in the area is also very light with a spike during the fall hunting season.

Dispersed recreational uses in the Cumulative Effects Area include hiking, camping, horseback riding, ATV use, hunting, fishing, and other various minor uses. Dispersed recreational use is very limited in the cumulative effects area and the heaviest use periods include several of the busier weekends during the summer and during hunting seasons. Areas where most recreational use occurs include Currant Creek, White River, and Ellison Creek.

In 2006, Congress passed the White Pine Conservation, Recreation and Development Act. This act designated 5 new wilderness areas on the Ely Ranger District and expanded two existing wilderness areas. Of these newly designated Wilderness areas three of them are within the project area and one of the previously existing but expanded ones are as well. No system trails are located within these wilderness areas; all backcountry access is cross country by foot and horse use only.

Foreseeable Future

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current

levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

3.5.6.2.7. *Private Lands Management/Development*

Past and Present

Private land parcels are generally located at lower elevations within the area. Private land parcels are found along the very southern portions and eastern portion of the cumulative effects area. A number of these parcels contain either full time residences or summer home sites. Several small farms are also located along the eastern edges of the area.

Foreseeable Future

The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future.

3.6. Wildlife and Fisheries

This section describes the existing occupied and potential habitat. The discussion focuses on those species considered most sensitive to management activities: R4 Regional Forester's sensitive species; Forest management indicator species; elk, golden eagles, and migratory birds. Only those species with a probable to confirmed likelihood of occurrence within the project area will be discussed in detail in this document

3.6.1. Cumulative Effects Area

The Cumulative Effects Area (CEA) represents a large landscape surrounding the project where past, present, and future management actions by humans have or may occur and allow us to determine these effects to these species. Cumulative effects that have the potential to impact a species will be analyzed in their sections below. The CEA delineated for wildlife species for this project is the project area with a two to three mile buffer around the project area. The buffered area outside of the Forest includes mostly Bureau of Land Management (BLM) Lands, with a few parcels of private lands. The required habitats for wildlife species that have potential to occur within the project area are encompassed within this area.

Past and ongoing activities within this area that most likely have influenced the vegetative component of the project area are: mineral exploration; livestock grazing; wild horses; water diversions; special uses; fuelwood harvest; wildland fire and rehabilitation; prescribed fire/vegetation treatments; noxious weeds; developed and dispersed recreation; and private lands; and BLM activities. Implementation of the Currant-Ellison Restoration Project, in combination with these present and foreseeable future projects would not likely to cause a decline in populations trends for any of the wildlife species.

3.6.2. Greater Sage-Grouse

3.6.2.1. Species Information

Sage grouse are a sensitive species for Region 4 of the USFS and a management indicator species (MIS) for the Humboldt National Forest. The sage grouse was selected as the MIS for healthy and productive sagebrush communities. In the Humboldt National Forest LRMP, the sage grouse is identified as an indicator of the condition and trend of the sagebrush/grassland and riparian community types. Greater sage grouse underwent status review by USFWS in 2010 and 2015 and their finding is that the sage grouse was warranted but precluded from listing under ESA throughout its range (Fed. Reg. March 4, 2010). These birds range from southern British Columbia, Alberta, and Saskatchewan south to western Colorado, Utah, Nevada, and eastern California. Sage grouse populations are known to fluctuate dramatically from year to year, but data suggest that these animals are on the decline throughout their range (Braun 1998, Connelly and Braun 1997). In Nevada, they occupy the northern two-thirds of the state. Sage grouse prefer open country such as plains, foothills, and sagebrush semi-deserts. They tend to utilize lower elevation for leks (i.e., mating grounds) and often rely on slightly higher elevations for nesting and brooding.

The Forest Plan sets population goals for sage grouse at a minimum population of 3,900 and a maximum potential of 40,000 for the Forest (USDA FS 1986, pg II-11). Standards and guidelines in the Forest Plan require that key sage grouse habitat and its various components be identified as part of the analysis of all proposed projects with the potential to adversely affect habitat capability. The Forest Plan also requires project impacts to sage grouse and sagebrush habitats to be evaluated in partnership with NDOW (USDA FS, Amendment 2).

Sage grouse populations within the state of Nevada are currently estimated at approximately 68,500 birds (NDOW 2006). Sage grouse populations in the state peaked during the late 1970s; however, they have been on a steady decline since (Connelly et al. 2000) and are currently down an estimated 49–60% from their peak (Neel, 2001). These declines may have resulted from multiple factors that included the hard winters and heavy snow years during the early to mid-1980's which were followed by multiple drought periods during the 1980s, 1990s and the past few years. Long-term population densities and distribution of sage grouse have also been reduced due to reduction of habitat from fire, overgrazing, and conversion to agriculture (USDI BLM 2004).

In Nevada, sage grouse populations have been monitored through lek counts during the spring and analysis of hunter wing returns. These counts have been coordinated by NDOW. Counts are not completed at each lek. A small percentage of leks are surveyed each year to determine sage grouse trends in Nevada. Many sage-grouse populations throughout Nevada showed increasing trends from 2002-2006. However, since 2006, sage grouse populations have declined in several areas. Wildfires that occurred from 1999-2007 diminished the amount of available sage-grouse habitat. In addition to this direct habitat loss, weather patterns during 2006 and 2007 were not conducive to sage grouse production or recruitment (NDOW 2009, pg 30).

The average male attendance obtained from this subset of leks (n = 221 currently) in 2013 was 18.4 males per lek showed a 22% decrease from the previous year and was 34% lower than the long term average (1965-2012) attendance of 27.8 males per lek. Production in 2012 was estimated at 0.73 chicks per hen which was the second lowest production rate ever recorded. The

lowest was in 2007. Two years with such low production rates within one five year period largely reflects how weather and climate can limit sage grouse populations. Although sage grouse habitat condition improved somewhat from more favorable precipitation during the winter of 2012, the relatively dry spring did not provide what was necessary for a marked increase in production in 2013. Portions of northern Nye, Eureka and White Pine County received better precipitation that has resulted in improved habitat conditions that may result in improved production in 2013. Central and eastern Nevada populations have not experienced as severe drought conditions as the rest of the state and populations are considered stable or have declined only slightly. (NDOW 2013, pp. 17, 18, and 19)

There has been a gradual downward trend in sage-grouse lek attendance over the long-term throughout the Eastern Region since the 1960's. Following gradual overall increases between 2000 and 2006, a downward trend was documented between 2006 and 2009. Trend leks throughout the Eastern Region were down 8% in 2013. White Pine County was the bright spot in the regions with all 4 PMU's showing an increase (13%) in the number of males on trend leks. (NDOW 2013, pg. 44 and 45).

Sage grouse build nests in the vicinity of a lek within 7-10 days after breeding. Most sage grouse nests occur under sagebrush. Grass height and cover also are important components of sage grouse nest sites. Herbaceous cover associated with nest sites, provides scent, visual and physical barriers to potential predators (DeLong et. al. 1995). Most nests are within 4 miles of a lek, (Connelly et. al. 1991, Connelly et. al. 2000, pg. 970) but some females may nest more than 12 miles away (Autenrieth 1981). Sage grouse usually nest in sagebrush stands with canopy cover of 15–30% (USDI BLM 2004 and Connelly et al 2000). Once the relative cover of sagebrush exceeds 30%, sage grouse no longer select these sagebrush areas for nesting (Connelly et al 2000). Sage grouse breed between mid-February and mid-May with nesting and brood-rearing occurring during May through July (USDI BLM, 2004). Early brood-rearing areas occur in upland sagebrush habitats close to nest sites. These may be relatively open stands of sagebrush with greater than 15% canopy cover of grasses and forbs (Connelly et. al. 2000). Plant species richness with abundant forbs and insects characterize brood areas. As sage grouse habitat becomes drier, broods move to more wet meadows where grasses and insects are still available, usually during June and July (USDI BLM 2004, Autenrieth 1981, Klebenow 1985).

Summer habitat consists of sagebrush mixed with areas of wet meadows, riparian, or irrigated agricultural fields (Neel, 2001 pg 3). In early fall sage grouse forms flocks as brood groups break up, and then move toward winter ranges. Sage grouse feed almost entirely on sagebrush during the winter. The amount of snow usually determines winter use areas. Sagebrush needs to be exposed at least 10 to 12 inches above snow level to provide both food and cover for wintering sage grouse (Neel 2001 pg 4 and Klebenow, 1985).

3.6.2.2. Affected Environment

There is a lek located near Tom Plain within the Currant-Ellison Project area (Shellback Lek), two located on BLM land adjacent to the Forest along the east side of the project area (White River and Ellison Creek Leks), and one located on BLM seven miles to the northwest (Cathedral Lek). Sage grouse use the project area for nesting/brood rearing, summer, and winter habitat, mostly within the north central portion or along the western side. Within the Project Area springs, seeps, meadows, riparian areas, and high elevation sagebrush basins provide

nesting/brood-rearing habitats. These areas provide water, succulent forbs, and insects, which are important to young sage grouse.

The encroachment of pinyon-juniper woodlands from woodland sites to rangeland sites has been responsible for loss of sagebrush habitats. Fire suppression or extended fire intervals allow pinyon-juniper to spread across the landscape. As trees begin to dominate the site, the shrub-herb understory is essentially lost or greatly reduced through a variety of inhibitive processes, including competition for water and the chemical and structural impediments brought to bear on seeds and seedlings by needle accumulation. Sage grouse generally shun closed pinyon-juniper woodlands and the encroachment of this plant community into sagebrush-herb communities represents a loss of habitat for sage grouse, particularly when it reaches its climax expressions. Due to the loss of understory in many of the pinyon-juniper stands, conversion back to sagebrush-herb communities is not a simple process. Where sagebrush still exists in the understory, several options for restoration are available.

In September 2015, the USFS approved Forest Plan Amendments for Greater Sage-grouse and Greater Sage-grouse Habitat for USFS Regions 1, 2, and 4. The goal is to maintain and improve sage-grouse habitats On the Forest.

3.6.2.3. Environmental Consequences Alternative 1 - Proposed Action

3.6.2.3.1. Direct and Indirect Effects

None of the treatments would impact any known lek sites as the one on the Forest has no proposed treatments near it and the other three are on adjacent BLM land. The majority of the habitat on the forest is considered nesting, brood rearing and summer habitat for sage grouse. Nesting habitat would occur within springs, seeps, meadows, and riparian areas within the project area.

The mechanical treatments would have short and long-term benefits by maintaining the sagebrush community through the removal of the pinyon and juniper trees that are expanding into the sagebrush community. The mechanical treatments that would impact portions of the habitats used by sage-grouse are mainly in the Ellison Creek Unit. Within this unit there are pockets of Phase I and II pinyon and juniper stands located within the sage-grouse priority and general habitat. Some of these pockets would be proposed for mechanical treatments. These treatments would include cut and leave (hand cutting), mastication, or other types of mechanical treatments. No prescribed fire treatments are proposed within the sage grouse habitats. These pockets of pinyon and juniper phase I and II do not offer good sage-grouse habitats. Treatments to remove the pinyon and juniper would improve these areas for sage-grouse. Road rehabilitation and closures would also provide beneficial effects to sage grouse by providing fewer areas available for motor vehicle disturbance. Disturbance from mechanical treatments and road rehabilitation would be localized and short in duration at any one time, leaving other areas without disturbance. Watershed and riparian restoration treatments will help maintain and improve water sources and nesting areas. All of these treatments will improve the health and diversity of the vegetation and restore and improve sage grouse habitat, particularly the important shrub communities and riparian areas.

With reduction of the pinyon and juniper canopy the health and diversity of brush communities would improve by removing the competition from the trees for water, sunlight, and nutrients,

improving the forage value for sage grouse. These areas would also become more resilient to disturbances such as wildfire. When laying out units, there may be areas that remain untreated due to slope and access limitations. Slash generated from the treatment will be left on the ground to provide a microclimate that will retain moisture and facilitate the establishment and growth of grasses and forbs. In areas of denser slash prescribed fire treatments may be used in association with mechanical treatments to further reduce slash build-ups.

This alternative would ultimately benefit sage grouse by allowing native plant communities to regenerate thereby restoring and maintaining the sagebrush habitat. The reduction of pinyon-juniper canopy will increase sunlight and moisture available to the understory shrubs, grasses and forbs. This community type would be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire.

Minor disturbance may occur on brood rearing or summer habitat. No treatment would be occurring on leks. Minor displacement of sage grouse may occur during mechanical treatments. Adjacent areas of existing habitat would be available for sage grouse to move into.

Sage grouse population trends are expected to remain static or increase. The mechanical treatments would have short and long-term benefits by maintaining the sagebrush community through the removal of the pinyon and juniper trees that are expanding into the sagebrush community.

Disturbance from the treatments would be localized and short-term in duration. Numerous areas of available habitat will remain without disturbance. This project will have a beneficial effect by maintaining the sagebrush community through removal of pinyon and juniper that are expanding into the sage brush community. The disturbance to this species will be minimal and limited to individuals. Population trends for sage grouse are expected to remain static or increase. Implementation of this alternative is not expected to affect the viability of sage grouse. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.2.3.2. *Cumulative Effects*

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect sage grouse habitat. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Cumulative effects to sage grouse and their habitat from livestock grazing and proposed treatments are expected. None of the present sage grouse habitat is proposed of treatments. Pinyon-juniper mechanical treatments may become sage grouse habitat in the future. The pinyon-juniper areas that are proposed for treatment with prescribed fire grazing would not be permitted for a minimal of 2 years after treatment. This will allow the vegetation to recover.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions to the quality of habitat for the sage grouse would be minimal, as the design criteria would allow the habitats to recover before grazing would resume.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

The combinations of wild horses to the quality of habitat for the sage grouse would be minimal, if management actions are taken to manage horses to the Appropriate Management Levels.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to sage grouse and their habitat would have occurred then. There are no plans or proposals for future water diversions on NFS lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements). These activities could cause minimal disturbance to sage grouse. The combinations of these actions to the quality of habitat for the sage grouse habitats would be considered minimal as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal. The combinations of these actions would

result in minimal impacts on the quality of habitat for sage grouse as only a small portion of the habitat would be affected.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease sage grouse habitat in the short term, while some benefits could occur in the long term by maintaining the sage brush habitat from the invasion of pinyon and juniper. Rehabilitation actions would help minimize the infestations of noxious weeds. The combinations of these actions to the quality of habitat for the sage grouse habitats could be considered moderate if in one season large acreage of sage grouse habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date to remove pinyon-juniper encroachment and maintain sagebrush ecosystems. These projects have a beneficial effect on maintaining sage grouse habitat.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combinations of these actions will result in a beneficial effect on the quality of habitat for sage grouse by reducing the acres impacted by noxious weeds.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

Recreational use (such as camping near riparian areas) may disturb sage grouse and/or alter vegetative communities that provide brood rearing and summer habitat for sage grouse. The combinations of these actions to the quality of habitat for the sage grouse habitats would be considered minimal as only a small portion of the habitat would be affected.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to sage grouse and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combinations of these actions to

the quality of habitat for the sage grouse habitats would be considered minimal, unless plans or management changes occur.

3.6.2.4. Environmental Consequences Alternative 2—No Action Alternative

3.6.2.4.1. Direct and Indirect Effects

Under the No Action alternative current management would continue in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the Montane Sagebrush community cover type. The sage cover type identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would continue to lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as the expansion of the pinyon-juniper continues into the sagebrush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of sage grouse habitat.

Under this alternative, sage grouse population trends are expected to remain static, or decrease because of the continued expansion of pinyon and juniper trees into the sagebrush habitat and the decrease in understory vegetation and age class diversity in the higher elevation sagebrush areas. The decrease in sagebrush and the understory component of forbs and grasses would continue to reduce the quality of sage grouse habitat.

3.6.2.4.2. Cumulative Effects

Under the No Action alternative current management would continue in the project area. Cumulative effects associated with Alternative 1 would be similar to those disclosed under Alternative 2 for: Mining and mineral exploration, livestock grazing and developments, wild horses, water diversions, special uses, fuelwood harvest, wildfire, noxious weed treatments, developed and dispersed recreation, and private lands management/development.

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the mountain big sage cover type. Increasing pinyon-juniper densities will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper densities increase in the sagebrush type, the sagebrush would lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as pinyon-juniper densities increase the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result

in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of sage grouse habitat.

The potential cumulative effects related to impacts to vegetative communities used by sage grouse would be increased as a result of no changes in current management. The communities with the most notable changes related to sage grouse include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species.

3.6.2.5. Environmental Consequences Alternative 3 – No Treatments Within Wilderness

3.6.2.5.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. Under this alternative, sage grouse population trends are expected to remain static or increase as the projects would still occur outside Wilderness.

3.6.2.5.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all of the areas.

3.6.3. Northern Goshawk

3.6.3.1. Species Information

The northern goshawk is categorized as a R4 Sensitive, a Management Indicator Species (MIS) in the Humboldt National Forest Land and Resource Management Plan, and a migratory bird priority species for aspen habitat. The Forest Plan identifies goshawks as a management indicator species for old growth cottonwood, aspen, and fir stands associated with riparian areas. Management indicator species are used to monitor habitat for goshawks and other species that use similar habitats. The northern goshawk is found throughout most of North America, with a few isolated populations in the southeastern and central United States. In northern Nevada, goshawks breed in somewhat atypical habitat as compared to the rest of North America. In Nevada, northern Goshawks are generally found between 6,000 and 10,000 feet elevation (Neel, 1999). Forest types used by goshawk populations include Douglas fir (*Pseudotsuga menziesii*), various pines, and aspen (*Populus tremuloides*). In high-elevation shrubsteppe habitats, goshawks nest in small, widely-spaced stands of mature aspen trees that grow along creeks and drainages. These aspen stands are located primarily on north or east-facing slopes (Younk and Bechard 1994). The goshawk in northern Nevada is considered a year-round resident.

The typical Northern goshawk nest site in much of Nevada is located in aspen stringers about 600 feet long and 75 feet wide located near small perennial streams (normally within 100 yards) at approximately 7,400-7,800 feet in elevation. Ninety-eight percent of nests have been located within 100 feet of water (Herron et al., 1985 and GBBO 2010, pg Spp-22-1). Aspen is the most commonly used nesting tree with over 85% of the observed nests found in this vegetative community (Herron, et al., 1985). Most nests are located in aspen stands in swales, where the deeper soils produce larger trees (Herron et al., 1985). Nests are large (30 inches or greater) and comprised of 1½-inch diameter sticks. Numerous nests (alternate nest sites) may be present within the territory. Goshawks hunt for prey in openings, and they usually hunt these areas from perches near the edge (Younk and Bechard 1994).

Goshawks prey on a variety of species, particularly small mammals and birds in timber areas. Foraging has been documented to occur in heavy canopied forests with open understories. Over 50 prey species, including mammals, birds, and insects, are known to be eaten by goshawks (DeGraaf et al., 1991 and Reynolds, et al., 1992). Goshawks have been observed foraging within aspen stands, in small sagebrush inclusions in aspen stands, along aspen stand ecotones, and in open sagebrush conditions (Younk and Bechard 1994). Goshawks generally use perches to identify prey while hunting, so they probably do not forage in expansive treeless areas. Both willow riparian areas and aspen forests provide winter forage and cover for hares, rabbits and squirrels. Large, mature aspen trees are used as nest trees, and several prey species such as MacGillivray's warbler, Orange-crowned warbler, Lewis's woodpecker, and red-naped sapsucker use aspen for part of their life history. Within the project area there are also riparian habitats which may be important to northern goshawks.

3.6.3.2. Affected Environment

The 1986 LRMP identified both the current and minimum viable population of goshawks to be 500 pairs, with a maximum potential of 1,000 pairs. Data provided by NDOW identified a total of 141 known nest sites on National Forest land within the Humboldt NF in 2001 (USDA FS, 2008, pg 10). In July 1990, the Forest Plan was amended (Amendment 2). Although MIS were discussed in that plan amendment, there was no new information in 1990 to change population goals for MIS. The Forest Plan has identified a population level of 500 pairs to be maintained through the life of the plan with a maximum potential population Forest-wide of 1,000 pairs. These numbers were established through consultation with NDOW. The numbers were based primarily on known nest sites and an estimate of habitat. The current population of goshawks on the Humboldt Forest is estimated to be 229 pairs (USDA FS 2006).

In 2010 NDOW conducted surveys in selected goshawk nesting habitat to assess population status in central and northeast Nevada. Old-age class aspen stands were targeted. Sixteen active nesting territories were located (nine within historical territories and seven previously unknown territories). Eighteen historical territories were occupied by six non-target species of which red-tail hawks and Cooper's hawk comprised a majority (67%). While conditions were not always ideal, bird of prey surveys produced a considerable amount of data in 2010. Many historical northern goshawk territories surveyed in 2010 had not been surveyed for many years. As a result, a number of these territories are no longer suitable nesting habitat. The aspen groves have converted or are converting to early successional stages. These sites are marked by a more open canopy, mature trees reaching the end of their life cycle and young trees coming up. For some territories this is not an issue since they have a variety of age classes within the stand, with

middle age trees replacing the older ones as they are lost. However, a number of the territories have age classes that are either old or young, with few trees of an age in between resultant from long-term herbivory that removed recruitment from the stand. It will take these territories longer to cycle back into desirable breeding habitat for the goshawk. A further complication of a more open and lower successional quaking aspen canopy in Nevada is the invasion of, or replacement by, nesting species that don't necessarily require closed canopies that goshawks prefer. This was in evidence in Nevada as never before as seven different nesting species occupied 38 historical northern goshawk nesting territories in 2009 and 2010 (NDOW, 2010b.)

Local and regional population trends for northern goshawks are unknown. Information reviewed by the US Fish and Wildlife Service indicated that data regarding goshawk population trends is limited, and interpretation of migration or seasonal bird count data is problematic due to low numbers observed, bias in methodology, and irruptive migrations (USDI FWS 1998). Anderson et al. (2004) determined that existing data related to goshawk population trend in the western United States is inadequate to assess population trends. Breeding Bird Survey (BBS) trends for this species are shown to have low credibility for all regions due to small samples or low imprecision (Sauer et al. 2011). In addition to low regional sample size, stochastic events such as drought and weather events tend to increase variability in the data. For example, long-term trends in goshawk reproduction in the Bull Run and Independence mountain ranges of northern Nevada were significantly related to weather, with a stronger influence of temperature than of precipitation (Fairhurst and Bechard 2005). Woodyard et al. (2003) noted a decline in total goshawks recorded (1) in surveys conducted in eastern Nevada in 2002 versus those recorded by Medin in 1981-1982 (6), but the authors do mention that their work was conducted during a wet year, whereas Medin conducted surveys during a dry year. (USDA FS 2008)

Nevada's PIF Bird Conservation Plan strategy for goshawk is to manage territories at the landscape level, providing within territories suitable nesting sites as well as replacement stands where aspen regeneration has been initiated through prescribed fire and other methods. Minimizing disturbances during the most sensitive periods of their nesting cycle is recommended, such as occupancy surveys prior to implementation and buffer zones (Neel 1999, pp 56-57 and GBBO, 2010).

A critical element for goshawks on the Ely Ranger District is the presence of aspen stands or stringers of aspen and cottonwood that follow the drainages. A few nests have been found in pinyon pine. For the Currant-Ellison Project area, cottonwood communities, within ½ mile of perennial water sources or perennial spring sources, were identified as potential nesting habitat within treatment areas. There are about 180 acres cottonwoods communities presently in the Currant-Ellison Project area along Currant Creek, Ellison Creek, Cottonwood Creek, and White River.

The following is a summary of survey information and results for the Currant-Ellison area:

- Surveys were conducted in the project area in 2011, 2012, 2013, and 2014. Nests were found along Currant Creek in all four years and along White River in 2012 and 2014.
- There were known nests along Currant Creek in 1997 and along White River in 1989 (2), 1995 (2), 1996 (2), 1997, and 1999.

3.6.3.3. Environmental Consequences Alternative 1—Proposed Action

3.6.3.3.1. Direct and Indirect Effects

There have been two active territories within the Project area along Currant Creek and off White River. There are other potential areas within the Project area in along Ellison Creek.

The only treatment that may occur within goshawk nesting habitat is the removal of pinyon or juniper trees within the cottonwood stands along Currant Creek, Ellison Creek, or White River. Before any treatments occur, potential habitat would be surveyed for nesting goshawks. Should nesting be found, treatment would be delayed until after the young have fledged. Treatment may also occur within foraging habitat. These treatments would be timed to avoid nesting goshawks and the treatment would be improving foraging habitat for goshawks.

Under this alternative habitat quality and quantity would be expected to increase as the pinyon and juniper trees encroached into the cottonwood stands are treated to maintain the cottonwood community. There may be short term adverse impacts to individual goshawks to provide for long term beneficial habitat conditions for goshawk populations. Disturbance from the treatments would be localized and short in duration at any one time and would occur after any young have fledged. The disturbance to this species will be minimal and limited to individuals. Implementation of this alternative is not expected to affect the viability of goshawk. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected. Under this alternative, goshawk population trends are expected to remain static or increase over time as the treated nesting habitat is maintained.

3.6.3.3.2. Cumulative Effects

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect goshawk habitat. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Cumulative effects to goshawks and their habitat from livestock grazing and proposed treatments are expected. These effects will be limited to a few individuals and will not affect the viability of the species.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions to the quality of habitat for the northern goshawk would be minimal, as the design criteria would allow the habitats to recover before grazing would resume.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild

horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

The combinations of wild horses to the quality of habitat for the goshawks would be minimal, if management actions are taken to manage horses to the Appropriate Management Levels.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to goshawks and their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements). These activities could cause minimal disturbance to goshawks. The combination of these actions will have minimal impacts on the quality of habitat for the northern goshawk as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease habitat for goshawks in the short term, while some benefits could occur in the long term by maintaining the sagebrush and mountain brush habitat from in the invasion of pinyon and juniper, which would be foraging habitat for goshawks. Rehabilitation actions would help

minimize the infestations of noxious weeds. The combination of these actions could have moderate impacts on the quality of habitat for the northern goshawk if in one season large acreages of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have had a beneficial effect on foraging habitat for goshawks.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combinations of these actions on the quality of nesting and foraging habitat for goshawks would be considered beneficial.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

Recreational use (such as camping near riparian areas) may disturb goshawks and/or alter vegetative communities that provide nesting and foraging for goshawks and their prey species. Although disturbance to goshawks will still occur from recreation activities the combination of these actions and the proposed action would benefit the quality of the habitat for goshawks by maintaining foraging habitat for prey species from the vegetation treatments.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to goshawks and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combination of these actions will have minimal impacts on the quality of habitat for the northern goshawk.

3.6.3.4. Environmental Consequences Alternative 2—No Action

3.6.3.4.1. Direct and Indirect Effects

Under the No Action Alternative current management would continue to in the project area. No treatments would be implemented to accomplish project goals. The expansion of the pinyon-

juniper continues into the sagebrush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. Should a large wildfire occur, then much of the presently available nesting habitat could be moved to an early successional stage at one time and foraging habitat would be reduced.

Under this alternative, goshawk population trends are expected to remain static or decrease as nesting habitat decreases. Foraging habitat would still be available within and near the project area.

3.6.3.4.2. Cumulative Effects

Under the No Action alternative current management would continue in the project area. Cumulative effects associated with No Action would be similar to those disclosed under the Proposed Action for: Mining and mineral exploration, livestock grazing and developments, wild horses, water diversions, special uses, fuelwood harvest, wildfire, noxious weed treatments, developed and dispersed recreation, and private lands management/development.

The potential cumulative effects related to impacts to vegetative communities used by goshawks would be increased as a result of no changes in the sagebrush, mountain brush, and cottonwood communities.

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sagebrush and mountain brush cover type. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would be lose vigor and eventually die as the expansion progresses into Phase III. This would impact foraging habitats.

In addition, as the expansion of the pinyon-juniper continues into the sagebrush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of foraging habitat for goshawks.

The potential cumulative effects related to impacts to vegetative communities used by goshawks would be increased as a result of no changes in current management. The communities with the most notable changes related to goshawks would be the surrounding foraging habitat.

3.6.3.5. Environmental Consequences Alternative 3—No Treatments Within Wilderness

3.6.3.5.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would

occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, goshawk population trends are expected to remain static or increase as vegetation communities are treated.

3.6.3.5.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all of the areas.

3.6.4. Flammulated owl

3.6.4.1. Species Information

Flammulated owls are a R4 Sensitive Species and a neotropical migrant. Their summer habitat is usually found in mature stands of white fir, subalpine fir, and limber pine: open stands of large Jeffrey pine; and ponderosa pine mixed with aspen (Neel, 1999 p. 82). In Nevada, flammulated owls will also use old aspen stands (Hayward and Verner, 1994, p. 22). Roosting occurs in dense stands, while stands that are more open are utilized while foraging for insects, mainly moths. These owls nest in the cavities of snags and large live trees that have been excavated by woodpeckers (Wisdom et al., 2000 (2) p. 40-42; and Hayward and Verner, 1994, pp. 25–26, 28).

3.6.4.2. Affected Environment

Flammulated owls occur in limited areas in the mid to higher elevations within the White Pine, Grant-Quinn, Schell Creek and Mount Moriah mountain ranges, and there are known nesting sites for flammulated owls present within each of these ranges. Potential habitat for flammulated owls does not occur within the Currant-Ellison Project area. A query of the RSAC data for aspen, conifer aspen and riparian showed none for Currant-Ellison Project area. Therefore there is no potential habitat for flammulated owls within the project area and there will be no effects as a result of any of the alternatives.

3.6.5. Three-toed woodpecker

3.6.5.1. Species Information

In the west, three-toed woodpeckers occur in dense coniferous forests, and are associated with subalpine fir and Engelmann spruce at higher elevations (Short 1982, NatureServe 2011). Three-toed woodpeckers seem to prefer disturbed coniferous forests with trees that exhibit thin, flaky bark such as spruce and lodgepole pine (NatureServe, 2011). In Nevada, the three-toed woodpecker is found in Englemann spruce forest in association with white fir, limber pine, bristlecone pine and aspen. Its preferred habitat within the forest canopy is often in decadent, diseased, or burned portions of the canopy. It inhabits areas where dead timber remains after fires or logging. It forages for insects by scaling the outer bark of trees. Three-toed woodpeckers in Nevada appear to be on the peripheral range of their habitat. The only documented sightings

have been on the Ely District in the Snake Range. Threats to the three-toed include removal of snags that removes nesting and foraging areas, and fire suppression that eliminates fire-killed trees and increases the threat of catastrophic wildlife (Utah CWCS, 2005 pp 6–35).

3.6.5.2. Affected Environment

Potential habitat for the three-toed woodpeckers does not occur within the Currant-Ellison Restoration Project area. This species can be tied to specific types of habitats – conifer forest often with decadent, diseased, or burned trees. The Three-toed Woodpecker is largely a spruce forest obligate (The Lahontan Audubon Society, Snake Range IBA, 2005 pg 11). A query of the RSAC data for conifers species showed Bristlecone pine and white fir within the Currant Mountain Wilderness. No Engelmann spruce showed. Therefore there is no potential habitat for three-toed woodpeckers within the project area and there will be no effects as a result of any of the alternatives.

3.6.6. Pygmy Rabbit

3.6.6.1. Species Information

Pygmy rabbits are categorized as a R4 Sensitive Species. The pygmy rabbit is the smallest of North American rabbits. The morphology of the pygmy rabbit includes dark grizzled or slate-gray above and white or grayish below, with a tail that's short, gray and inconspicuous. Pygmy rabbits can be distinguished from other rabbits by size alone, but also have shorter ears and do not have a white tail, such as cottontails. The pygmy rabbit has a discontinuous distribution occurring in Montana, Wyoming, Idaho, Utah, Nevada, California, Oregon, and Washington (Roberts, 2001 pg 2). The Washington state population is considered genetically distinct from the remainder of the species and has been listed as endangered by the USFWS. There is little information on the current distribution of pygmy rabbits in Nevada. Pygmy rabbits are impacted by the loss of habitat linked to either livestock grazing or large fires or activities that create broad openings in habitat. Pygmy rabbits are averse to traveling across open country because they become more vulnerable to predators.

Pygmy rabbits are found primarily on plains dominated by big sagebrush and on alluvial fans where plants occur in tall, dense clumps (Green and Flinders 1980a). The hiding/cover attribute of woody vegetation (height) and the herbaceous component is perhaps the most critical habitat element for this species (Green and Flinders 1980b), because they would seldom venture even a short distance from suitable cover, dense stands of big sagebrush along streams, roads, fences and ditches may be the avenues of dispersal (Green and Flinders 1980b). Fragmentation and loss of sagebrush habitat is a major concern because pygmy rabbits are suspected of being reluctant or unable to cross open areas to disperse (Weiss and Verts 1984). On the Ely RD habitat for pygmy rabbits consists of broad sagebrush basins where thick and healthy Wyoming, basin, and mountain big sagebrush communities occur adjacent to riparian areas, springs or other sources of water. Old mine sites and/or homesteads may also provide potential habitats.

The pygmy rabbit is dependent upon dense stands of big sagebrush (*Artemisia tridentata*) for foraging and breeding habitat. Big sagebrush is their primary food source and constitutes up to 97 to 99% of their diet in the winter (White et al., 1982). During the summer, grasses become an important part of the diet utilizing 30 to 40% (Green and Flinders 1980b). Within these stands of dense sagebrush, pygmy rabbits select sites that have the greatest cover densities in which to dig

their burrows. Pygmy rabbits differ from other native rabbits in that they dig their own burrow system (Weiss and Verts 1984); generally having two or more entrances and their home range is usually within 30 yards of the burrow entrances. The pygmy rabbit digs burrows that generally occur on slopes and have several entrances (up to 10) that may include chambers up to three feet deep (Hoefler et al., 2003 and Green and Flinders, 1980b). Burrows are usually under big sagebrush and only rarely located in an opening in the vegetation. The pygmy rabbit will not cross even moderately large areas of open ground. In Idaho and Oregon pygmy rabbits are found in shrub densities ranging from 30% to 46% shrub cover (Green and Flinders 1980a; Weiss and Verts 1984). Generally soft, deep soils are required for burrowing. They also use the contours of the soil, most often digging into a slope. The elevational range of pygmy rabbits in Nevada extends from 4,494 to over 7,004 feet (1,370-2,135 m) (Green and Flinders 1980a). Mating occurs from late February to early May and the young are born from March to early August (Hoefler et al., 2003). Females are able to produce three litters per year.

Since the pygmy rabbit is a sagebrush obligate, the loss of habitat is probably the most significant factor contributing to pygmy rabbit population declines. Fragmentation of sagebrush communities also poses a threat to populations of pygmy rabbits (Weiss and Verts 1984), due to their poor dispersal potential. The protection of sagebrush, particularly on floodplains and where high water tables allow growth of tall, dense stands is a vital attribute to the survival of pygmy rabbits (Flath 1994). In Nevada pygmy rabbits are found in broad valley floors, drainage bottoms, alluvial fans, and other areas with friable soils (Ulmschneider, 2004 pg 4). Pygmy rabbits also may occupy habitat that does not appear ideal: with short sagebrush and “bad” soil. In east-central Idaho, pygmy rabbits occupy “mima mounds” (mounds of soil several feet high and approximately 20-30 feet in diameter) with taller and denser sage, which are dotted in a landscape of shorter and thinner sagebrush (Roberts 2001).

3.6.6.2. Affected Environment

There are known locations of pygmy rabbits within the project area, and pygmy rabbits have been seen on adjoining BLM. Using the RSAC vegetation map, potential habitat for pygmy rabbits was queried based on the following parameters: Basin Big Sage, Wyoming Big Sage, and Mountain Big Sage vegetation types on slopes less than 25%, and at elevations below 8,500 feet (Gabler, 2000, pg 762 and Larrucea, 2007). There are approximately 20,060 acres of potential habitat within the project area that met these criteria. These areas are located in the north central part on the project area, as well as in the lower elevations on the western slopes, and scattered areas within the eastern and southern edges of the project area. Some of these areas are not considered potential habitat for pygmy rabbits because they:

- Occur in old chainings with non-native grasses
- Some sites there is an increase density of pinyon and juniper trees which precludes the area as potential habitat.

Areas of habitat occur throughout the project area. No signs of pygmy rabbits were observed during field visits.

3.6.6.3. Environmental Consequences Alternative 1—Proposed Action

3.6.6.3.1. Direct and Indirect Effects

Areas of potential habitat occur throughout the project area. Any treatments within these areas would be hand cutting of pinyon and juniper which would be accessed by foot from existing roads. The removal of the pinyon and juniper trees within these areas of potential pygmy rabbit habitat would have the long-term beneficial effect by maintaining the sagebrush community.

No habitat component important to pygmy rabbits would be adversely impacted by this project. Disturbance from the treatments near potential habitat would be localized and short in duration at any one time, leaving other areas without disturbance. The project would have the beneficial effect by maintaining the sagebrush community by removing small pinyon and juniper that are expanding into the sage brush community. The disturbance to this species will be minimal and limited to individuals. Population trends for the pygmy rabbit are expected to remain static. Implementation of this alternative is not expected to affect the viability of pygmy rabbits. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.6.3.2. Cumulative Effects

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect pygmy rabbit habitat. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Cumulative effects to pygmy rabbits and their habitat from livestock grazing within the proposed hand cutting areas treatments are expected. Livestock grazing can trample stands of sagebrush and impact habitats due to this disturbance. The proposed treatments will mitigate these impacts by restoring habitats through the treatment of pinyon-juniper encroachment.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition,

increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

The combinations of wild horses to the quality of habitat for the pygmy rabbit would be minimal, if management actions are taken to manage horses to the Appropriate Management Levels.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to pygmy rabbits and their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements). These activities could cause minimal disturbance to pygmy rabbits. The combinations of these actions would result in minimal impacts on the quality of habitat for the pygmy rabbit as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease pygmy rabbit habitat in the short term, while some benefits could occur in the long term by maintaining the sage brush habitat from the invasion of pinyon and juniper. Rehabilitation actions would help minimize the infestations of noxious weeds. The combinations of these actions would result in moderate impacts on the quality of habitat the pygmy rabbit habitats if in one season large acreage of habitat were to burn under wildfire conditions, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have a beneficial effect on maintaining pygmy rabbit habitat.

Noxious Weed Treatments

Noxious weed treatments will continue within the cumulative effects area. The combination of these actions will result in beneficial impacts on the quality of habitat for pygmy rabbits.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

Recreational use may disturb pygmy rabbits and/or alter vegetative communities that provide habitat for pygmy rabbits. The combinations of these actions to the quality of habitat for the pygmy rabbit habitats would be considered minimal as only a small portion of the habitat would be affected.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to pygmy rabbits and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. This could have minimal impacts if only small changes or made, to major impacts if the development alters the habitat to the degree that it no longer functions as habitat for pygmy rabbits

3.6.6.4. Environmental Consequences Alternative 2—No Action

3.6.6.4.1. Direct and Indirect Effects

Under the No Action alternative current management would continue in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the Montane Sagebrush community cover type. The sage cover type identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species.

As pinyon-juniper continues to expand into the sagebrush type, the sage would continue to lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as the expansion of the pinyon-juniper continues into the sagebrush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of pygmy rabbit habitat.

Under this alternative, pygmy rabbit population trends are expected to remain static, or decrease because of the continued expansion of pinyon and juniper trees into the sagebrush habitat and the decrease in understory vegetation and age class diversity in the higher elevation sagebrush areas. The decrease in sagebrush would continue to reduce the quality of pygmy rabbit habitat.

3.6.6.4.2. Cumulative Effects

Prescribed Fire, Fuels and Vegetation Treatments

No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sage brush cover type. Pinyon-juniper densities will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper densities increase in the sagebrush types, the sage would lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as pinyon-juniper densities increase the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of pygmy rabbit habitat.

The potential cumulative effects related to impacts to vegetative communities used by pygmy rabbits would be increased as a result of no changes in currant management. The communities with the most notable changes related to pygmy rabbits are the sagebrush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species.

3.6.6.5. Environmental Consequences Alternative 3—No Treatments Within Wilderness

3.6.6.5.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, pygmy rabbit population trends are expected to remain static as vegetation communities are treated.

3.6.6.5.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all of the areas.

3.6.7. Townsend's Big-Eared Bat and Spotted Bat

3.6.7.1. Species Information

The Townsend's big-eared and spotted bats are categorized as a R4 Sensitive Species. The Townsend's big-eared bat primarily uses pinyon-juniper-mahogany, white fir, blackbrush, sagebrush, salt desert scrub, agricultural, and occasionally in urban areas from low desert to high mountain habitats. It is highly associated with caves and mines. This species roosts communally on the ceilings of cave-like structures (caves, mines, and buildings) feeds primarily (>90%) on moths (Bradley et al., 2006 p. 18 and Wisdom et al., (2000) p. 120). This bat is found throughout the state of Nevada, as well as the Western U.S. There are known historical records within the White Pine, Grant/Quinn, Schell Creek and Mount Moriah mountain ranges for Townsend's big-eared bat (Bradley et al., 2006, pg. 19). These mountain ranges have cave-like structures within the rock walls of the canyon and old mines that could be used for roosting and foraging. Potentially suitable roosting and maternity habitat may be present in caves, rock crevices, old buildings and abandoned mines. Potentially suitable foraging habitats would likely include springs, seeps, and riparian areas.

The spotted bat is closely associated with rocky cliffs. It has been found in a variety of habitats from low elevation desert scrub to high elevation coniferous habitats, including pinyon-juniper, sagebrush, riparian and on urban high-rise. Day roosts are primarily in the crevices in cliff faces but there is some indication that mines and caves may occasionally be used, primarily in winter (Bradley et al., 2006, pg. 22). These bats roost individually or in small colonies in rock crevices usually high on steep cliff faces (Wisdom et al., (2000) pg. 124). Their roost sites are usually associated with nearby water. Spotted bats main prey consists of moths, often around springs, seeps, and riparian areas. There are no known historical records for the spotted bat near the project area. The closest known sites are in the South Snake Mountain range and the Cherry Creek range (Bradley et al., 2006, pg. 23).

3.6.7.2. Environmental Consequences Alternative 1—Proposed Action

3.6.7.2.1. Direct and Indirect Effects

Potential habitats for Townsend's big-eared and spotted bats occur within the project area. The closure of abandoned mines is proposed within Currant 1 and Currant 2 Units. Before any closures would occur the areas will be surveyed for bats. Should bats be located then the closure would be bat friendly.

Other treatments could occur near tunnels, mineshafts, cliff faces, or cave-like structures occur within the project areas but would not be affected by the treatments. Although most of their foraging occurs in riparian areas, the use of nearby uplands may occur. Minor displacement of these bats during foraging and roosting may occur during the prescribed burn or mechanical treatments. The duration of the project activities will be short term and although foraging habitat and some roosting habitat will be altered within the units, it would not be eliminated. The prescribed burn will occur in a mosaic pattern and the vegetation that will occupy the site after the burn will provide roosting and foraging habitat. The mechanical treatment areas would not be removing the understory component and the slopes over 30% would not be treated, therefore retaining roosting and foraging habitat within the project area. Vegetation treatments under this proposal may increase flows within springs and meadows which may increase available foraging habitats for these species.

The disturbance to this species will be minimal and population trends for the Townsend's big-eared bat and spotted bat are expected to remain static. No potentially suitable maternity or hibernacula habitat will be impacted by this alternative and only minor displacement in roosting and foraging may occur. Implementation of this alternative is not expected to affect the viability of either bat species. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.7.2.2. *Cumulative Effects*

Livestock Grazing and Livestock Developments

Potentially suitable roosting, maternity, and hibernacula habitat occur within rocky cliffs, caves, and old mines. Grazing is not expected to affect these habitats because the natural features of these habitats would limit access by sheep or cattle. Livestock grazing has the potential to affect foraging habitat for both bat species, especially near springs, seeps, and riparian areas.

Vegetation treatments under the proposed action may increase the amount of spring and meadow habitats within the project area. These treatments are also likely to improve distribution of livestock and big game which is likely to improve the condition of springs and meadows and in turn improve foraging habitats for these species.

There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Cumulative effects to foraging habitat for bats from livestock grazing and proposed treatments are expected to be similar to those occurring in project area. Within mountain brush areas that are considered foraging habitat for the bats that are treated (mechanically or by prescribed fire) grazing would not be permitted for a minimum of 2 years after treatment. This will allow the vegetation to recover.

Maintenance of existing livestock developments will occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions would result in minimal impacts on the quality of habitat for Townsend's big-eared bat and spotted bat. The design criteria would allow potential habitats to recover before grazing would resume.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock. Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

The combinations of wild horses to the quality of habitat for the Townsend's big-eared bat and Spotted bat would be minimal, if management actions are taken to manage horses to the Appropriate Management Levels.

Mining and Mineral Exploration

There are old mining sites within the project area that were established years ago that have made existing habitat for bats. Any impacts from these past activities to either bat species or their habitat would have occurred then. There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to either bat species or their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements). The potential cumulative impacts associated with special use activities are generally localized in nature and often occur during the day when bats are not actively foraging. The potential effects would be minimal and limited to individual bats. The combinations of these actions would result in minimal impacts on the quality of habitat for either bat species as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope

and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal. The combinations of these actions would result in minimal impacts on the quality of habitat for either bat species as only a small portion of the habitat would be affected.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease habitat for bats in the short term, while some benefits could occur in the long term by maintaining the mountain brush and rejuvenation of aspen stands. Rehabilitation actions would help minimize the infestations of noxious weeds. The combinations of these actions to the quality of habitat for bats would be considered moderate if in one season large acreage of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have a beneficial effect on maintaining foraging habitat for both bat species.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combination of these actions will result in beneficial impacts for bats.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

Recreational use (such as camping near meadows systems or riparian areas) may impact bats by altering vegetative communities that provide potential foraging habitats for prey species used by them. Bats generally forage at night while most of the activities described above occur during the day. Recreational activities generally occur near roads, trails, and developed sites. Although recreational activities may disturb bats, it is generally localized and represents only a small portion of the habitats available.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to bats and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combinations of these actions will result in minimal impacts on potential habitats for bats and would occur only if plans or management changes occur.

3.6.7.3. Environmental Consequences Alternative 2 – No Action

3.6.7.3.1. Direct and Indirect Effects

Under the No Action Alternative current management would continue to in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sage brush and mountain brush habitat types. The sage cover type identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would continue to lose vigor and eventually die as the expansion progresses into Phase III. No increase in vegetative diversity nor structure and composition would occur. These habitats would continue to become less resilient to disturbances such as wildland fire.

Under this alternative Townsend's big-eared bat and spotted bat population trends are expected to remain static. No potentially suitable roosting, maternity, hibernacula, or foraging habitat will be impacted by this alternative. Foraging habitat would still be available within and near the project area, although at a reduced quality.

3.6.7.3.2. Cumulative Effects

Prescribed Fire, Fuels and Vegetation Treatments

No treatments would be implemented to accomplish project goals. Under this alternative the majority of the sagebrush and mountain communities would remain in an older age class. No increase in vegetative diversity nor structure and composition would occur. These habitats would continue to become less resilient to disturbances such as wildland fire and the areas are more likely to be invaded by noxious and invasive weeds.

Under this alternative the potential cumulative effects on vegetative communities used by bats would be increased as a result of ongoing changes in those vegetation communities. Vegetation communities with the most notable changes related to bats foraging habitats would include the sagebrush and mountain brush, the loss of aspen and the loss of spring and meadow communities.

3.6.7.4. Environmental Consequences Alternative 3 – No Treatments Within Wilderness

3.6.7.4.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, Townsend's big-eared bat and spotted bat population trends are expected to remain static as vegetation communities are treated.

3.6.7.4.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all of the areas.

3.6.8. Peregrine Falcon

3.6.8.1. Species Information

The peregrine falcon was removed from the Federal List of Endangered and Threatened Wildlife on August 25, 1999. Since their de-listing, they have been addressed as a sensitive species during environmental analysis. Peregrines often nest on ledges or holes on face of rocky cliffs or crags. Nests typically are situated on ledges of vertical rocky cliffs, commonly with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, near water, and close to plentiful prey. Substitute man-made sites include tall buildings, bridges, rock quarries, and raised platforms. They feed primarily on birds (medium-size passerines up to small waterfowl); small mammals (e.g., bats, lemmings), lizards, fishes, and insects (by young birds) may be taken. Prey pursuit is initiated from the perch or while soaring (Herron, 1985, pp 65–66). Potential nesting habitats are located high on cliff faces and along steep walled stream canyons.

Peregrines may forage up to 20 km from the nest site, but normally stay within 12 km (USFWS 1999). Their prey consists almost entirely of birds which are usually taken on the wing. Foraging habitat includes wetlands and riparian habitats, meadows and parklands, croplands such as hayfields and orchards, gorges and mountain valleys, and lakes which support good populations of small to medium-sized terrestrial birds, shorebirds and waterfowl. Peregrines could also use the project area during migration.

3.6.8.2. Affected Environment

There are no known nest sites in project area, but potential habitat exists. There was a peregrine falcon nest in Cathedral Canyon, north of the project area, in 2003. They could use other areas in the White Pine, Grant/Quinn, Schell Creek, Mount Moriah or Ward Mountain ranges for nesting, or during migration for resting and foraging.

3.6.8.3. Environmental Consequences Alternative 1 - Proposed Action

3.6.8.3.1. Direct and Indirect Effects

There are no known peregrine falcon nests within the project area. A peregrine falcon did nest in Cathedral Canyon, north of the project area, in 2003. No habitat component important to peregrine falcons would be adversely impacted by this alternative. Foraging habitat for peregrine falcons would improve with the proposed treatments which will improve habitats for prey species. Because project activities will not be altering or eliminating nesting habitat, disturbance to this species will be minimal. Peregrine falcons forage over large areas so there would be minimal impacts to foraging habitats. Peregrine falcon population trends are expected to remain static as a result of this alternative.

3.6.8.3.2. Cumulative Effects

Livestock Grazing and Livestock Developments

Potentially suitable nesting habitat occurs within project area on high cliff faces and along steep walled stream canyons. Grazing is not expected to affect these habitats because the natural features of these habitats would limit access by cattle. Livestock grazing has the potential to affect foraging habitat for peregrines, especially near springs, seeps, and riparian areas where its prey species congregate.

There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. The impacts from grazing to foraging habitat have already been occurring and if peregrines are in the area they have persisted. Grazing activities are not expected to increase in the area. Cumulative effects to foraging habitat for peregrines from livestock grazing and proposed treatments are expected, but would be minimal. Within mountain brush areas that are considered foraging habitat for peregrines that are treated (mechanically or with by prescribed fire) grazing would not be permitted for a minimum of 2 years after treatment. This will allow the vegetation to recover.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combination of these actions would result in minimal impacts on peregrine falcons. Design criteria would allow potential foraging habitats to recover before grazing would resume.

Wild Horses

The cumulative effects area includes the Monte Cristo Wild Horse Territory (WHT), the Forest Service portion of the larger Pancake Complex Horse Management Area (HMA). Wild horses are present throughout the cumulative effects area, both in and out of the project area. An Environmental Assessment (EA) is currently being developed to address the management of wild horses on Forest Service administered lands. The NEPA analysis is schedule to be completed by 2014.

Wild horses are considered a part of the landscape, generally in the same manner as wildlife. Wild horses have the potential to affect resources in the same manner as permitted livestock.

Many upland and riparian sites are grazed by wild horses after permitted livestock are removed. These sites experience no rest from grazing, thus promoting undesirable species composition, increase of bare ground, and reduction of recovery time for many riparian systems. Wild horse gathers conducted with the BLM are expected to move populations toward the established AMLs. It is anticipated that the population reductions will enhance the range condition by allowing increased ground cover and diversity of the recovering plant community. Gathers are generally conducted on a 5 year rotating schedule.

The combinations of wild horses to the quality of habitat for the peregrine falcon would be minimal, if management actions are taken to manage horses to the Appropriate Management Levels.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to peregrines or their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements, utility easements). The potential cumulative impacts associated with special use activities are generally localized in nature. The combination of these actions would result in minimal impacts on peregrine falcons as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease foraging habitat for peregrines in the short term, while some benefits could occur in the long term by maintaining the mountain brush habitat from the invasion of pinyon and juniper, which would be foraging habitat for peregrines. Rehabilitation actions would help minimize the infestations of noxious weeds. The combination of these actions would result in minimal impacts on peregrine falcons. The impacts would be considered moderate if in one season large acreage

of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have had a beneficial effect on foraging habitat for peregrines.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combination of these actions would result in beneficial effects on potential foraging habitats for peregrine falcons.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

Recreational use (such as camping near riparian areas) may impact peregrines by altering vegetative communities that provide potential foraging habitats for prey species used by them. Recreational activities generally occur near roads, trails, and developed sites. Although recreational activities may disturb peregrines, it is generally localized and represents only a small portion of the habitats available.

The potential cumulative impacts associated with recreational and proposed treatment activities are generally localized in nature. Disturbance from treatment activities would be short in duration. The proposed treatment would have the beneficial effect of improving habitats for prey species for peregrines. The potential effects would be minimal and limited to individual prey species. Although disturbance to foraging peregrines will still occur from recreation activities the combination of these actions and the proposed action would be minimal, as peregrines forage over large areas.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to peregrines and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combination of these actions would result in minimal impacts on peregrine falcons and occur only if plans or management changes occur.

3.6.8.4. Environmental Consequences Alternative 2—No Action

3.6.8.4.1. Direct and Indirect Effects

Potential nesting, foraging and/or migration habitat is present within the project area. No habitat component important to peregrine falcons would be adversely impacted by Alternative 2, because there will be no actions altering or eliminating nesting. Foraging habitat would not be improved, but sufficient foraging areas are present to support falcons. The project would have no impact on peregrines, or their habitat. Under this alternative peregrine falcon, population trends are expected to remain static.

3.6.8.5. Environmental Consequences Alternative 3—No Treatments Within Wilderness

3.6.8.5.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, peregrine falcon population trends are expected to remain static as vegetation communities are treated.

3.6.8.5.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all of the areas.

3.6.9. Bighorn Sheep

3.6.9.1. Species Information

Bighorn sheep are categorized as a R4 Sensitive Species. Bighorn sheep prefer rough country where visibility is good and where there is little competition from other grazing animals. Their habitat is semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons; from alpine meadow to hot desert. This type of terrain affords them the advantage in coping with predation. Bighorn sheep have a home range and migrate between high slopes in the summer and lower elevations and valleys in winter. Studies that evaluated bighorn sheep diets throughout the year showed a variety of grasses, forbs, and shrubs were important at different times of the year, with graminoids making up the majority of their diet throughout the year (Wagner and Peak, 2006). Along with having preferred forage, bighorns also need escape cover. Good visibility and steep escape cover are structural habitat elements that provide bighorns with security from predators (Coates and Schemnitz 1994). Desert bighorn sheep inhabit arid, naturally fragmented

environment with unpredictable rainfall in the southern United States (McKinney, 2006, p 4). Rocky Mountain bighorns inhabit the mountains from Canada south to New Mexico.

It has been estimated that bighorn sheep were the most numerous and widely distributed large ungulate in Nevada. The statewide estimate in 2013 was 11,360 bighorn sheep across Nevada. The historic decline of bighorn sheep in Nevada has been attributed to European settlement and the subsequent introduction of diseases as well as the alteration and/or destruction of bighorn habitat (NDOW 2001). Although three species of bighorn sheep occur in Nevada, a desert bighorn sheep population has historically occurred within the analysis area. However, multiple Rocky Mountain bighorn sheep have appeared in the area over the last 5-8 years. It is suspected that these sheep wandered south from the Ruby Mountain sheep herd to the north and inhabited the area. There is speculation that there may be interbreeding between the desert bighorn sheep and the Rocky Mountain bighorn sheep in this area. The current desert Bighorn sheep population for Nevada is estimated to be 9,000 (NDOW 2013).

During the summer, desert bighorn sheep rely on the low sage, tall forb, mountain big sage, and mountain brush habitat groups at higher elevations. Due to the extreme ruggedness of their summer habitat, there is little spatial overlap in grazing with livestock or wild horses. During the winter, desert bighorn sheep use the Wyoming big sage and black sage habitat groups, in the lower elevations. Increasingly, disease transmission between wild and domestic sheep has become a problem across the western United States (Lawrence 2010, Wehausen et al. 2011). Bighorn sheep have little resistance to pneumonia-causing bacteria carried by domestic sheep and goats, and massive die-offs have occurred in Idaho, Montana, Wyoming, California and Nevada. To date, the bighorn sheep population in the Currant Mountains has not experienced any documented disease-related mortality (Podborny 2014, pers. comm.).

3.6.9.2. Affected Environment

One desert bighorn sheep herd occurs within the project area. It is located in the Currant Mountain Wilderness Area on the southwestern end of the White Pine Range. There had been relatively frequent sightings of small groups of desert bighorn sheep in this area during the late 1980s. NDOW released 25 desert bighorn sheep from the Monte Cristo Range to supplement the herd in this area in mid-January 1999. Telemetry tracking of six of these ewes showed that these sheep had dispersed widely and half of the radio collared sheep moved across the valley to a range of hills with lower tree cover by September 1999 (Podborny 2010a, pers. comm.). In October 2007, NDOW released 24 more bighorns from Mt. Jefferson (Toquima Range), into the White Pine range. This release has been successful with all bighorn sheep residing in the White Pine Range, with many living in the higher elevations of the Currant Wilderness for most of the year. The 2013 NDOW population estimate for this herd is 170 bighorns (NDOW 2013). This total population estimate includes sheep occupying the project area, and also includes sheep from the Duckwater hills and a portion of the Pancake range, which are both situated to the west of the project area.

3.6.9.3. Environmental Consequences Alternative 1 - Proposed Action

3.6.9.3.1. Direct and Indirect Effects

Under this alternative habitat quality and quantity is expected to increase as mechanical treatments are used to remove encroaching pinyon and juniper trees and prescribed fire is used to

open up canopy cover at higher elevations. Over time, burned areas will recover with grass and forb species and provide more foraging habitat for bighorn sheep. Prescribed burning will also provide more visibility and open areas to help bighorn sheep detect and avoid predators. Road rehabilitation and closures would also provide beneficial effects to bighorn sheep by providing fewer areas available for motor vehicle disturbance. Disturbance from mechanical treatments and road rehabilitation would be localized and short term in duration at any one time, leaving other areas without disturbance. Prescribed fire could last multiple days, but other available habitat would still be available for bighorn sheep to use during this time. The disturbance to this species from the proposed treatments will be minimal and limited to individuals. Indirect effects could include the spread of noxious weeds in some areas that are treated with prescribed burning. Noxious weed treatments would continue to occur to minimize these effects. Implementation of this alternative is expected to be beneficial and is not expected to affect the viability of bighorn sheep. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected. Under this alternative, bighorn sheep population trends are expected to remain static or increase over time as the treated areas recover and rejuvenate, increasing bighorn sheep habitat.

3.6.9.3.2. *Cumulative Effects*

Mining/Mineral Exploration and Energy Development

There are currently no known active mining operations within the cumulative effects area. There may be potential for small exploration activities in the area in the foreseeable future. The combination of these actions will have minimal impacts on the quality of habitat for the bighorn sheep.

Livestock Grazing and Developments

Cumulative effects to bighorn sheep from livestock grazing would include the competition for forage and water resources within portions of the project area. These effects would be minimal as livestock grazing has occurred historically within the project area and the bighorn sheep population has persisted. Livestock grazing is not expected to increase in the future.

Water Diversions

The existing water diversion within the project area was established years ago. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore, there would be no cumulative effects to bighorn sheep from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits', water developments or ditch easements, utility easements, and right-of-ways). These activities could cause minimal disturbance to bighorn sheep. The combination of these actions will have minimal impacts on the quality of habitat for the bighorn sheep as only a small portion of the habitat may be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the lower elevation pinyon-juniper vegetation community, which is normally not where bighorn sheep would occur. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal. The combination of this action will have minimal impacts on the quality of habitat for the bighorn sheep.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires would increase habitat for bighorn sheep by providing a more open canopy and more grasses and forbs. Rehabilitation actions would help minimize the infestations of noxious weeds. In 2013 a 1,300 acre wildland fire, on the east side of the Currant Mountain wilderness, provided additional habitat for bighorn sheep when it burned through higher elevation white fir and pinyon-juniper. The combination of this action would have beneficial impacts on the quality of habitat for bighorn sheep. There would also be beneficial impacts from seeding and rehabilitation efforts.

Wildlife

There would be minimal cumulative effects to bighorn sheep from other wild ungulate wildlife. This is due to the fact that deer, elk, and pronghorn have been present and have co-existed with bighorn sheep for centuries. Deer, elk, and antelope compete very minimally with bighorn sheep for forage and water sources. Bighorn sheep have persisted for centuries with these other wildlife species.

Wild Horses

Cumulative effects to bighorn sheep from wild horse use would include competition for available forage and water within the area. This effect would be minimal, as horses most often use areas not heavily utilized by bighorn sheep. This minimal effect would either further decrease due to the fact that management actions should be taken to decrease horse numbers within the area in the near future, or increase if measures are not taken to manage wild horse populations within the area.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date.

Most of these treatments have occurred at lower elevations in areas not frequented by bighorn sheep. However, the combinations of these actions that have occurred within or near bighorn sheep habitat have been beneficial.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combinations of these actions on the quality of habitat for bighorn sheep would be considered beneficial.

Developed and Dispersed Recreation

Developed and dispersed recreational uses occur throughout the cumulative effects area. Recreational use of roads is generally moderate with a spike in use during the fall hunting season. Motorized use is restricted to designated roads and trails.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain stable or increase slightly over current levels.

Camping areas and motorized use will occur mostly outside the preferred habitat of the bighorn sheep. Minimal disturbance will occur to bighorn sheep from the cumulative effects of developed and dispersed recreation. These minimal effects will most likely occur during winter months when the bighorn sheep are on their winter range.

Private Lands Management/Development

The existing developments on private lands were established years ago. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combination of these actions will have minimal impacts on the quality of habitat for bighorn sheep.

3.6.9.4. Environmental Consequences Alternative 2—No Action

3.6.9.4.1. Direct and Indirect Effects

Under the No Action Alternative, current management would continue to occur in the project area. No treatments would be implemented to accomplish project goals.

Under this alternative, bighorn sheep population trends are expected to remain static or decrease as foraging habitat decreases. Increased predation and loss of foraging habitat for bighorn sheep would occur as pinyon-juniper and white fir trees continue to expand. Indirect effects include large scale and high intensity wildfires due to the abundance of fuels, and noxious weed infestations occurring from these high intensity wildfires.

3.6.9.4.2. Cumulative Effects

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sagebrush and mountain brush cover type. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sagebrush would lose vigor and

eventually die as the expansion progresses into Phase III. This would impact foraging habitat and visibility.

In addition, as the expansion of the pinyon-juniper continues into the sagebrush habitats, the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of foraging habitat for bighorn sheep.

Under this alternative, pinyon-juniper expansion would continue to expand and dominate, and would continue to overtake the grass, brush, and forb communities.

There would be noticeable cumulative effects to bighorn sheep as a result of no changes in current management. The communities with the most notable changes related to bighorn sheep include the higher elevation grass and forb communities and higher elevation brush communities that provide important foraging habitat.

3.6.9.5. *Environmental Consequences Alternative 3—No Treatments Within Wilderness*

3.6.9.5.1. *Direct and Indirect Effects*

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area.

Under this alternative, bighorn sheep population trends are expected to remain static or decrease as high elevation foraging habitat decreases. Increased predation and loss of foraging habitat for bighorn sheep within wilderness would occur as pinyon-juniper and white fir trees continue to expand. Indirect effects include large scale and high intensity wildfires due to the abundance of fuels in wilderness areas, and noxious weed infestations occurring from these high intensity wildfires.

3.6.9.5.2. *Cumulative Effects*

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with alternative 3 would be similar to those disclosed under the proposed action for: mining and mineral exploration, livestock grazing and developments, water diversions, special uses, fuelwood harvest, wildfire, wildlife, wild horses, fuels and vegetation treatments, noxious weed treatments, developed and dispersed recreation, and private lands management/development.

The potential cumulative effects related to impacts to vegetative communities in wilderness that are used by bighorn sheep would increase as a result of no prescribed fire in the higher elevation pinyon-juniper and white fir communities.

Prescribed Fire Treatments

No prescribed fire treatments would be implemented within wilderness areas to accomplish project goals. Over time, woodland expansion within the wilderness areas would continue to diminish and fragment the sagebrush and mountain brush cover type. The expansion of pinyon-juniper and white fir will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species at higher elevations. As pinyon-juniper continues to expand into the sagebrush type, the sagebrush would lose vigor and eventually die as the expansion progresses into Phase III. This would impact important high elevation foraging habitat and visibility for bighorn sheep.

In addition, as the expansion of the pinyon-juniper and white fir continues, the potential for large-scale intensive wildfires increases. With the closing of the canopy of the woodlands, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of higher elevation foraging habitat for bighorn sheep.

Under this alternative, pinyon-juniper and white fir expansion would continue to expand and dominate, and would continue to overtake the grass, brush, and forb communities.

There would be noticeable cumulative effects to bighorn sheep as a result of no prescribed fire in wilderness areas. The communities with the most notable changes related to bighorn sheep include the higher elevation grass and forb communities and higher elevation brush communities that provide important foraging habitat.

3.6.10. Bald Eagle

3.6.10.1.1. Species Information

The bald eagle was removed from the Federal List of Endangered and Threatened Wildlife on August 8, 2007. Since their de-listing, they have been addressed as a sensitive species during environmental analysis. The bald eagle is a winter visitor to the Ely Ranger District (USDA FS 1986, pg. II-10). Winter home ranges can be very large, especially for non-breeding birds. Winter roost sites vary in their proximity to food resources (up to 33 km) and may be determined to some extent by a preference for a warmer microclimate at these sites. Wintering areas are commonly associated with open water though in some areas eagles use habitats with little or no open water if other food resources (e.g. rabbit or deer carrion) are readily available (Natureserve, July 2011).

The project area does provide minimal wintering habitat requirements for bald eagles. It is outside any known wintering areas. There is no nesting habitat within the project area. Eagles may use the project areas as a travel route between nesting and known wintering areas. No winter habitat component important to bald eagles is present, thus no bald eagle wintering habitat will be affected by the proposed project.

3.6.10.2. *Environmental Consequences Alternative 1—Proposed Action*

There would be no impacts to bald eagles from any of the alternatives. Implementation of these alternatives is not expected to affect the viability of bald eagles. The population of bald eagles would remain relatively stable within the project area.

3.6.10.3. *Environmental Consequences Alternative 2—No Action*

There would be no impacts to bald eagles from any of the alternatives. Implementation of these alternatives is not expected to affect the viability of bald eagles. The population of bald eagles would remain relatively stable within the project area.

3.6.10.4. *Environmental Consequences Alternative 3—No Treatments Within Wilderness*

There would be no impacts to bald eagles from any of the alternatives. Implementation of these alternatives is not expected to affect the viability of bald eagles. The population of bald eagles would remain relatively stable within the project area.

3.6.11. Bonneville Cutthroat Trout

3.6.11.1. *Species Information*

Bonneville Cutthroat Trout (BCT) are categorized as a R4 Sensitive Species. They require clear, cool water throughout their lives. Historically, BCT occurred throughout the Bonneville Basin; today they are restricted to less than 50 populations in Idaho, Nevada, Utah, and Wyoming. On the Ely Ranger District, BCT occupy Hendry's, Hampton, Smith, Deep Canyon, and Deadman Creeks in the Mount Moriah Range, and Deep Creek in the Grant-Quinn Range. A tributary to Silver Creek on Mount Moriah may also have Bonneville Cutthroat Trout. Genetic testing to determine if the trout from the Silver Creek tributary are indeed pure strains of BCT is currently in progress.

3.6.11.2. *Environmental Consequences Alternative 1—Proposed Action*

The project area does not contain habitat for the Bonneville cutthroat trout. The area is not within historical habitat or the Bonneville Basin. This alternative would have no impact on the Bonneville cutthroat trout, or their habitat.

3.6.11.3. *Environmental Consequences Alternative 2—No Action*

The project area does not contain habitat for the Bonneville cutthroat trout. The area is not within historical habitat or the Bonneville Basin. This alternative would have no impact on the Bonneville cutthroat trout, or their habitat.

3.6.11.4. *Environmental Consequences Alternative 3—No Treatments Within Wilderness*

The project area does not contain habitat for the Bonneville cutthroat trout. The area is not within historical habitat or the Bonneville Basin. This alternative would have no impact on the Bonneville cutthroat trout, or their habitat.

3.6.12. Mule Deer

3.6.12.1. Species Information

Mule deer occur throughout the project area. Mule deer are categorized as a Management Indicator Species (MIS) for all vegetative types in the Humboldt National Forest Land and Resource Management Plan. Management indicator species are used to monitor habitat for mule deer and other species that use similar habitats.

Mule deer range is characterized by sagebrush, mountain brush, mountain mahogany, pinyon-juniper, aspen, and all types of vegetative community types in association with herbaceous meadow and riparian community types along stream courses (Taylor 1991). Winter range is found at lower elevations, while summer range is found at higher elevations on the Forest. Winter range is typified by shrublands that do not accumulate large amounts of snow so that forage can be accessible to deer through most of the winter. The project area contains mainly summer range, although deer could be found at the lower elevations during winters with low snow yield. Mule deer fawn in many of the riparian areas as well as in the mountain brush communities. The fawning is dispersed throughout much of this habitat and data about deer fawning use within the mountain brush community is limited. Although fawning areas comprise a relatively small number of acres, they are a very important component of the deer range. The majority of the fawning areas on the District are within a half-mile of riparian areas, perennial streams, or water sources. These areas would also be used as elk calving areas.

The district provides a good distribution and diversity of vegetation for mule deer year round. The most common browse plants used by mule deer throughout the district are big sagebrush, antelope bitterbrush, snowberry, willow, and rubber rabbitbrush (Taylor 1991, pg. 66 and 67). Diets of the deer herds include three major forage classes: 1) browse or shrubs, including both shrub (sagebrush and antelope bitterbrush) and tree material (willow, aspen, and cottonwood); 2) graminoids, which include sedges and rushes and grass-like species; and 3) forbs, which include lower plant forms such as mosses and lichens (ibid). Food habits of deer appear to be influenced by phenological changes in forage as well as the abundance of different species.

The Forest Plan set a minimum viable population level for mule deer at 11, 247 with a maximum potential population of 88,200 deer. The 1986 LRMP identified the current (1986) population of mule deer at 63,000. Statewide mule deer numbers have remained relatively stable over the past ten years (USDA FS, 2008, pg 27 and 28).

Nevada's mule deer populations have been stable to slightly declining over the past two years. There was a modest (3%) increase in 2012, but in 2013 the population is estimate to declined 3% (NDOW 2013-2014, pg SS-1). The project area falls within NDOW Management Area 13, Unit 131 (Southern White Pine and Eastern Nye Counties). Drought conditions existed during the first half of 2012 and 2013 which lasted until substantial August rains relieved the drought conditions in White Pine and Eastern Nye counties. Habitat conditions for deer improved before winter throughout this unit group. The lack of snow has resulted in springs going dry in many parts of the summer range for deer. The long-term quality and quantity of summer ranges are slowly being reduced by pinyon/juniper forests taking over brush zones thereby lowering the carrying capacity for mule deer. Since the summer of 2010, the Forest Service has hired crews with chainsaws to cut small pinyon and juniper trees encroaching into open grass and brush zones of the White Pine, Grant and Quinn Canyon Ranges. This project will be ongoing for several years

and will prevent tree domination of some brush communities, maintaining their value for deer and other wildlife. (NDOW 2013-2014, pg 16)

3.6.12.2. Environmental Consequences Alternative 1—Proposed Action

3.6.12.2.1. Direct and Indirect Effects

Under this alternative, prescribed fire treatments would be used to reduce pinyon-juniper densities in Phase I and Phase II pinyon-juniper stands. Mechanical treatments in the pinyon-juniper communities will improve the health and diversity of the understory vegetation by removing the overstory of pinyon and juniper trees. Areas of hand cutting would maintain the existing brush communities that are in the early stages of invasion from pinyon and juniper trees. Road rehabilitation and closures would also provide beneficial effects to mule deer by providing fewer areas available for motor vehicle disturbance. Watershed and riparian restoration treatments will help maintain and improve water sources and fawning areas for mule deer. All of these treatments will improve the health and diversity of the vegetation and restore and improve mule deer habitat, particularly the important shrub communities on summer range and riparian areas.

The proposed action will use mechanical treatment methods and prescribed fire to restore important vegetative communities, enhance the diversity of age classes and structure of vegetation communities, restore and improve wildlife habitats, and reduce the severity of wildfires on approximately 30,100 acres. A maximum of 13,500 acres will be treated using prescribed fire. Burned openings will occur in a mosaic pattern. Size of openings will vary widely depending upon the specific vegetation community and intensity of burn prescriptions. Treatments will be scattered across the landscape. Larger openings may occur due to the somewhat unpredictable nature of fire and weather conditions.

Up to 16,600 acres will be treated using primarily mechanical methods. Mechanical treatments may be followed by limited prescribed burning to reduce residual slash or meet other vegetation objectives specific to that site.

In areas where the pinyon and juniper trees are just beginning to invade into the sagebrush/mountain brush communities and mountain mahogany, resulting in the loss and degradation of important wildlife habitats, hand cutting of the pinyon and juniper would be used. The project is designed to decrease the expansion of pinyon/juniper into these brush habitats. The reduction of pinyon-juniper canopy will increase sunlight and moisture available to the understory and the understory shrubs, grasses and forbs will increase. Slash generated from the treatment will be left on the ground to provide a microclimate that will retain moisture and facilitate the establishment and growth of grasses and forbs. This treatment will retain the sagebrush-grass community type (emphasizing mountain brush and sagebrush habitats) and mountain mahogany by cutting young, encroaching pinyon and juniper trees.

Under this alternative mechanical treatments will improve the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Areas of hand cutting would maintain the brush communities that are in the early stages of invasion from pinyon and juniper trees. These habitats would become more resilient to disturbances. These community types would be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire.

Minimal disturbance may occur on summer range, resulting in minor displacement of mule deer during the actual burning (usually less than one week), or during the mechanical treatments. This would be short in duration and disturbance to this species will be minimal as it is likely animals will avoid the areas during implementation, causing a temporary change in foraging behavior. This would occur on a small portion of the area at any one time and additional areas would be available. No habitat component important to mule deer will be adversely impacted by this project.

Mule deer population trends are expected to remain static or increase. The proposed action would have a beneficial effect by maintaining the mountain brush and sagebrush communities by increasing the age class diversity, restoring the natural condition, and improving the herbaceous vegetative component. This will be accomplished by removing the pinyon and juniper that are expanding into them by mechanical methods or hand cutting. The reduction of pinyon-juniper canopy will increase sunlight and moisture available to the understory allowing shrubs, grasses and forbs to increase. These habitats would become more resilient to disturbances such as wildland fire. These community types will be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire or other disturbance.

Disturbance from the treatments would be localized and short in duration at any one time, leaving other areas without disturbance. The disturbance to this species will be minimal and limited to individuals. Population trends for mule deer are expected to remain static or increase. Implementation of this alternative is not expected to affect the viability of mule deer. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.12.2.2. *Cumulative Effects*

Mule deer would be disturbed or their patterns disrupted by the various activities described below. Disturbance of mule deer by the various uses and activities are localized in nature and generally short term. Individual mule deer may be displaced to adjacent habitats; however, there is rarely a loss of habitat except in the case of wildfire.

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect mule deer and their habitat. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Cumulative effects to deer and their habitat from livestock grazing and proposed treatments are expected. Within the pinyon-juniper and mountain brush/sagebrush areas that are treated (mechanically or by prescribed fire) grazing would not be permitted for a minimum of 2 years after treatment. This will allow the vegetation to recover. There is the potential for forage competition between cattle and deer, particularly during late summer when cattle are more likely to use browse species. Livestock have the potential to displace deer from preferred habitats, like riparian areas where deer often fawn. Along with displacement to adjacent habitats there are the grazing impacts to meadows and springs. These are important to mule deer for both foraging and water sources, and as fawning habitat.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions would impact the quality of habitat for mule deer. Within treatment areas design criteria would allow the habitats to recover before grazing would resume. Livestock would still have the potential to displace deer and compete for available forage.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to mule deer and their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water developments or ditch easements). The proposed treatments would improve the quality and quantity of habitat for mule deer, but would decrease the amount of cover making mule deer more vulnerable to hunting pressure. These impacts would be offset by increase in the quantity and quality of the foraging habitats. The combination of these actions will result in minimal impacts on the quality and quantity of habitat for mule deer which utilize large ranges with an abundance of available habitats.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease mule deer habitat in the short term, while benefits could occur in the long term by maintaining the brush habitat from the invasion of pinyon and juniper. Larger burns within the lower elevations (winter range) would have more adverse effects. Treatments will reduce the potential for adverse effects by making these areas more resilient to disturbances such as wildfire. In addition these communities will be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire.

Rehabilitation actions would help minimize the infestations of noxious weeds. The cumulative impacts of these actions on the quality of habitat for deer could be considered moderate if in one season large acreage of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have a beneficial effect on maintaining mule deer habitat.

Noxious Weed Treatments

Noxious weed treatments will continue within the cumulative effects area. The combination of these actions would result in beneficial effects on mule deer habitats.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

There are no additional plans for the construction of any roads or motorized trails at this time. Recreational use (such as camping near riparian areas) may disturb deer and/or alter vegetative communities that provide fawning and summer habitat for mule deer. Although some disturbance from recreational activities will occur it is generally short in duration. The combinations of these actions to the quality of habitat for mule deer would be considered minimal as only a small portion of the habitat would be affected.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to mule deer and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combination of these actions will result in minimal impacts on the quality and quantity of habitat for mule deer.

3.6.12.3. Environmental Consequences Alternative 2—No Action

3.6.12.3.1. Direct and Indirect Effects

Under the No Action alternative current management would continue in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion

within the project area would continue to diminish and fragment the sagebrush and mountain brush cover types. These brush cover types identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush and mountain brush communities, the brush species would lose vigor and eventually die as the expansion progresses into Phase III.

Under this alternative, mule deer population trends are expected to remain static, or decrease because of the continued expansion of pinyon and juniper trees into the sagebrush and mountain brush habitats and the decrease in understory vegetation and age class diversity in the higher elevation sagebrush areas. The decrease in sagebrush and the understory component of forbs and grasses would continue to reduce the quality of mule deer habitat. This would continue to reduce the quality and quantity of deer summer and winter range.

3.6.12.3.2. *Cumulative Effects*

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the mountain brush and sagebrush cover type. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as pinyon-juniper densities increase the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of habitat for mule deer.

The potential cumulative effects related to impacts to vegetative communities used by mule deer would increase as a result of no changes in current management. The communities with the most notable changes related to mule deer include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species.

3.6.12.4. *Environmental Consequences Alternative 3 – No Treatments Within Wilderness*

3.6.12.4.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, mule deer population trends are expected to remain static or increase as treatments outside of wilderness areas are implemented. Implementation of this alternative is not expected to affect the viability of mule deer. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.12.4.2. *Cumulative Effects*

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all areas.

3.6.13. Trout

3.6.13.1. *Species Information*

Trout are the Management Indicator Species (MIS) for riverine and lacustrine habitat and riparian habitat on the Humboldt NF. Prime trout waters are clear, clean and cold. Good trout stream habitat is complex, consisting of an array of riffles and pools, submerged wood, boulders, undercut banks, and aquatic vegetation. Threats and impacts to trout populations are found with the reduction of good quality trout habitat due to streambank and upland soil erosion, loss of riparian vegetation, water diversion, mining activities, and point and non-point source pollution from agriculture. The assessment of habitat condition is largely based on riparian vegetation, and stream conditions such as bank stability and does not include specific water quality or instream measurements such as substrate composition or embeddedness.

Trout within the project area include non-native rainbow trout, brown trout, and brook trout and are managed as game fish by the Nevada Department of Wildlife (NDOW). Bonneville cutthroat trout, also a MIS, do not occur within the project area.

Prime trout waters are clear, clean and cold. Good trout stream habitat is complex, consisting of an array of riffles and pools, submerged wood, boulders, undercut banks, and aquatic vegetation. Threats and impacts to trout populations are found with the reduction of good quality trout habitat due to streambank and upland soil erosion, loss of riparian vegetation, water diversion, mining activities, and point and non-point source pollution from agriculture. The assessment of habitat condition is largely based on riparian vegetation, and stream conditions such as bank stability and does not include specific water quality or instream measurements such as substrate composition or embeddedness. Although not a habitat factor, pounds of trout stocked is also used to assess the status of trout throughout the project area.

At the forest-level analysis (USDA FS 2008) perennial waters within the project area, were considered capable/suitable for trout. Streams were considered in satisfactory condition if they were identified as fishable by NDOW. Within the project area White River, Currant Creek, and Ellison Creek are known to support populations of trout.

The Forest Plan, Amendment 2 directs the forest to maintain 2,470 pounds of all trout species for a minimal viable population. This level was met on the District where between 2001 and 2006 when 3,714 pounds of trout were stocked in White River and Cleve Creek.

3.6.13.2. Environmental Consequences Alternative 1—Proposed Action

3.6.13.2.1. Direct and Indirect Effects

Under the Proposed Action Alternative, mechanical treatments within pinyon-juniper communities will result in disturbance to vegetation and soils within treatment units and along roads and skid trails. This disturbance will result in a short term increase in soil erosion and subsequent sedimentation into streams. These short term increases in soil erosion may impact fisheries habitat within Currant and Ellison Creeks and White River.

Mechanical treatments will result in long term beneficial effects on fisheries habitats within Currant, Ellison Creeks and White River. As treatment areas recover, grass and shrub communities will reestablish on site and there will be a long term increase in ground cover compared to current conditions. With increased ground cover there will be a reduction in soil erosion and sedimentation into streams. Treatments within pinyon-juniper communities and restoration of sagebrush/grasslands may result in an increase in water flows within springs and streams. In locations where this occurs it may improve fisheries habitats by increasing the availability of habitats with sufficient flows to support fish species. The potential that fisheries habitats will be improved is variable and very site specific with many factors affecting the outcome including tree densities, soils, location and types of treatments.

Prescribed fire treatments will typically occur at mid to higher elevations within the pinyon-juniper communities. Prescribed burns will consume vegetation material and litter. These treatments will not result in direct soil disturbances; however, these treatments do remove ground cover and leave soils exposed for a period from several weeks up to several years. During this time soils are susceptible to increased erosion potential particularly during spring runoff or during thunderstorm events. This disturbance may result in a short term increase in soil erosion and subsequent sedimentation into streams. These short term increases in soil erosion may impact fisheries habitat within Currant and Ellison Creeks, and White River.

Prescribed fire treatments also have the potential to result in direct impacts to fisheries habitats. Prescribed fire treatments will not target riparian habitats; however, due to the unpredictable nature of fire it is likely that fire may backburn into riparian habitats. In most cases the impacts will be minimal, however, fire may remove vegetation that provides shade to the stream and could result in a short term increase in water temperatures within the section of stream which was impacted. Riparian habitats such as those within the streams identified above are generally dominated by riparian shrub communities which resprout and respond positively following fire. Therefore the shade impacts resulting from the loss of riparian shrub vegetation would be short term in nature. In more severe conditions, fires burning within riparian zones can create enough heat and ash that fisheries species can be killed within the affected areas of the streams. In those situations the population of fish can recover within several years from adjacent unburned sections of stream, or through restocking by Nevada Department of Wildlife if appropriate.

Prescribed fire treatments will result in long term beneficial effects on fisheries habitats within Currant and Ellison Creeks, and White River. As treatment areas recover, grass and shrub communities will reestablish on site and there will be a long term increase in ground cover compared to current conditions. With increased ground cover there will be a reduction in soil erosion and sedimentation into streams. Prescribed fire treatments adjacent to streams may also

increase large woody debris within streams which will result in long term positive benefits on fisheries habitats.

Treatments within pinyon-juniper communities may result in an increase in water flows within springs and streams. In locations where this occurs it may improve fisheries habitats by increasing the availability of habitats with sufficient flows to support fish species. The potential that fisheries habitats will be improved is variable and very site specific with many factors affecting the outcome including tree densities, soils, location and types of treatments. Under this alternative, fisheries populations are expected to remain static over the next several years with potential for a slight long-term upward trend.

3.6.13.2.2. *Cumulative Effects*

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect fish species and their habitats. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM. Most of the fisheries habitats within the project area occur on National Forest System Lands. Stream flows generally go subsurface on the lower elevation alluvial fans due to the coarse soils present. Cumulative effects to fisheries and their habitats from livestock grazing and proposed treatments are expected. Livestock frequently concentrate within riparian habitats and can impact riparian vegetation and streambank stability. Under the proposed action prescribed fire treatment and seeded areas will be rested from livestock grazing for a minimum of two years to allow recovery of native vegetation. This will also result in improvement in riparian and fisheries habitats during this rest period. Vegetation treatments will also help to improve distribution of both livestock and big game use which will result in an improvement in the condition of fisheries habitats in the project area.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions will result in short term adverse impacts on fisheries habitats within the cumulative effects area. With the implementation of the proposed action it is expected that there will be long term beneficial effects on fisheries habitats compared to current conditions. Within treatment areas design criteria would allow the habitats to recover before grazing would resume. Livestock would still have the potential to displace deer and compete for available forage.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

Existing water diversions were established years ago within the cumulative effects area. Within fisheries habitats, diversions are known to occur within Currant Creek. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands

within the cumulative effects area. Water diversions have an adverse impact on fisheries and fisheries habitats. Diversions reduce the amount of available habitats for fish species. Diversions can also result in the death of individual fish when they are caught in the diversion or when changes in water flows dry up sections of the diversions stranding and killing fish. The proposed action will have short term adverse effects which will be cumulative to the effects from diversions. There will, however, be long term beneficial effects which will reduce the level of long term cumulative impacts associated with water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water or ditch easements). The cumulative effects of water diversions are discussed above. The potential impacts from these uses (not including water diversions) are minimal and will not affect any populations of fish within any drainage. The combination of these actions will result in minimal short term impacts on the quality and quantity of habitat for fish species.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal. Cumulative effects to fisheries species and their habitats from fuelwood gathering are expected to be minimal when combined with this project.

Wildfire

Wildfires and rehabilitation will continue within the project area. Wildland fires typically burn during the most intensive burning periods which can adversely impact riparian habitats and fisheries populations. Treatments proposed under this alternative will likely reduce the potential for catastrophic wildfire events and will reduce the intensity of any fires that occur. The cumulative impacts of implementation of the proposed action in combination with the reduced risk of wildfires will result in fewer long term impacts to fish populations and their habitats. The proposed action will result in long term beneficial cumulative impacts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date.

Over the long term, the cumulative effects of all proposed vegetation and fuels projects (FS and BLM) should result in an improvement to the quality of habitat for fish species. These treatments will result in short term adverse impacts primarily associated with soil erosion and sedimentation; however, these actions will reduce the potential for catastrophic wildfires and reduce the intensity of any wildfires that may occur. Over time treatment areas will be revegetated and ground cover will increase resulting in reduced erosion and sedimentation rates.

This will result in long term improvement in riparian habitats. These projects will also reduce pinyon-juniper densities which may also improve flows within springs and streams. Increased flows would result in improved habitats for fish species. The proposed action in combination with other vegetation treatments will result in long term beneficial effects on fish species and their habitats.

Noxious Weed Treatments

Noxious weed treatments will continue within the cumulative effects area. Treatment of noxious weeds will maintain and improve the condition of riparian habitats and in turn result in beneficial cumulative effects on fisheries species and their habitats.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns. There are no additional plans for the construction of any roads or motorized trails at this time.

Dispersed recreational activities may impact fish species at localized locations such as dispersed campsites and along designated roads and trails. Recreational activities can result in increased soil erosion and sedimentation which can adversely affect fish habitats. Implementation of the District Travel Management plan will result in long term beneficial effects on fisheries habitats and will offset the adverse impacts resulting from other recreational activities. The proposed action will result in a short term increase in adverse cumulative effects, but is expected to result in long term beneficial effects on fisheries habitats when combined with the benefits of implementation of the travel management plan.

Private Lands Management/Development

Existing developments on private lands are primarily located at lower elevations and below the primary fisheries habitats. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. Development and management of private lands will have minimal impacts on fish species and potential habitats due to the location of the developed private lands and the low rate of development.

3.6.13.3. Environmental Consequences Alternative 2—No Action

3.6.13.3.1. Direct and Indirect Effects

Under the No Action Alternative no habitat component important to fish populations would be adversely impacted. There will be no activities authorized which would alter or eliminate stream

or riparian habitats. This alternative would have no direct impact on fish species or their habitats. Under this alternative fish population trends are expected to remain static.

3.6.13.3.2. *Cumulative Effects*

Livestock Grazing and Livestock Developments

Under the no action alternative there would be no vegetation treatments implemented within the project area. Pinyon-juniper stands will continue to expand into sagebrush and shrublands as well as increasing in density. As these changes occur without active management, the cumulative effects of this alternative and livestock grazing impacts will result in an increase in adverse cumulative effects on fish species and their habitats. Livestock will continue to concentrate in riparian areas and available forage will continue to decline as pinyon-juniper densities increase.

Wildfire

Wildfires and rehabilitation will continue within the project area. Wildland fires typically burn during the most intensive burning periods which can adversely impact riparian habitats and fisheries populations. Under the no action alternative there will be no vegetation treatments within the project area. Pinyon-juniper stands will continue to expand and increase in density. The potential risk for catastrophic wildland fires will increase over time and those fires will likely become more destructive. Under this alternative riparian areas and fisheries habitats are at higher risk for significant adverse effects associated with large wildland fires.

Prescribed Fire, Fuels and Vegetation Treatments

Under the no action alternative no vegetation and/or fuels treatments would occur within the project area. Vegetation treatments would likely continue on adjacent BLM administered lands. The potential beneficial cumulative effects of treatments across administrative boundaries would be reduced under this alternative. Without vegetation treatments in the project area, pinyon-juniper stands will continue to expand and increase in densities. These changes will likely result in reduced flows within springs and streams which will have an adverse effect upon fisheries species and their habitats.

3.6.13.4. *Environmental Consequences Alternative 3 – No Treatments Within Wilderness*

3.6.13.4.1. *Direct and Indirect Effects*

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action. Fisheries populations are expected to remain static over the next several years with potential for a slight long-term upward trend.

3.6.13.4.2. *Cumulative Effects*

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that

fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all areas.

3.6.14. Rocky Mountain Elk

3.6.14.1. Species Information

Elk are very adaptive and are able to live in many habitats, including sagebrush/grass, grasslands, shrub, pinyon-juniper, and aspen vegetation communities. Elk have a broad dietary tolerance and will consume grasses, other herbaceous plants, and browse (NDOW Elk Species Management Plan 1997). Elk have made continual increases in numbers in east-central Nevada.

Rocky Mountain elk were released into the Schell Creek Range in 1932; the elk herd has reached the population objective of 1,200 animals (White Pine County Elk Plan, 2007). Although elk calving areas comprise a relatively small number of acres, they are a very important component of the elk range. The majority of the calving areas are within a half-mile of riparian areas, perennial streams, or water sources. Calf recruitment was fair in 2013 and resulted in slight population increases in most herds throughout the state (NDOW 2013-2014, pg SS-2).

The statewide adult elk population estimate increased from 16,600 in 2013 to 17,500 for 2014. Nevada's elk harvest management continues to be based on meeting population objectives within the guidelines of the state's Elk Species Management Plan (NDOW 2013-2014, pg SS-2)

The project area falls within the NDOW Management Area 13, Unit 131. There was a downward trend in the 2014 population estimate to 390 elk from 450 estimated in 2013. The reduction was by design to lower the population closer to the objective level identified in the White Pine County Elk Management Plan of 300 elk + or - 20%. Management will continue to focus on reducing elk numbers. (NDOW 2013-2014, pg 56)

3.6.14.2. Environmental Consequences Alternative 1 - Proposed Action

3.6.14.2.1. Direct and Indirect Effects

Under this alternative prescribed fire treatments would be used to reduce pinyon-juniper densities in Phase I and Phase II pinyon-juniper stands. Mechanical treatments in the pinyon-juniper communities will improve the health and diversity of the understory vegetation by removing the overstory of pinyon and juniper trees. Areas of hand cutting would maintain the existing brush communities that are in the early stages of invasion from pinyon and juniper trees. Road rehabilitation and closures would also provide beneficial effects to elk by providing fewer areas available for motor vehicle disturbance. Watershed and riparian restoration treatments will help maintain and improve water sources and calving areas for elk. All of these treatments will improve the health and diversity of the vegetation and restore and improve habitat for elk, particularly winter ranges and important shrub communities on summer range and riparian areas.

The proposed action will use mechanical treatment methods and prescribed fire to restore important vegetative communities, enhance the diversity of age classes and structure of vegetation communities, restore and improve wildlife habitats, and reduce the severity of wildfires on approximately 30,100 acres. A maximum of 13,500 acres will be treated using prescribed fire. Burned openings will occur in a mosaic pattern. Size of openings will vary widely depending upon the specific vegetation community and intensity of burn prescriptions.

Treatments will be scattered across the landscape. Larger openings may occur due to the somewhat unpredictable nature of fire and weather conditions. Up to 16,600 acres will be treated using primarily mechanical methods. Mechanical treatments will improve the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Prescribed fire treatments may be used in association with mechanical treatments to further reduce slash build-ups or to treat areas where road access prevents the efficient use of mechanical treatment methods.

The reduction of pinyon-juniper canopy will increase sunlight and moisture available to the understory and the understory shrubs, grasses and forbs will increase. Slash generated from the treatment will be left on the ground to provide a microclimate that will retain moisture and facilitate the establishment and growth of grasses and forbs. This treatment will retain the sagebrush-grass community type (emphasizing mountain brush and sagebrush habitats) and mountain mahogany by cutting young, encroaching pinyon and juniper trees.

Under this alternative mechanical treatments will improve the health and diversity of vegetation and restore and improve wildlife habitats, particularly winter ranges and important shrub communities. Areas of hand cutting would maintain the brush communities that are in the early stages of invasion from pinyon and juniper trees. These habitats would become more resilient to disturbances. These community types would be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire.

Minimal disturbance may occur on summer range, resulting in minor displacement of elk during the actual burning (usually less than one week), or during the mechanical treatments. This would be short in duration and disturbance to this species will be minimal as it is likely animals will avoid the areas during implementation, causing a temporary change in foraging behavior. This would occur on a small portion of the area at any one time and additional areas would be available. No habitat component important to elk will be adversely impacted by this project.

Elk population trends are expected to remain static or increase. The proposed action would have a beneficial effect by maintaining the mountain brush and sagebrush communities by increasing the age class diversity, restoring the natural condition, and improving the herbaceous vegetative component. This will be accomplished by removing the pinyon and juniper that are expanding into them by mechanical methods or hand cutting. The reduction of pinyon-juniper canopy will increase sunlight and moisture available to the understory allowing shrubs, grasses and forbs to increase. These habitats would become more resilient to disturbances such as wildland fire. These community types will be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire or other disturbance.

Disturbance from the treatments would be localized and short in duration at any one time, leaving other areas without disturbance. The disturbance to this species will be minimal and limited to individuals. Population trends for elk are expected to remain static or increase. Implementation of this alternative is not expected to affect the viability of elk. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.14.2.2. *Cumulative Effects*

Elk may be disturbed or their patterns disrupted by the various activities described below. Disturbance of elk by the various uses and activities are localized in nature and generally short term. Individual elk may be displaced to adjacent habitats; however, there is rarely a loss of habitat except in the case of wildfire.

Livestock Grazing and Livestock Developments

Livestock grazing has the potential to affect elk and their habitat. There are presently four cow/calf allotments within the project area. In addition there are portion of six grazing allotments on the adjacent BLM.

Cumulative effects to elk and their habitat from livestock grazing and proposed treatments are expected. Within the pinyon-juniper and mountain brush/sagebrush areas that are treated (mechanically or with by prescribed fire) grazing would not be permitted for a minimum of 2 years after treatment. This will allow the vegetation to recover. There is the potential for forage competition between livestock and elk for forage species, particularly during late summer when forage species became less available. Livestock have the potential to displace elk from preferred habitats, like riparian areas where elk often calf. Along with displacement to adjacent habitats there are the grazing impacts to meadows and springs. These are important to elk for both foraging and water sources, and as calving habitat.

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combination of these actions would impact the quality of habitat for elk. Within treatments areas design criteria would allow the habitats to recover before grazing would resume. Livestock would still have the potential to displace elk and compete for available forage.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to elk and their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area; therefore there would be no cumulative effects from the proposed projects and water diversions.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. All Forest Service lands, except wilderness areas, are open for green fuelwood harvesting. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use

and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease elk habitat in the short term, while benefits could occur in the long term by maintaining the brush habitat from the invasion of pinyon and juniper. Larger burns within the lower elevations (winter range) would have more adverse effects. Treatments will reduce the potential for adverse effects by making these areas more resilient to disturbances such as wildfire. In addition these communities will be better able to respond with desirable vegetation and would be more resistant to invasion by noxious and invasive weeds after a wildfire.

Rehabilitation actions would help minimize the infestations of noxious weeds. The cumulative impacts of this alternative and wildfires on habitat for elk could be considered moderate if in one season large acreage of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. These projects have a beneficial effect on maintaining elk habitat.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combination of these actions would result in beneficial effects on elk habitats.

Developed and Dispersed Recreation

Developed and dispersed recreational uses within the cumulative effects area are generally considered light to moderate, with a seasonal increase associated with the hunting season. The cumulative effects area contains no developed recreation fee sites. There is a concentrated use area in White River that includes some picnic tables and fire rings.

There are no plans for additional developed recreational sites within the cumulative effects area. In the future, dispersed recreational uses such as hiking, camping, horseback riding, ATV use, and other various minor uses are expected to remain stable or increase slightly over current levels. Hunting and fishing use is expected to remain at stable levels into the future with little changes in patterns.

There are no additional plans for the construction of any roads or motorized trails at this time. Recreational use (such as camping near riparian areas) may disturb elk and/or alter vegetative communities that provide calving and summer habitat for elk. Although some disturbance from recreational activities will occur it is generally short in duration. The combination of these actions would benefit the quality of the habitat for elk would be considered minor as only a small portion of the habitat would be affected.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to elk and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combination of these actions will result in minimal impacts on the quality and quantity of habitat for elk which utilize large ranges with an abundance of available habitats.

3.6.14.3. Environmental Consequences Alternative 2—No Action

3.6.14.3.1. Direct and Indirect Effects

Under the No Action alternative current management would continue to in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sagebrush and mountain brush cover types. These brush cover types identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush and mountain brush communities, the brush species would be lose vigor and eventually die as the expansion progresses into Phase III.

Under this alternative, elk population trends are expected to remain static. Because of the continued expansion of pinyon and juniper trees into the sagebrush habitat, habitat quality and quantity would be expected to decrease because of the loss of brush species, and grasses and forbs. This would continue to reduce the quality and quantity of elk habitat in the area.

3.6.14.3.2. Cumulative Effects

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the mountain brush and sagebrush cover type. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would be lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as pinyon-juniper densities increase the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of habitat for elk.

The potential cumulative effects related to impacts to vegetative communities used by elk would be increased as a result of no changes in current management. The communities with the most notable changes related to elk include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-

juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species.

3.6.14.4. Environmental Consequences Alternative 3—No Treatments Within Wilderness

3.6.14.4.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action

Under this alternative, elk population trends are expected to remain static or increase as treatments outside of wilderness are implemented. Implementation of this alternative is not expected to affect the viability of elk. This determination is based on the conclusion that the project does not remove or lessen the quality of any habitat component to the degree that survival or reproductive success for this species is negatively affected.

3.6.14.4.2. Cumulative Effects

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with the no wilderness alternative would be similar to those disclosed under the proposed action for all areas.

3.6.15. Golden Eagle

3.6.15.1.1. Species Information

Golden eagles are a Conservation Priority Species in the Nevada Comprehensive Bird Conservation Plan (GBBO 2010) and are protected under the Bald and Golden Eagle Protection Act. The golden eagle prefers intact shrublands near suitable nesting cliffs but also uses a variety of habitats for foraging such as sagebrush, salt desert scrub, Mojave scrub, Joshua tree, Mojave, lowland riparian, wet meadow, and pinyon juniper. They tend to avoid heavily forested areas and tend to occur in a variety of open/semi-open landscapes with a sufficient mammalian prey base (jackrabbits, cottontails, large rodents) (DeLong 2004, GBBO 2010).

Golden eagles are long-lived, slowly-reproducing Species that require high adult survival for population stability. During the breeding season, golden eagle home ranges in the western United States average 20-33 km². The breeding season begins in late January or February and lasts through August; pair bonds are permanent (GBBO 2010). Golden eagle nests are large, nests four to six feet in diameter and three feet high are typical, and breeding pairs often construct a number of alternate nests within their territory that they move between in different years. Golden eagles typically nest on cliffs within one mile of suitable hunting habitat, but have also been documented nesting on the ground, in trees, or on steep hillsides (DeLong 2004). Once a pair has established a breeding area they tend to remain faithful to the site, and remain in the territory throughout the year. The usual clutch of eggs is two, but occasionally one, three, or no eggs are

laid, particularly when habitat conditions are poor and prey availability is minimal. The female does most of the incubating and hatching occurs in 40 to 45 days. Golden eagles primarily forage on jack rabbits, cottontails, and larger rodents such as ground squirrels (GBBO 2010). However, sage-grouse, reptiles, pronghorn fawns, marmots, bovid calves, and carrion are also consumed by golden eagles. Major threats to golden eagles are reduction in prey populations due to degradation or loss of rangelands, localized nest disturbance/abandonment, collisions with structures/vehicles, and electrocution.

3.6.15.2. Affected Environment

Golden eagle nesting habitat could occur in the project area within suitable cliffs in the wilderness areas and along the borders with BLM, although none have been documented. The sagebrush communities within the project area offer suitable foraging habitats for golden eagles. Golden eagles are receiving stronger consideration because of the potential for direct killing and interference during migration and breeding from large-scale wind developments. The Currant-Ellison Restoration Project is a much different type of action. Unlike large-scale developments, restoration projects will not directly affect golden eagles during migration. Implementation of the project will not affect breeding, because it does not occur on rock ledges or cliff faces where golden eagles breed.

3.6.15.3. Environmental Consequences Alternative 1—Proposed Action

3.6.15.3.1. Direct and Indirect Effects

Project activities will have no effect on golden eagle nesting habitat since none of the implementation units occur on or near any of the suitable cliff areas. The removal of pinyon-juniper trees encroaching into sagebrush habitat will have negligible effects on foraging golden eagles or their foraging habitat.

3.6.15.3.2. Cumulative Effects

Because there are few to no potential direct or indirect effects, there will be no cumulative effects to the golden eagle.

3.6.15.4. Environmental Consequences Alternative 2—No Action

3.6.15.4.1. Direct and Indirect Effects

Under the No Action alternative current management would continue in the project area. No treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the sagebrush and mountain brush cover types. These brush cover types identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush and mountain brush communities, the brush species would lose vigor and eventually die as the expansion progresses into Phase III.

Under this alternative, golden eagle population trends are expected to remain static, or decrease because of the continued expansion of pinyon and juniper trees into the sagebrush and mountain

brush habitats and the decrease in understory vegetation and age class diversity in the higher elevation sagebrush areas. The decrease in brush habitat would reduce the quality of foraging habitat for golden eagles.

3.6.15.4.2. *Cumulative Effects*

Prescribed Fire, Fuels and Vegetation Treatments

No fuels treatments would be implemented to accomplish project goals. Over time woodland expansion within the project area would continue to diminish and fragment the mountain brush and sagebrush cover type. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species. As pinyon-juniper continues to expand into the sagebrush type, the sage would lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as pinyon-juniper densities increase the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of habitat for golden eagles.

The potential cumulative effects related to impacts to vegetative communities used by golden eagles would increase as a result of no changes in current management. The communities with the most notable changes related to golden eagles include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-juniper will continue to reduce the foraging habitat for golden eagles.

3.6.15.5. *Environmental Consequences Alternative 3—No Treatments Within Wilderness*

3.6.15.5.1. *Direct and Indirect Effects*

Project activities will have no effect on golden eagle nesting habitat since none of the implementation units occur on or near any of the suitable cliff areas. The removal of pinyon-juniper trees encroaching into sagebrush habitat will have negligible effects on foraging golden eagles or their foraging habitat.

3.6.15.5.2. *Cumulative Effects*

Because there are few to no potential direct or indirect effects, there will be no cumulative effects to the golden eagle.

3.6.16. Migratory Birds

3.6.16.1. *Species Information*

Migratory birds are those listed in 50 CFR 10.13 and include many native species commonly found in the U.S. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it unlawful to take, kill, or possess migratory birds as defined by

16 USC 703–711. The proposed management for this Project is intended to implement direction contained within the Humboldt National Forest Land and Resource Management Plan (LRMP, USFS 1986). Opportunities to promote conservation of migratory birds and their habitats in the project area were considered during development and design.

Migratory bird nesting and foraging habitats are located throughout the Currant-Ellison area, with certain species adapted to specific habitat types. All native bird species are integral to properly functioning natural communities and commonly are viewed as indicators of environmental quality based on their sensitivity to environmental changes caused by human activities. Based on known habitat associations, migratory bird species composition may be somewhat anticipated.

The migratory birds selected for this analysis were derived from a priority species list for pinyon-juniper woodlands and sagebrush included in the Nevada Partners in Flight Bird Conservation Plan (Neel 1999) and the Nevada Comprehensive Bird Conservation Plan (GBBO 2010).

- Pinyon/Juniper—Pinyon jay, gray vireo, black-throated gray warbler, and gray flycatcher
- Sagebrush—Sage grouse, Brewer’s sparrow, sage sparrow, and sage thrasher

In the past, the Forest has relied upon Breeding Bird Survey routes in Nevada to track population changes in birds. Breeding Bird Survey data for Nevada presently show a downward trend for many migratory birds (Sauer et al, 2011). However, it has been recognized that the Forest needed a larger sample size and more intensive monitoring to determine population trends throughout the Forest. In 2002, the HTNF, in partnership with Great Basin Bird Observatory (GBBO) and NDOW, began to implement an All Bird Monitoring plan to conduct repeatable bird surveys based on a stratified sample of habitats (Ammon 2004). This information is intended to develop bird population trend data through a long-term monitoring program. Breeding bird surveys have been done by Great Basin Bird Observatory within the Ely Ranger District. Because transects for long-term monitoring are on-going, building up the database, local population trends are still unknown.

Pinyon Jay

In Nevada, pinyon jays are sporadically distributed through the pinyon-juniper belt extending from the Humboldt River south into the mountain ranges of the Mohave Desert, and ranging from the Sierra Nevada to the Utah border. Pinyon pine nuts are the pinyon jay’s primary food source with abundant crops thought to stimulate pinyon jay breeding, which is semi-colonial. Since pinyon cone production is highly variable with spotty distribution from year to year, flocks are nomadic, wandering widely in search of abundant pinyon nut crops. Limited breeding bird survey data indicate that the pinyon jay has experienced a population trend decline in the Basin and Range province since 1966 of -7.52% (Sauer, 2008).

Black-throated Gray Warbler

In Nevada, the black-throated gray warbler breeds throughout the state from the Spring Mountains in southern Nevada to the Carson Range in Washoe County, east to Great Basin National Park in White Pine County and north again to the Idaho border in Elko County. In most of Nevada, the species appears closely tied to the more arid pinyon-juniper habitats. Black-throated gray warbler breeds in the pinyon-juniper belt across the state with no apparent

preference for slope or aspect but prefer fairly dense mature stands of pinyon-juniper. This species is an insectivore, gleaning directly from the dense foliage of pinyon-juniper. Wildfires that consume tree canopies may be detrimental to the species, but controlled burning may not bear a significant negative impact (Neel 1999, pg 234).

Limited breeding bird survey data indicate that the black-throated gray warbler has experienced a population trend increase in the Basin and Range province since 1966 of 20.41% (Sauer, 2008). The preferred habitat of dense mature stands of pinyon-juniper exists within pockets throughout the project area.

Gray Vireo

This insectivorous bird preferred habitat in Nevada is open pinyon-juniper forest, particularly occurring along desert washes with an understory of shrubs such as bitterbrush and cliffrose. Preferred vegetative structure is sparse to open canopy of mature pinyon-juniper woodland. Preferred topography includes rocky canyon slopes and bottoms with moderate to steep slopes. In Nevada, the gray vireo is typically a limited range, low-density species. No breeding bird survey data exist for this species to determine population trends. The portions of the project area with the open pinyon-juniper stands have an understory of sagebrush preferred by gray vireos. The project area is along the northern range for the gray vireo.

Juniper Titmouse

The preferred habitat of dense pinyon foliage with closed canopies, thin understory and ground cover are located in patches within the project area. This bird often nests in cavities in riparian vegetation, so pinyon-juniper habitat near riparian areas is assumed beneficial. Limited breeding bird survey data indicate a slight, non-significant downward trend for this species in the Basin and Range province.

Sage Sparrow and Sage Thrasher

These species nest usually in big sagebrush habitat, often in open valleys and foothills. The sage sparrow ranges in elevation from 4,500 to 7,500 feet and nests are usually placed on or near the ground inside or next to a dense shrub. Limited BBS survey data indicate a decline between 1966 and 1979, but rebounded between 1980 and 1986 in the Basin and Range province. The sage thrasher is found between from 4,900 to 8,200 feet in elevation, probably lower, and builds its nest either in the branches of a shrub, or on the ground under a shrub, usually sagebrush.

Gray Flycatcher

The gray flycatcher spends some of their time in pinyon-juniper woodland habitats, although they are found more frequently in sagebrush near riparian areas. The Nevada Partners In Flight Conservation Plan states that if other management objectives for the priority bird species already discussed are met, then the habitat needs of the gray flycatcher will be met. Additional breeding bird survey data needs to be collected for this species in pinyon-juniper habitats.

3.6.16.2. Environmental Consequences Alternative 1 - Proposed Action

3.6.16.2.1. Direct and Indirect Effects

The proposed project has a goal of maintenance of the pinyon-juniper woodland habitat within the project area. Reducing fuel loads and treating the pinyon-juniper woodland in a mosaic pattern will provide opportunities for understory vegetation to increase or become established where it is currently out competed. Pinyon-juniper stands will be retained within the project area to compliment all habitat needs for the priority migratory birds analyzed.

Not all species will be equally affected by the proposed project. Some species would be able to respond to increased foraging habitat by opening the canopy or increase in understory vegetative composition and cover. For example, by creating openings in the pinyon-juniper woodland stands, opportunities to promote an increase in understory diversity and habitat for insect prey species would increase foraging opportunities for the gray vireo while maintaining adjacent nesting habitat. The loss of nesting habitat for one species may increase foraging or nesting opportunities for another species. Birds such as the sage sparrow, sage thrasher, gray flycatcher, and Brewer's sparrow would benefit from the removal of the pinyon and juniper trees invaded into the mountain brush and sagebrush habitat. These birds nest and forage in the sagebrush habitat types. Long-term management objectives for pinyon-juniper woodland health have been measured against short-term loss and/or impacts to priority migratory birds and their habitats.

Under this alternative mechanical treatments will improve the health and diversity of vegetation, restore, and improve wildlife habitats, particularly important shrub communities. The reduction in densities of pinyon and juniper trees will maintain the sagebrush and mountain brush communities. The reduction of pinyon-juniper canopy within the mechanical treatment areas will increase sunlight and moisture available to the understory and the shrubs, grasses and forbs will increase. This will increase the quality and quantity of nesting and foraging habitat for many birds and the residue trees will provide nesting habitat. Areas of hand cutting would maintain the brush communities that are in the early stages of invasion from pinyon and juniper trees. These habitats would become more resilient to disturbances such as wildland fire.

Pinyon Jay

Some loss of nesting habitat for pinyon jays will occur. Active burning may occur during the breeding bird season to obtain desired environmental conditions needed for a canopy carried fire and reduce the potential for fire at the ground level. An objective to conduct a spring prescribed burn in a timely manner (i.e. less than two weeks) would provide an opportunity for pinyon jays to re-nest in the event a nest is lost. Stands of mature pinyon pine would be left for the pinyon jay for nesting and foraging. Mechanical treatments may occur in larger and/or mature stands, although the true pinyon-juniper woodlands stands are not targeted for treatment. Mechanical treatments would have minimal impacts on nesting and foraging habitat, as the target areas are the Phase I and II pinyon-juniper stands. These stands tend to be smaller and younger trees that are not major cone producers, nor large enough for nesting habitat. Treatments will affect nesting and foraging habitat for the pinyon jays

Black-throated Gray Warbler

This species breeds with no apparent preference for slope or aspect but does prefer dense mature stands of pinyon-juniper. The mosaic pattern of burning and mechanical treatments will allow for

the persistence of mature dense stands of pinyon-juniper habitat within the project area. Some loss of nesting habitat for black-throated gray warbler will occur. Active burning may occur during the breeding bird season to obtain desired environmental conditions needed for a canopy carried fire and reduce the potential for fire at the ground level. An objective to conduct a spring prescribed burn in a timely manner (i.e. less than two weeks) would provide an opportunity for black-throated gray warblers to re-nest in the event a nest is lost. Stands of mature pinyon pine would be left for the black-throated gray warbler for nesting and foraging.

Gray Vireo

Potential vegetative recovery within the project area should favor the re-establishment of the shrub and herbaceous component in a sparse to open woodland canopy and would likely benefit gray vireo which depend upon these vegetative communities.

Juniper Titmouse

Foraging habitat for juniper titmouse would be treated by prescribed fire and mechanical treatments. Snags and heart rot are important for cavity nest creation. The mosaic pattern of burning and mechanical treatments will allow for the persistence of mature dense stands of pinyon-juniper habitat within the project area. Snags created by the burn will provide potential nesting habitat in the future.

Sage Sparrow and Sage Thrasher

The sage sparrow and sage thrasher would benefit from the removal of the pinyon and juniper trees invaded into the mountain brush and sagebrush habitat. These birds nest and forage in the sagebrush habitat types. The treatments within sagebrush communities would have the positive long-term effect of maintain the sagebrush habitats.

3.6.16.2.2. *Determination*

Potential impacts from the Currant-Ellison Project to these species would be minimized through the adherence to the design features listed at the beginning of this report. The project is designed to improve habitat conditions by targeting the expansion of the pinyon-juniper woodlands into the sagebrush habitat, with the goal of reducing pinyon-juniper canopy and re-establishing a shrub and herbaceous understory. The mosaic pattern of burning will allow for the persistence of mature dense stands of pinyon-juniper habitat within the project area and will increase edge effect. The reduction of pinyon-juniper canopy within the mechanical treatment areas will increase sunlight and moisture available to the understory and the shrubs, grasses and forbs will increase. This will increase foraging habitat for many birds and the residue trees will provide nesting habitat. A mix of treatments will occur across the landscape providing for the different habitat needs of a variety of bird species (areas without trees favor sage thrasher and sage sparrow; larger trees are used by pinyon jays for foraging and nesting).

Migratory bird population trends are expected to remain static or increase as a result of this action. During implementation of the Currant-Ellison Project some nests could be lost if the prescribed burning occurs in the spring. This is a short-term loss with long-term gains because of maintaining the sagebrush habitat from further expansion of the pinyon-juniper trees. Treatments done after July 15 will not adversely affect nesting migratory birds or their associated habitats.

All of the treatments will have a beneficial long-term effect by maintaining the sagebrush/mountain brush communities.

3.6.16.2.3. *Cumulative Effects*

Livestock Grazing and Livestock Developments

Maintenance of existing livestock developments will likely occur into the foreseeable future. There are currently no plans for additional new fences or water developments on Forest Service lands within the cumulative effects area. There are also no known plans for new developments on BLM administered lands.

The combinations of these actions to the quality of habitat for migratory birds would be minimal, as the mitigation measures would allow the habitats to recover before grazing would resume.

Mining and Mineral Exploration

There are no indications that there will be any proposals for exploration or to develop active mine operations within the cumulative effects area in the foreseeable future, therefore there would be no cumulative effects.

Water Diversions

The existing water diversions were established years ago and any impacts to migratory birds and their habitat would have occurred then. There are no plans or proposals for future water diversions on National Forest System Lands, BLM, or private lands within the cumulative effects area. Therefore, there would be no cumulative effects from the proposed projects and water diversions.

Special Uses

There are minimal Special Use activities within the project area and adjoining BLM (Outfitter Guide permits' and water or ditch easements). These activities could cause minimal disturbance to migratory birds. The combinations of these actions to the quality of habitat for migratory bird habitats would be considered minimal as only a small portion of the habitat would be affected.

Fuelwood Harvest

Personal use fuelwood harvest occurs on Forest Service and BLM administered lands throughout the cumulative effects area. Harvest activities have generally been limited in nature and scope and occur where insects and diseases have killed trees in close proximity to roadways. Areas where most fuelwood harvest occurs are within the pinyon-juniper vegetation community. Personal use and commercial fuelwood harvest will increase within the cumulative effects area as treatments are implemented under this proposal, but would have a minimal impact on migratory birds.

Wildfire

Wildfire and rehabilitation will continue within the project area. Wildland fires could decrease habitat for migratory birds in the short term, while some benefits could occur in the long term by maintaining the sagebrush and mountain brush habitat from the invasion of pinyon and juniper. Rehabilitation actions would help minimize the infestations of noxious weeds. The combinations

of these actions to the quality of habitat for migratory birds habitats could be considered moderate if in one season large acreage of habitat were to burn, to minimal if few acres burn. There would be beneficial impacts from rehabilitation efforts.

Prescribed Fire, Fuels and Vegetation Treatments

Prescribed fire, fuels and vegetation treatments have occurred throughout the cumulative effects area. Over the past 8 years multiple mechanical and prescribed fire treatments were completed within the project area. Over 10,000 acres have been treated to date. The combinations of these actions to the quality of habitat for migratory birds would be considered minimal to beneficial.

Noxious Weed Treatments

Noxious weed treatment will continue within the cumulative effects area. The combinations of these actions to the quality of habitat for migratory birds would be considered beneficial.

Developed and Dispersed Recreation

Recreational use (such as camping near cottonwood/aspen areas) may disturb some migratory birds and/or alter vegetative communities that provide habitat for migratory birds. Although disturbance to migratory birds will still occur from recreation activities the combination of these actions would be minimal. There would be a benefit the quality of the habitat for migratory birds by maintaining foraging habitat for prey species and improve and maintain nesting and foraging habitat from the vegetation treatments.

Private Lands Management/Development

The existing developments on private lands were established years ago and any impacts to migratory birds and their habitat would have occurred then. The risk of development on private lands within the cumulative effects area is currently low. There are no known plans to develop or change management on any of these lands, however, future development of some of these private parcels for recreational home sites could occur in the future. The combinations of these actions to the quality of habitat for migratory birds would be considered minimal, unless plans or management changes occur.

3.6.16.3. Environmental Consequences Alternative 2 – No Action

3.6.16.3.1. Direct and Indirect Effects

Under this alternative, migratory bird population trends are expected to remain static, and some may decrease. The resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the projection, vigor, and diversity of grass, forb and shrub species. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for migratory birds. With the continued expansion of pinyon and juniper trees into the mountain brush and sagebrush habitat, habitat for the sage sparrow and sage thrasher would decrease over time. This would reduce the quality and quantity of migratory bird habitats. Habitat for species that depend on dense pinyon-juniper habitats, such as the Black-throated Gray warbler and juniper titmouse, would increase. The pinyon jay and gray vireo, which prefers open pinyon-juniper forest, would remain stable.

3.6.16.3.2. *Cumulative Effects*

Livestock grazing and Livestock Developments

Woodland expansion within the project area would continue to diminish and fragment the brush cover types, reducing the productivity, abundance, and diversity of understory shrub and herbaceous species. As the densities of pinyon and juniper increases, range conditions would deteriorate and the availability of healthy sagebrush/mountain brush habitats would decrease. The sagebrush and mountain brush habitats would be lose vigor and eventually die as the expansion progresses into Phase III. This would increase the cumulative effects from grazing on migratory birds.

Prescribed Fire, Fuels and Vegetation Treatments

Woodland expansion within the project area would continue to diminish and fragment the brush cover types, reducing the productivity, abundance, and diversity of understory shrub and herbaceous species. In addition, as the expansion of the pinyon-juniper continues into the brush habitats the potential for large-scale intensive wildfires increases.

The potential cumulative effects related to impacts to vegetative communities used by migratory birds would increase as a result of no changes in current management, decreasing the quality and quantity of habitat for migratory birds. The communities with the most notable changes related to migratory birds include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees.

Wildfire

With the continued expansion of the pinyon-juniper into the brush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community, decreasing the quality and quantity of habitat for those migratory birds that depend on the shrub communities, such as the sage sparrow and sage thrasher.

3.6.16.4. *Environmental Consequences Alternative 3—No Treatments Within Wilderness*

3.6.16.4.1. Direct and Indirect Effects

Alternative 3 includes the same components as the proposed alternative 1, but does not include any treatments within wilderness areas. Under this alternative all proposed treatments would occur only in areas that fall outside of the wilderness areas located within the project area. The direct and indirect effects of this alternative are expected to be similar to the effects of Alternative 1 the Proposed Action.

Migratory bird population trends are expected to remain static or increase as a result of this action. During implementation of the Currant-Ellison Project some nests could be lost if the prescribed burning outside wilderness occurs in the spring. This is a short-term loss with long-term gains because of maintaining the sagebrush habitat from further expansion of the pinyon-juniper trees. Treatments done after July 15 will not adversely affect nesting migratory birds or

their associated habitats. All of the treatments will have a beneficial long-term effect by maintaining the sagebrush/ mountain brush communities.

3.6.16.4.2. *Cumulative Effects*

Under alternative 3, the proposed actions associated with alternative 1 would occur, except for within any wilderness areas. All proposed actions would occur only on Forest Service lands that fall outside currently designated wilderness areas. Cumulative effects associated with alternative 3 would be similar to those disclosed under the proposed action for all areas.

3.6.17. Sensitive Plants

3.6.17.1. *Species Information*

There are 26 Region 4 Forest Service Sensitive Plant Species with potential and/or occupied habitats on the Ely Ranger District. A review of previous surveys was reviewed during this analysis. The following databases were also used during this analysis:

- Nevada Natural Heritage Program Occurrence database (NNHP, 2011).
- Natural Resource Information System (NRIS).
- Threatened, Endangered, and Sensitive Plants (TESP 2007) database.
- Humboldt-Toiyabe Rare Plant database through 2007.
- Plant Surveys done on Ely Ranger District through 2013.

The ecological characteristics for the project area were completed to determine the extent of potential habitat and distribution of sensitive plant species in the project area. Of the 26 sensitive plant species for the Ely ranger District, there are eighteen species that are known, or have potential habitat, within the Currant-Ellison Project Area.

Of these eighteen species nine occur in habitats that would not be affected by the mechanical, hand cutting, or prescribe fire treatments because they occur on talus cliffs, rocky slopes, crevices and bases of limestone cliffs, high-elevation avalanche chutes, high elevation forest on thin, rocky, cold soils, or high elevation alpine scree and talus slopes: Snake Range Whitlowgrass, Pennell draba, Cave Mountain fleabane, Basin jamesia, Rhizome beardtongue, whitebark pine, Marsh's bluegrass, Nevada primrose, and Rock violet.

Three species occur in meadow habitats and could occur within the watershed treatments: Upswept moonwort, Dainty moonwort, slender moonwort. These areas have been surveyed and no plants were found.

The remaining six species have potential and/or occupied habitats within the project area that are likely to be impacted by the project with mechanical or prescribed fire treatments. The habitat requirements are summarized for Eastwood milkweed, Broad-pod freckled milkvetch, Mount Moriah beardtongue, Sagebrush cinquefoil, Nachlinger catchfly, and Currant Summit clover in Table .

Table 44. Sensitive plant species with potential and occupied habitat within the project area

Scientific Name	Common Name	Habitat Description
<i>Asclepias eastwoodiana</i>	Eastwood milkweed	Shadescale, mixed shrub and lower PJ zones on low alkaline clay hills. Open areas on wide variety of basic soils; 4,680 to 7,200 ft.
<i>Astragalus lentiginosus var. latus</i>	Broad-pod freckled milkvetch	Open gravelly slopes in PJ habitat on calcareous soils; moderate to steep slopes; 5,700 to 9,900 ft.
<i>Penstemon moriahsensis</i>	Mount Moriah beardtongue	Sagebrush in upper PJ, mountain mahogany woodlands on open, gravelly and/or silty carbonate soils; 8,200 to 9,200 ft.
<i>Potential johnstonii</i>	Sagebrush cinquefoil	Found on rocky calcareous soils in pinyon-juniper and sagebrush communities near 7,500 feet.
<i>Silene nachlingerea</i>	Nachlinger catchfly	Found in open barren areas between clumps of subalpine conifer on ridgeline outcrops, talus, or very rocky limestone derived soils in dry crevices, cracks in bedrock, or scattered in cobble.
<i>Trifolium andinum var. podocephalum</i>	Currant Summit clover	Crevices or rocky soils of volcanic or limestone rock in PJ belt; 6,900 to 7,000 ft.

Over the past ten years plant surveys have been done for projects occurring with the Currant-Ellison Project area. Most were small projects and no plants were found during the surveys: Currant Triangle PJ Project (2004), Ellison Creek Spring Enhancement Project (2006), White River-Ellison Creek Sagebrush Project (2007), and three big game guzzler sites (2008 and 2010). Eastwood milkweed has been found in two project areas, the Currant Fuels Project in 2005 and in the White Pine Project in 2009. None of these areas where the plants were found will be entered with the Currant-Ellison Project.

The District Biologist made field trips to the area during 2013 to access potential habitat for sensitive plant species. Plant surveys were done within potential mechanical treatment areas for pinyon-juniper removal, but not in all areas. No sensitive plants were found. Additional surveys will occur in Pinyon-Juniper treatment units as there are delineated. If plants are found those areas would not be treated.

3.6.17.2. Environmental Consequences Alternative 1—Proposed Action

3.6.17.2.1. Direct and Indirect Effects

Rare plant species may be adversely impacted by mechanical treatment methods by reducing the quality or extent of their habitats. Potential direct effects to plant species would include the crushing and killing of individual plants if they occur within the path of heavy machinery.

Heavy machinery can alter the physical and chemical environment in the same ways as other overland travel by increasing dust deposition, increasing soil compaction, increasing light exposure (by decreasing vegetation cover), changing the pattern of run-off and sedimentation, and altering soil nutrient levels (Trombulak and Frissell 2000). With the same respects, the path of heavy machinery may lead to the loss and fragmentation of occupied habitat (Wilcove et al. 1998; Kwak et al. 1998), alteration of vegetation communities, loss of pollinators, changes in seed set, disruption of the seed bank (Kwak et al. 1998), decreased plant vigor, loss of the individual plants, increased weed density and distribution through the spread of weed propagules, and the spread of disease (Wilcovbe et al. 1998).

Non-native plants can spread quickly and affect the amount and distribution of native plant species. Overland travel with any machinery can often function as vectors for the spread of

noxious weeds and other invasive species (Trombulak and Frissell 2000; Forman and Alexander 1998). This can be particularly damaging to populations of sensitive plants as invasive species tend to outcompete natives. Infestation of certain weed species often shorten the fire disturbance interval to a frequency for which sensitive species populations have not evolved and cannot adapt quickly enough to survive. Even if the machinery is completely cleaned prior to use, disturbance of soil surfaces and vegetation can set the stage for weed establishment by other vectors at later dates.

Although the proposed action may impact individual plants and could impact potential habitat for Broad-pod freckled milkvetch, Nachlinger catchfly, Eastwood milkweed, Mount Moriah beardtongue, sagebrush cinquefoil, and Currant Summit clover, it is not expected to affect the viability of these species and their populations would remain stable across their ranges. Complete analysis for all 26 species can be found in the Biological Evaluation located in the project file.

3.6.17.2.2. *Cumulative Effects*

Along with the direct and indirect effects identified above there are other human related activities and some naturally occurring events that *have affected, are presently affecting, and will continue to affect* into the foreseeable future the populations and habitats of R4 sensitive plant species.

The cumulative effects analysis area for this report encompasses the entire Central Zone of the Humboldt-Toiyabe National Forest, including private and other public lands that lie within Forest Service boundaries within that zone. Past activities are considered part of the existing condition and are reflected in the following species accounts. In order to understand the contribution of past actions to the cumulative effects of the proposed action, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

Activities that may contribute to cumulative effects to sensitive plant species addressed in this document include dispersed camping, livestock grazing, the installation and operation of water diversions and impoundments, mineral extraction, and climate change.

Developed and Dispersed Recreation

Dispersed camping can affect R4 sensitive plants directly and indirectly (Holland 1999). Individual plants can be crushed by foot traffic and the placement of campers and other equipment, killed during the removal of vegetation when clearing the site, and smothered by the placement of tents. This activity can create indirect effects by compacting soil, which damages the root zone of plants, inhibits water infiltration, changes the pattern of run-off and sedimentation, and alters soil nutrient levels (Trombulak and Frissell 2000). Additional indirect effects of dispersed camping on sensitive plant species can include the following: increased dust deposition on leaves, which can disrupt proper physiological function; increased light exposure beyond the tolerance levels of some species; and disruption of pollinators, which in turn can interfere with seed set, diminish seed banks (Kwak et al. 1998, Morefield 2001), and decrease the recruitment of successive generations. Dispersed camping also can introduce and spread invasive weeds that can out-compete individuals and even displace whole populations of sensitive plant species (Taylor et al., Wilcove et al. 1998).

Livestock grazing and Livestock Developments

There are many effects on R4 sensitive plant species associated with livestock activity. Individuals can be grazed upon or killed by crushing hooves (Atwood 1997, Morefield 2001). The placement of salt blocks can increase the salinity of soils to the point of being inhospitable for plants. Salt block locations and water features can increase soil compaction, which can damage the root zone of plants, inhibit water infiltration, change the pattern of run-off and sedimentation, and alter soil nutrient levels (Trombulak and Frissell 2000). Additional indirect effects of grazing and movement of livestock can include the following: increased dust deposition on leaves, which can disrupt proper physiological function; increased light exposure beyond the tolerance levels of some species; and disruption of pollinators, which can interfere with seed set, diminish seed banks (CPC 2004, Kwak et al. 1998, and Morefield 2001), and decrease recruitment of successive generations. Livestock can also introduce and spread invasive weeds that can out-compete individuals and even displace whole populations of R4 sensitive plant species (Morefield 2001, Taylor et al., Wilcove et al. 1998).

Water Diversions

The installation of water diversions and impoundments within R4 sensitive species habitats can kill individual plants or whole populations through the removal and/or piling of soil. The operation of such features can divert water from areas where it is essential for some sensitive plant species and relocate it to other areas where increased water can destroy other sensitive plant species that are intolerant of higher soil moisture levels. (Morefield 2001)

Mining and Mineral Exploration

Mineral extraction and associated activities can affect R4 sensitive plants directly and indirectly (Morefield 2001, Smith and Curto 1995). Individual plants can be crushed by foot traffic and the placement of equipment or killed during the removal of vegetation when clearing sites. In some situations, wholesale filling of entire drainages with mine tailings can kill individual plants or destroy whole populations by burying them under tons of rock. Additional indirect effects of mining on sensitive plants can include the following: increased dust deposition on leaves, which can interfere with proper physiological function; increased light exposure beyond the tolerance levels of some species; and disruption of pollinators, which in turn can interfere with seed set, diminish seed banks (Kwak et al. 1998, Morefield 2001), and decrease the recruitment of successive generations. Mining also can introduce and spread invasive weeds, which can out-compete individuals and even displace entire populations of sensitive plant species (Morefield 2001, Taylor et al., Wilcove et al. 1998).

Climate Change

There is growing evidence that climate change is affecting the distribution of many plant species and their habitats in many ways (Abbott and Le Maitre 2010, Anderson and Ferree 2010, Yates et al. 2010). For R4 sensitive plant species that cannot effectively disperse to other areas or adapt quickly enough, climate change could result in loss of habitat and cause populations to become more vulnerable to stochastic events and local extirpation than they already are.

3.6.17.3. Environmental Consequences Alternative 2—No Action

3.6.17.3.1. Direct and Indirect Effects

Under the No Action alternative current management would continue in the project area. No treatments would be implemented to accomplish project goals. Therefore no direct or indirect impacts would occur to Eastwood milkweed, Broad-pod freckled milkvetch, Mount Moriah beardtongue, sagebrush cinquefoil, or Currant Summit clover.

3.6.17.3.2. Cumulative Effects

Over time woodland expansion within the project area would continue to diminish and fragment the Wyoming and mountain big sage cover type. The sage cover type identified in the current vegetation map currently has pinyon and juniper scattered throughout the area. The expansion of pinyon-juniper will continue to reduce the productivity, abundance, and diversity of understory shrub and herbaceous species, including Eastwood milkweed, Broad-pod freckled milkvetch, Mount Moriah beardtongue, sagebrush cinquefoil, or Currant Summit clover. As pinyon-juniper continues to expand into the sagebrush type, the sage would continue to lose vigor and eventually die as the expansion progresses into Phase III.

In addition, as the expansion of the pinyon-juniper continues into the sagebrush habitats the potential for large-scale intensive wildfires increases. With the closing of the canopy of the pinyon-juniper woodland, the herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances, and the areas are more likely to be invaded by noxious and invasive weeds. This expansion could result in a significant reduction in the shrub and herbaceous vegetative community.

There presently is a lack of age class diversity within the sagebrush and mountain brush communities. Under this alternative the majority of these communities would remain in an older age class. No increase in vegetative diversity nor structure and composition would occur. These habitats would continue to become less resilient to disturbances such as wildland fire.

The potential cumulative effects related to impacts to vegetative communities would be increased as a result of no changes in current management. The communities with the most notable changes include the sagebrush and mountain brush communities, particularly those being encroached by pinyon and juniper trees. The expansion of pinyon-juniper will continue to reduce the productivity of potential habitat for Eastwood milkweed, Broad-pod freckled milkvetch, Mount Moriah beardtongue, sagebrush cinquefoil, or Currant Summit clover.

3.6.17.4. Environmental Consequences Alternative 3 – No Treatments Within Wilderness

3.6.17.4.1. Direct and Indirect Effects

Rare plant species may be adversely impacted by mechanical treatment methods by reducing the quality or extent of their habitats. Potential direct effects to plant species would include the crushing and killing of individual plants if they occur within the path of heavy machinery.

The potential indirect effects mechanical treatment methods are numerous. Heavy machinery can alter the physical and chemical environment in the same ways as other overland travel by

increasing dust deposition, increasing soil compaction, increasing light exposure (by decreasing vegetation cover), changing the pattern of run-off and sedimentation, and altering soil nutrient levels (Trombulak and Frissell 2000). With the same respects, the path of heavy machinery may lead to the loss and fragmentation of occupied habitat (Wilcove et al. 1998; Kwak et al. 1998), alteration of vegetation communities, loss of pollinators, changes in seed set, disruption of the seed bank (Kwak et al. 1998), decreased plant vigor, loss of the individual plants, increased weed density and distribution through the spread of weed propagules, and the spread of disease (Wilcovbe et al. 1998).

Non-native plants can spread quickly and affect the amount and distribution of native plant species. Overland travel with any machinery can often function as vectors for the spread of noxious weeds and other invasive species (Trombulak and Frissell 2000; Forman and Alexander 1998). This can be particularly damaging to populations of sensitive plants as invasive species tend to outcompete natives. Infestation of certain weed species often shorten the fire disturbance interval to a frequency for which sensitive species populations have not evolved and cannot adapt quickly enough to survive. Even if the machinery is completely cleaned prior to use, disturbance of soil surfaces and vegetation can set the stage for weed establishment by other vectors at later dates.

3.6.17.4.2. *Cumulative Effects*

The cumulative effects of Alternative 3 are similar to those disclosed for the Proposed Action above.

3.7. Wilderness Areas and Roadless Areas

The Ely Ranger District Currant-Ellison Watershed Restoration project proposes to implement a variety of restoration treatments on a landscape scale within the White Pine Division of the Ely Ranger District. The Currant Mtn., Red Mtn., Bald Mtn., and White Pine Range wilderness areas are located entirely or partially within the project area. Of these four, three were designated in 2006 as part of the White Pine County Conservation, Recreation and Development Act (referred to as the WPC Lands Bill from here on) which was passed in the 2006 Tax Relief Act signed by President Bush in late December 2006. The Currant Mountain Wilderness was designated in 1989 as part of the Nevada Wilderness Bill, and subsequently expanded in size through the 2006 WPC Lands Bill. In total, these four wilderness areas make up 87,486 acres (47%) of the project area.

There are a total of 18 Inventoried Roadless Areas (IRA's) in the project area totaling 66,342 acres (36% of the project area). Inventoried roadless areas comprise 58.51 million acres, or 31%, of National Forest System (NFS) lands. These areas possess social and ecological values and characteristics that are becoming scarce in an increasingly developed landscape. While NFS inventoried roadless areas represent about 2% of the total land base of the United States, they provide unique opportunities for dispersed recreation, sources of clean drinking water, and large undisturbed landscapes that offer privacy and seclusion. In addition, these areas provide a buffer against the spread of nonnative invasive plant species, support a diversity of habitats for native plant and animal species, conserve biological diversity, and provide opportunities for study, research, and education.

3.7.1. Cumulative Effects Area

The Cumulative Effects Analysis Area for the Currant-Ellison Watershed Restoration Project includes all USFS administered lands, as well as, BLM lands and private lands within 1 mile that are adjacent to the White Pine Management Area within the project area (See Appendix C). The project boundary begins on the northern end at the Indian Garden Pass, bi-sects the Bald Mtn. Wilderness to the east and includes the southern portion of the White Pine Range Wilderness to the west. The project area lies approximately 50 miles south west of Ely, Nevada in White Pine and Nye Counties. The area is bounded by Railroad Valley to the west and by Jakes and White River Valleys to the east. Access is provided primarily by US Hwy 50 from the north and Hwy 6 (Currant Creek Road #59407, White River Road #59405, Ellison Creek Road #59402 and Wilhoites #59613) from the east and south respectively.

Analysis was conducted on all USFS inventoried roadless areas and wilderness areas, as well as, those other lands identified in the aforementioned paragraph due to the potential for an activity occurring on BLM and private lands adjacent to the White Pine IRA's and/or Wilderness Areas to overlap with and negatively impact the roadless area and wilderness characteristics within the project area. For example, the spread of non-native invasive or noxious weeds through estray cattle or sheep, un-authorized motorized use off of roads and trails or fuel wood cutters expanding roads into these areas.

3.7.2. Affected Environment

In 1998, the Humboldt-Toiyabe National Forest began reviewing unroaded areas with new GIS information (Cartographic Feature Files for NFS and Digital Line Graphs for adjoining BLM areas) to determine where there were 5,000 acre blocks of 'natural' landscapes. This inventory was completed in 1999 and, then in 2001, when the Roadless Rule was created, this new inventory became the basis of the Forest's Inventoried Roadless Areas (IRAs). After identifying these areas as unroaded, the 1999 Inventory evaluated the area's wilderness suitability. To evaluate the primitive setting of an area, a computer model was developed to identify the portions of the unroaded areas that met the definition of primitive setting as defined in the Forest Service Recreation Opportunity Spectrum (1986).

In May, 2006 the Forest published An Assessment of Lands on the Humboldt-Toiyabe National Forest That Have Potential for Consideration by Congress for Wilderness Designation (USDA 2006) [hereinafter called 2006 Wilderness Potential Assessment]. This document looked at the IRAs described in the 2001 Roadless Conservation Rule across the Forest and made recommendations regarding Wilderness potential based on the presence of roads and eight wilderness characteristics. For the Ely Ranger District, the 2006 document identifies 5 areas with wilderness potential; the Grant-Irwin Roadless Area, the Grant-Irwin A and B roadless areas, the Quinn and Quinn-A roadless areas as well. All other inventoried roadless areas on the Ely Ranger District were deferred from this assessment due to pending legislation.

In late 2006, President George W. Bush signed into law legislation which had a bill titled the White Pine County Conservation, Recreation and Development Act. This legislation designated twelve new wilderness areas, five of which were USFS administered by the Ely Ranger District, seven are administered by BLM. Portions of four of these new areas are within the project area. Since the designation of these 4 new wilderness areas (Shellback, Bald Mtn, White Pine Range, and Red Mtn.) and expansions of the previously existing wilderness (Currant Mtn.), the current

inventory of roadless areas is now 89,099 acres within the White Pine Division. 12 IRAs (Shellback, Circle Wash, Bald Mtn, Red Mtn., Currant-East Slope, Currant-Duckwater, Sawmill, Broom, Box Spring, Currant- Blackrock, Lampson, and White Pine Mtn.) are remnants of much larger IRA's now designated as Wilderness.

In total 18 IRA's comprising 66,342 acres have been identified within the Currant Ellison Watershed Project Area.

Historical use for most of these areas is split between hunters, fuel wood cutting and dispersed camping. The main areas for dispersed camping occur in Currant Creek, White River and Ellison Creek respectively. These areas used to have developed campgrounds but over time and with reduced budgets year in and year out, these areas have fallen into disrepair and have subsequently been removed from Developed Campground status and placed into Dispersed Camping status with many of the amenities associated with developed campgrounds being removed with the exception of some picnic tables and fire rings. This placement of camping areas into dispersed camping aligns much better with the primitive setting with wild country surrounding the area. Five remote and very difficult to access wilderness areas are within a short hike or drive from most of these areas.

During the summer of 2013, the White Pine Fire (Currant Mtn. Wilderness) was started from a lightning strike. This fire was allowed to burn with some suppression activities authorized to keep the fire located in the high elevation fuels. Had the fire not had suppression activity it is highly likely that it would have burned into fuel types where the intensity would have gotten out of control and caused substantial damage to sage grouse habitat, as well as, the many ecosystem services this wilderness provides (Carbon storage, water quality, oxygen production). In the end some areas of the burn have been set back due to the intensity of the fire. However, this can be looked at as a positive, re-wilding of the area. The springs at the headwaters of Currant Creek were burned over. While most of the canopy has been burnt, a considerable amount of the understory vegetation was also burned and what is left is a denuded, highly erosive soil. The upper reaches of Currant Creek pose a great deal of issues (sedimentation, turbidity and ph) for the downstream reaches, including water quality and quantity. This was a single drainage out of the many that burned. It is likely that this particular drainage received some substantially negative impacts from the fire event; however, further monitoring is warranted to better understand the recovery rates of the various vegetative species and overall spring and stream health. The fire burned for approximately 2.5 months actively and burned approximately 1,300 acres. This fire also occurred within an area proposed for prescribed fire within this project area.

Vegetative conditions within the three wilderness areas identified for proposed treatments are broken down by vegetation type, the amount of acres within each departure class for that vegetation type and the overall percentage of that particular departure within the vegetation type as noted in Table , Table , Table , Table 48, and Table 49. It should be noted that not all of the acres reflect the total acreages for each wilderness as some acres filtered out due to being barren/rock or some other vegetation type not being analyzed. Also, not all of the percentages will add up to 100% due to the same discrepancy and error within the data sets that were used for the analysis.

Table 45. Overall Vegetation Departure by Wilderness Area

Departure	Acres	% of Total Wilderness
Currant Mountain Wilderness		
Low	11,602	22
Moderate	19,433	41
High	15,392	33
Red Mtn. Wilderness		
Low	479	2
Moderate	6,322	31
High	13,678	67
White Pine Range Wilderness		
Low	77	<1
Moderate	6,077	44
High	7,744	56

*Only acres within Project Area

Table 46. Vegetation Departure by Vegetation Type within the Currant Mtn. Wilderness

Departure	Acres*	%
Pinyon/Juniper		
Low	5,400	18
Moderate	14,393	48
High	10,108	34
Mountain Mahogany		
Low	1,834	51
Moderate	1,358	38
High	396	11
Mountain Shrubland		
Low	406	50
Moderate	164	20
High	197	24
Sagebrush Shrubland		
Low	1,008	17
Moderate	909	16
High	3,837	66
White Fir		
Low	1,783	34
Moderate	2,431	46
High	716	14
Riparian		
Low	10	18
Moderate	22	40
High	23	42

*Acres and % reflect the subtraction of the White Pine Fire from 2013.

Table 47. Vegetation Departure by Vegetation Type within the Red Mtn. Wilderness

Departure	Acres	%
Pinyon/Juniper		
Low	342	2
Moderate	5,477	30
High	12,588	68
Mountain Mahogany		
Low	63	23
Moderate	76	27
High	137	50
Mountain Shrubland		
Low	43	13
Moderate	214	66
High	64	20
Sagebrush Shrubland		
Low	16	1
Moderate	470	36
High	824	63
White Fir		
Low	11	55
Moderate	9	45
High	0	0
Riparian		
Low	2	2
Moderate	58	64
High	31	34

Table 48. Vegetation Departure by Vegetation Type within the White Pine Range Wilderness

Departure	Acres	%
Pinyon/Juniper		
Low	63	<1
Moderate	4,126	46
High	4,829	54
Mountain Mahogany		
Low	1	2
Moderate	14	25
High	41	73
Mountain Shrubland		
Low	3	18
Moderate	7	41
High	7	41
Sagebrush Shrubland		
Low	11	<1
Moderate	359	11
High	2,822	88

Table 49. Vegetation Departure by Vegetation Type within the White Pine Peak Research Natural Area

Departure	Acres	%
Pinyon/Juniper		
Low	176	49
Moderate	161	45
High	17	5
Mountain Mahogany		
Low	5	30
Moderate	12	70
High	0	0
Mountain Shrubland		
Low	181	78
Moderate	11	5
High	39	17
Sagebrush Shrubland		
Low	71	67
Moderate	2	2
High	30	28
White Fir		
Low	50	54
Moderate	41	45
High	<1	<1

Some totals will not add up to 100%, due to some acreages falling out of departure classification due to being barren ground, rock or road. Bald Mtn Wilderness has been excluded from any of the proposed action activities due to the presence and abundance of noxious/invasive weed species found within its boundaries.

3.7.2.1. Analysis Method

The project area was evaluated to determine the proposed action, as well as, the two alternatives’ potential effect on roadless area and wilderness character attributes. The analysis was conducted and based largely on personal observations from field trips and related project experience, some GIS data from inventory and monitoring of wilderness resources and general forest inventory, and Google Earth observations/analyses. Many corporate GIS data layers are riddled with inaccuracies due to inconsistent data collection methods. The GIS data used in this analysis is the best available at the time.

The roadless and wilderness character attributes are as follows:

Roadless Area Attributes

High quality or undisturbed soil and water

- Sources of public drinking water
- Diversity of plant and animal communities
- Habitat for threatened, endangered, sensitive species (TES)

- Primitive, semi-primitive non-motorized and semi-primitive motorized classes of dispersed recreation
- Natural appearing landscapes with high scenic quality
- Traditional cultural properties and sacred sites

Wilderness Character Attributes

- Untrammeled
- Natural
- Undeveloped
- Opportunities for Solitude or a Primitive Unconfined type of Recreation
- Special Features

3.7.3. Environmental Consequences for Roadless Areas, Alternative 1— Proposed Action

3.7.3.1. High Quality or Undisturbed Soil, Water, and Air

3.7.3.1.1. Vegetation Manipulation Utilizing Prescribed Fire

The proposed action calls for up to 13,500 acres of prescribed fire within the Currant-Ellison Watershed Restoration Project Boundary. None of the areas identified for prescribed fire implementation fall within Inventoried Roadless Areas and as a result no impacts to soil and water resources within IRA's are anticipated to occur. However, smoke from any fire activity whether it be prescribed or wildfire will impact the air quality of the area. It is anticipated that this impact will be short in duration, primarily during the main burning periods of a given set of days. Fire activity typically dissipates in the evenings and overnight as humidity levels gradually recover. It is not uncommon for humidity levels to not recover and for burning activity to carry through the night. Nevertheless, any fire activity will impact the air quality of the general area and areas downwind from the fire.

3.7.3.1.2. Vegetation Manipulation Utilizing Mechanical Methods

The proposed action calls for up to 16,600 acres of vegetation treatments utilizing mechanical methods within the Currant-Ellison Project Boundary. This vegetation treatment will be targeting Pinyon Pine and Juniper trees encroaching/invading into sagebrush communities. It is likely that this work will consist of chainsaw felling of the target trees, but also mastication treatments could occur. Chainsaw work will be more focused and not have any negative affects to the soil, water and air resources within any of the IRA's. Mastication, however, can have detrimental impacts to soil resources due to the machinery traveling cross country across vegetation and soils. However, design criteria have been developed in order to mitigate these impacts. Treatments will use equipment which is designed to reduce PSI pressure and reduce ground disturbance. Slopes over 30% will be avoided, as will stream crossings. It is unlikely that exhaust emitted from chainsaws or the mastication machinery will be in quantities enough to affect the air quality within this IRA so no impacts are expected to air quality.

3.7.3.1.3. *Watershed Treatments*

The proposed action will treat a number of identified springs by removing the over story canopy cover from a 5-acre swath of ground surrounding each spring (See Hydrologist Specialist Report for particular springs and locations). The canopy cover associated with these treatments is predominantly Pinyon pine and Juniper. Material removed will be re-purposed (where feasible) to build exclosures around the spring sources to keep grazing animals, as well as, big game ungulate species (Elk wallowing out springs) and wild horses (trampling spring sources) from further impacting the spring sources. Water quantity is expected to increase within a short time period after these types of treatments. This increased water availability will benefit the grazing animals and big game ungulate species, including wild horses, downstream of the spring source both in-stream and at the various water developments associated with these water sources. No negative impacts are anticipated under this alternative.

3.7.3.1.4. *Abandoned Mine Closures*

Seven individual mine sites have been identified for closure. None of the mine sites fall within an inventoried roadless area; therefore there will be not be any impacts to roadless area characteristics.

3.7.3.1.5. *Road Decommissioning*

The 2009 Travel Management Decision designated routes for accessing the Ely Ranger District. It also identified a number of routes that would be closed to public access and subsequently decommissioned. Approximately fifty six routes totaling approximately two miles have been identified within Inventoried Roadless Areas for decommissioning. Road decommissioning/rehabilitation work will consist of ripping roadbeds with machinery and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or vegetative slash, placement of boulders or turning up of existing rocks and boulders within the road base will be utilized along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. It is possible that restoration work can cause sediment to enter streams if work is conducted on a route adjacent to streams. This work will be mitigated using erosion cloth or other materials. Routes that are in close proximity to streams will be monitored for sedimentation impacts after work has been completed, and if it is determined that sedimentation is occurring from the restored roadbed then further actions will be taken.

3.7.3.1.6. *Halogeton Treatment-Drill Seeding*

There are 171 acres that have been identified as having been infested with Halogeton within the Cottonwood Treatment Unit. This infestation overlaps the Cottonwood and Indian Creek IRAs. Halogeton tends to occupy/invade sites that are already impacted. This is the case with many grazing related sites. Halogeton likes poor soils and when successfully occupying a site it will further cause the already poor soil to become worse and this is how it spreads. Its root systems

spread and create poor soil conditions on the periphery of the infestation, sets seed and those seeds blow into the new territory. This infestation will be treated in a two-fold manner over the course of a few years. First it will be treated with chemical herbicide. It will be left alone for a minimum of one year in order for the herbicide to do its work and to allow for the chemical to pass through the soil. This will be followed up with a thorough seeding treatment. This will be conducted with a drill seeder and followed up with hand seeding in areas the drill seeder is not able to cover. The seed mix utilized will be a combination of native seed and non-native seed such as crested wheat. The crested wheat is included in this mix as a way of regaining a foothold against further Halogeton infestation as well as other annual species such as cheat grass. The crested wheat will serve as a barrier against these species while allowing for the native component of the seed mix to reestablish and spread. The effects of the native seed and crested will also improve the soil over time. Transitioning from a poor soil site gradually back into what one would expect to find in the area. It is not expected that this treatment will impact the water resources within the area. It is anticipated that the seed mix will also allow for less soil transport by the wind which can improve the air quality in the general area during high wind events common to the Great Basin Desert.

3.7.3.2. Sources of Public Drinking Water

No known public drinking water systems occur within the project area.

3.7.3.3. Diversity of Plant and Animal Communities and Habitat for TE Species

3.7.3.3.1. Vegetation Manipulation Utilizing Prescribed Fire

The proposed action calls for up to 13,500 acres of prescribed fire within the Currant-Ellison Watershed Restoration Project Boundary. None of the areas identified for prescribed fire implementation fall within Inventoried Roadless Areas therefore no impacts to the diversity of plant and animal communities within IRA's will occur.

3.7.3.3.2. Vegetation Manipulation Utilizing Mechanical Methods

The proposed action calls for up to 16,600 acres of vegetation treatments utilizing mechanical methods within the Currant-Ellison Project Boundary. These vegetation treatments will target Pinyon Pine and Juniper trees encroaching/invading into sagebrush communities. Chainsaws, mowers and mastication equipment may be utilized throughout the project area to remove this vegetation cover. Mastication has the potential to negatively impact the soil across a project area due to the nature of the machinery used to implement this type of work. Design criteria have been developed to mitigate these impacts. The use of chainsaws will have no direct impact to any resources. It is anticipated that removal of this vegetation will benefit the sage brush and associated communities by eliminating the encroaching pinyon and juniper species that compete for available water. This in turn will benefit the understory component including the grasses and forbs associated with sagebrush communities.

3.7.3.3.3. Watershed Treatments

The proposed action will treat a number of identified springs by removing the over story canopy cover from a 5-acre swath of ground surrounding each spring. The canopy cover associated with these treatments is predominantly Pinyon Pine and juniper. Material removed will be re-purposed

to build exclosures around the spring sources to keep grazing animals as well as big game ungulate species and wild horses from further impacting the spring sources. Water quantity is expected to increase within a short time period after this vegetation treatment. This increased water availability will benefit not only the grazing animals and big game ungulate species, including wild horses, downstream of the spring source both in stream and at the various water developments associated with these water sources, also the smaller less seen non-game species of wildlife. No negative impacts are anticipated under this alternative.

3.7.3.3.4. *Road Decommissioning*

The 2009 Travel Management Decision designated routes for accessing the Ely Ranger District. It also identified a number of routes that would be closed to public access and subsequently decommissioned. Approximately fifty six routes totaling approximately fifty two miles have been identified within Inventoried Roadless Areas for decommissioning. Road decommissioning/rehabilitation work will consist of ripping roadbeds with machinery and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash, placement of boulders or turning up existing rocks and boulders within the road base will be installed along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. By removing the route from use and decommissioning/rehabilitating it plant diversity will increase steadily over time. This in turn should benefit the wildlife communities within the area each route was located in. Whether this increases the diversity of plant and animal species is indeterminate but can be assumed to increase diversity by eliminating a habitat fragmenting structure from the landscape.

3.7.3.3.5. *Abandoned Mine Closures*

Seven individual mine sites have been identified for closure. None of the mine sites fall within an inventoried roadless area; therefore there will be not be any impacts to roadless area characteristics.

3.7.3.3.6. *Halogeton Treatment-Drill Seeding*

There are 171 acres have been identified as having been infested with Halogeton within the Cottonwood Treatment Unit. This infestation overlaps the Cottonwood and Indian Creek IRAs. Halogeton tends to occupy/invade sites that are already impacted. This is the case with many grazing related sites. Halogeton likes poor soils and when successfully occupying a site it will further cause the already poor soil to become worse and this is how it spreads. Its root systems spread and create poor soil conditions on the periphery of the infestation, sets seed and those seeds blow into the new territory. This infestation will be treated in a two-fold manner over the course of a few years. First it will be treated with chemical herbicide. It will be left alone for a minimum of one year in order for the herbicide to do its work and to allow for the chemical to pass through the soil. This will be followed up with a thorough seeding treatment. This will be conducted with a drill seeder and followed up with hand seeding in areas the drill seeder is not able to cover. The seed mix utilized will be combination of native seed and non-native seed such

as crested wheat. The crested wheat is included in this mix as a way of regaining a foothold against further Halogeton infestation as well as other annual species such as cheat grass. It is expected that this treatment will over time improve the diversity of plants within the affected area by removing the noxious weed infestation and reintroducing native plant species as well as a palatable non-native to the area. This in turn should also benefit some wildlife species as they will have greater variety of browsing choice available.

3.7.3.4. *Wildlife and T&E Habitats*

Specialist reports (biological assessment, biological evaluation, and wildlife report) address impacts to threatened, endangered, proposed, candidate, sensitive and management indicator plant and animal species throughout the project area. Habitat for threatened, endangered, and sensitive species occurs within the project areas.

See Wildlife, Botany and Vegetation specialist reports as well as attached worksheets for individual IRA analysis.

3.7.3.5. *Primitive, Semi-Primitive Non-Motorized and Semi-Primitive Motorized Classes of Recreation*

3.7.3.5.1. *Vegetation Manipulation Utilizing Prescribed Fire*

The proposed action calls for up to 13,500 acres of prescribed fire within the Currant-Ellison Watershed Restoration Project Boundary. None of the areas identified for prescribed fire implementation fall within Inventoried Roadless Areas therefore no impacts to the primitive or semi-primitive classes of recreation will occur.

3.7.3.5.2. *Vegetation Manipulation Utilizing Mechanical Methods*

The proposed action calls for up to 16,600 acres of vegetation treatments utilizing mechanical methods within the Currant-Ellison Project Boundary. This vegetation treatment will be targeting Pinyon Pine and Juniper trees encroaching/invading into sagebrush communities. It is likely that this work will consist of chainsaw felling of the target trees, but also mastication treatments may occur. These types of treatment activities may impact a visitor's opportunities for primitive or semi-primitive types of recreation due to temporary closures in an area associated with the heavy machinery used in mastication. Chainsaw work will not impact these opportunities as the safety risk is greatly reduced due to the lack of biomass flying in the air caused by mastication.

3.7.3.5.3. *Watershed Treatments*

The proposed action will treat a number of identified springs by removing the over story canopy cover from a 5-acre swath of ground surrounding each spring. The canopy cover associated with these treatments is predominantly Pinyon Pine and juniper. Material removed will be re-purposed to build exclosures around the spring sources to keep grazing animals as well as big game ungulate species and wild horses from further impacting the spring sources. Water quantity is expected to increase within a short time period after this vegetation treatment. This increased water availability will benefit the grazing animals and big game ungulate species, including wild horses, downstream of the spring source both in stream and at the various water developments

associated with these water sources. These project activities will have no negative impacts to primitive and semi-primitive classes of recreation.

3.7.3.5.4. *Road Decommissioning*

The 2009 Travel Management Decision designated routes for accessing the Ely Ranger District. It also identified a number of routes that would be closed to public access and subsequently decommissioned. Approximately fifty six routes totaling approximately fifty two miles have been identified within Inventoried Roadless Areas for decommissioning. Road decommissioning/rehabilitation work will consist of ripping roadbeds with machinery and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash, placement of boulders or turning up existing rocks and boulders within the road base will be installed along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. Road decommissioning will impact the semi-primitive opportunity class but not the primitive opportunity class. The removal of road access can negatively impact one class over the other. However, this results in greater opportunities within a different class.

3.7.3.5.5. *Abandoned Mine Closures*

Seven individual mine sites have been identified for closure. None of the mine sites fall within an inventoried roadless area, therefore, there will not be any impacts to roadless area characteristics.

3.7.3.5.6. *Halogeton Treatment-Drill Seeding*

There are 171 acres that have been identified as having been infested with Halogeton within the Cottonwood Treatment Unit. This infestation overlaps the Cottonwood and Indian Creek IRAs. Halogeton tends to occupy/invade sites that are already impacted. This is the case with many grazing related sites. Halogeton likes poor soils and when successfully occupying a site it will further cause the already poor soil to become worse and this is how it spreads. Its root systems spread and create poor soil conditions on the periphery of the infestation, sets seed and those seeds blow into the new territory. This infestation will be treated in a two-fold manner over the course of a few years. First it will be treated with chemical herbicide. It will be left alone for a minimum of one year in order for the herbicide to do its work and to allow for the chemical to pass through the soil. This will be followed up with a thorough seeding treatment. This will be conducted with a drill seeder and followed up with hand seeding in areas the drill seeder is not able to cover. The seed mix utilized will be combination of native seed and non-native seed such as crested wheat. The crested wheat is included in this mix as a way of regaining a foothold against further Halogeton infestation as well as other annual species such as cheat grass. It is not expected that any impacts to the primitive and semi-primitive classes of recreation will occur from this treatment activity.

3.7.3.6. Natural Appearing Landscapes with High Scenic Quality

3.7.3.6.1. Vegetation Manipulation Utilizing Prescribed Fire

The proposed action calls for up to 13,500 acres of prescribed fire within the Currant-Ellison Watershed Restoration Project Boundary. None of the areas identified for prescribed fire implementation fall within Inventoried Roadless Areas therefore no impacts to those IRAs with natural appearing landscapes with high scenic quality will occur.

3.7.3.6.2. Vegetation Manipulation Utilizing Mechanical Methods

The proposed action calls for up to 16,600 acres of vegetation treatments utilizing mechanical methods within the Currant-Ellison Project Boundary. This vegetation treatment will be targeting Pinyon Pine and Juniper trees encroaching/invading into sagebrush communities. It is likely that this work will consist of chainsaw felling of the target trees, but also mastication treatments may occur. Mastication tends to be considerably less negative on the scenic integrity of an area. This is primarily driven by the fact that the mastication process shreds the vegetative matter and broadcasts it. Whereas chainsaw removal of the same material leaves greater amounts of biomass concentrated in a smaller area which in turn is much more visible from a distance. Depending on the treatment option adopted for implementation within this IRA the scenic integrity of the area can be enhanced or impacted. These impacts are relatively short term in duration (5–7 years) and steadily decrease. Depending on winter weather and the amount of moisture that is produced this material may actually decompose quickly in turn reducing that time frame.

3.7.3.6.3. Watershed Treatments

The proposed action will treat a number of identified springs by removing the over story canopy cover from a 5-acre swath of ground surrounding each spring. The canopy cover associated with these treatments is predominantly Pinyon Pine and juniper. Material removed will be re-purposed to build exclosures around the spring sources to keep grazing animals as well as big game ungulate species and wild horses from further impacting the spring sources. Water quantity is expected to increase within a short time period after this vegetation treatment. This increased water availability will benefit the grazing animals and big game ungulate species, including wild horses, downstream of the spring source both in stream and at the various water developments associated with these water sources. No negative impacts are anticipated under this alternative.

3.7.3.6.4. Road Decommissioning

The 2009 Travel Management Decision designated routes for accessing the Ely Ranger District. It also identified a number of routes that would be closed to public access and subsequently decommissioned. Approximately fifty six routes totaling approximately fifty two miles have been identified within Inventoried Roadless Areas for decommissioning. Road decommissioning/rehabilitation work will consist of ripping roadbeds with machinery and recontouring cut banks to blend the roadway back into the natural hill or terrain it is located on. Vertical mulch and/or pinyon-juniper slash, placement of boulders or turning up existing rocks and boulders within the road base will be installed along the roadways and seeding may be conducted during the appropriate time of year to ensure that the restoration work is successful. Ground disturbance will be minimized on all or portions of routes that are found to have

significant or indeterminate cultural resources. Signs will be installed at the beginning of any route targeted for restoration to inform the public that active restoration is in process, access is limited to foot and horse traffic, and motorized use is prohibited. The removal of route corridors through homogenous vegetative cover and re-vegetated with that same cover will improve the overall scenic integrity and add to the biological integrity of the area by removing the fragmenting aspect from the landscape.

3.7.3.6.5. *Abandoned Mine Closures*

Seven individual mine sites have been identified for closure. None of the mine sites fall within an inventoried roadless area, therefore there will be no impacts to roadless area characteristics.

3.7.3.6.6. *Halogeton Treatment-Drill Seeding*

There are 171 acres that have been identified as having been infested with Halogeton within the Cottonwood Treatment Unit. This infestation overlaps the Cottonwood and Indian Creek IRAs. Halogeton tends to occupy/invade sites that are already impacted. This is the case with many grazing related sites. Halogeton likes poor soils and when successfully occupying a site it will further cause the already poor soil to become worse and this is how it spreads. Its root systems spread and create poor soil conditions on the periphery of the infestation, sets seed and those seeds blow into the new territory. This infestation will be treated in a two-fold manner over the course of a few years. First it will be treated with chemical herbicide. It will be left alone for a minimum of one year in order for the herbicide to do its work and to allow for the chemical to pass through the soil. This will be followed up with a thorough seeding treatment. This will be conducted with a drill seeder and followed up with hand seeding in areas the drill seeder is not able to cover. The seed mix utilized will be combination of native seed and non-native seed such as crested wheat. The crested wheat is included in this mix as a way of regaining a foothold against further Halogeton infestation as well as other annual species such as cheat grass. This treatment activity will improve the landscape integrity by removing a noxious weed infestation that is harmful to the general environment. After a few years of time visitor's to the area will not be able to tell that a weed infestation used to occupy the area. Instead it will be a grassy area along a road like many others found throughout the mountain range.

3.7.3.7. *Traditional Cultural Properties and Sacred Sites*

There is only one known potential sacred site. It has not been identified as such by the Duckwater Shoshone Tribe but the Forest Service is treating it as such. However, this site does not fall within an inventoried roadless area; therefore none of the proposed actions will have any impacts to this site.

See attached worksheets for individual IRA analysis.

3.7.3.8. *Other Locally Identified Unique Characteristics*

There were no other locally identified unique characteristics identified during the planning process for this project area. See attached worksheets for individual IRA analysis.

3.7.4. Environmental Consequences for Roadless Areas, Alternative 2—No Action

Under the No Action Alternative, the current management direction will continue to be implemented. None of the proposed action activities will be conducted as proposed. Instead these treatment activities will need to undergo separate NEPA analysis and be implemented piece-meal over a longer time frame. Under this alternative the vegetation across the landscape will continue to increase in departure from desired conditions due to continual fire suppression efforts, lack of prescribed fire where appropriate, drought stresses and other impacts from the multitude of uses occurring across the landscape both inside wilderness and outside wilderness, as well as, inventoried roadless areas (e.g., livestock grazing, unmanaged recreation). The probability of catastrophic or severe fire events will continue to grow. Impacts to water sources and stream courses by wild horses and permitted livestock will continue until actions are taken under the appropriate management tools that apply to these resource areas. Habitat fragmentation caused by excessive miles of motorized road and trails will continue as these routes will not be decommissioned in a timely manner and as a result these routes will further contribute to sedimentation of streams where they are in close proximity, as well as contribute to the spread of noxious weeds throughout the project area. None of the identified abandoned mines will be closed and will continue to pose a health risk to the public as a result.

3.7.5. Environmental Consequences for Roadless Areas, Alternative 3—No Treatments Within Wilderness

Under this alternative prescribed fire and the identified spring enclosures within designated wilderness will not occur. All of the proposed action activities outside of designated wilderness will move forward and will greatly benefit the resources within the project area boundary including Inventoried Roadless Areas. The potential effects of Alternative 3 on Roadless Areas and their attributes will be the same as those effects disclosed for Alternative 1, the Proposed Action.

3.7.6. Environmental Consequences, Wilderness Character, Alternative 1

3.7.6.1. *Untrammled*

3.7.6.1.1. *Vegetation Manipulation Utilizing Prescribed Fire*

Up to 13,500 acres may be treated using prescribed fire within the designated wilderness in the Currant Ellison Watershed Restoration Project. These areas will be determined by analyzing a variety of data sources such as vegetation condition class, range land vegetation plot studies, input from hydrologic studies and previous naturally occurring fires and historic vegetation treatments.

Prescribed fires, or human-ignite or agency-ignited fires, are considered a trammeling action when conducted within designated wilderness. Wilderness is a place where the hand of man is not to be visible, where natural processes dominate.

Historic and on-going fire suppression efforts have greatly compromised many ecosystems capacity for resiliency against large-scale, as well as, some small-scale disturbance events. Vegetative canopy composition across landscapes where fire has been excluded has become very dense (overgrown), causing gradual, and in some cases complete, understory vegetative loss.

Where once vegetative canopy cover allowed for light to moderate intensity fires to pass through the landscape in a beneficial manner, one now sees higher intensity, more devastating effects across these landscapes. This in turn is further damaging to ecosystem function by causing a much greater footprint for noxious and invasive plant species to take foothold in and spread further. These types of fire events also create more long term effects to soil resources by creating conditions where the likelihood of large-scale land wasting or mud-slides can happen which destroy riparian zones and associated plant and animal species. All of this is further exacerbated by historical over-grazing by cattle and sheep, drought conditions across the Western United States and the increased spread of noxious, invasive weed species. If a large-scale, high intensity crown fire runs through a wilderness area where conditions like those mentioned above exist, not only will the vegetative canopy cover be destroyed, but the likelihood of a decrease in or absolute failure of ecosystem services such as carbon storage, oxygen production and water quality and quantity is high.

Implementing prescribed fire will enable us to re-establish the historic fire intervals within a landscape as a means to generate a more resilient ecosystem, establish a broader spectrum of vegetation types, canopy cover and age classes within the vegetative communities across these landscapes. This can be done in a manner that is less intrusive to the wilderness character of an area by taking small but effective actions, such as utilizing a heli-torch or plastic sphere dispenser to put fire into the landscape in a manner that mimics lightning strikes (small areas vs. spread across a hillside). Placing fire into particular areas that have been identified through thorough analysis of on the ground vegetation conditions will ensure that not only will fire successfully be re-introduced back into the ecosystem, but also vegetative canopy cover is decreased which allows for understory vegetation to re-occupy ground once lost, which increases resiliency in vegetation types across the spectrum. Future fire related disturbance won't be nearly as intense or large scale.

3.7.6.1.2. Vegetation Manipulation Utilizing Mechanical Methods

None of this work will be conducted within any designated Wilderness. This work will occur along road corridors adjacent to wilderness boundaries to improve access and to act as a fuel break in case of wildfire emergency calling for suppression actions.

3.7.6.1.3. Watershed Treatments

Watershed treatments within the Currant Ellison Project Area will focus on springs and stream courses and will include the building of new exclosures where needed, maintenance and/or re-building of existing, non-functioning exclosures, the cutting of vegetation (primarily pinyon-juniper) within a 5 acre area around identified springs; the installation of sedge plugs acquired from in-filled, non-functioning pit tanks from within the area and the installation of willow stakes in identified areas to aid in reestablishment of riparian vegetation and to improve soil conditions along the stream banks and to increase water retention within the riparian zone.

Only two springs within designated wilderness have been identified for actions to be taken. The spring that is at the head waters of White River is being impacted by grazing animals. Woody vegetation from the area will be used to create a barrier around the spring source in order to keep the grazing animals off of it. This in turn will push the use downstream but will mitigate negative affects to the source.

The other spring, Mustang Spring, is also heavily impacted. The impacts at this spring are associated with Wild horses. Well documented use by horses goes back at least 40 years and photos show the progression of the impacts (See attached documentation titled Mustang Springs). The water rights holder of the spring source is not maintaining the water development associated with this spring and as such it has become non-functioning. As the water development failed the horses began impacting the source. It is proposed to build an enclosure around this spring source to keep the horses off of it. The associated water development will be repaired in order to reduce the overall footprint of the impact. Further efforts will be focused on treating the spreading noxious weed component of the site. The site in total is approximately six acres and is comprised primarily of cheat grass, mustard species and bare, denuded ground littered with horse feces. All of these impacts add up to a major trammeling of wilderness resources. By taking these actions it is anticipated that the area will recover and water will become more plentiful, as will the riparian vegetation associated with the system. Taking these actions is considered a trammeling, however, resource conditions have degraded so far from man-made neglect and over-grazing that to ensure long term viability of a water source some sort of action must be taken.

3.7.6.1.4. *Road Decommissioning*

Within the wilderness areas within the Currant-Ellison Project Area, 13 routes totaling 4.4 miles have been identified. Treatments will be implemented to restore vegetation cover from motor-vehicle use along the road corridor of each route. Signing at the beginning of each route will be installed indicating restoration work is underway and that the wilderness boundary is located there. Barricading the initial 100' or so of the route will occur with available dead and downed vegetation and boulders. The remainder of the route will be broken up with hand tools to loosen the compacted two-track that comprises the road tread. This will free up the available seed bed, create micro-sites for seed establishment and help make the corridor less visible from a distance. Further work will include debris and other available materials in the area being dragged into the corridor, transplanting grasses and other vegetation when practicable and possibly seeding with a native seed mix derived from the local vegetation composition.

Taking any action in wilderness is falsely construed as a trammeling. Not all actions are trammeling. However, when a problem exists within wilderness it sometimes necessitates taking trammeling actions in the short term to re-set the situation in order to provide for long-term viability and sustainability of the wilderness character and ecosystem. Such is the case with roads created by motorized use. All treatment implementation will occur by non-motorized means. Seeding, if conducted, would be a trammeling activity. However, if the seed is composed of the same vegetative composition of the area which is being treated this trammeling action is less obvious.

3.7.6.1.5. *Abandoned Mine Closures*

Abandoned mine closures can be implemented in a variety of methods. The use of explosives to cause the entire structure to collapse has proven to be effective in some situations, although this method is highly dangerous and typically only exercised when no other method will do the job. The more common method is to install a mesh-wire structure into the opening and slowly and methodically fill the structure with foam that will slowly set and expand and close the opening entirely. This foam plug is then back filled with dirt and rock from a borrow pit or surrounding

area. Other closure methods involve shoring up the entrance and installing a heavy metal structure and building in a gate. This is primarily determined by whether or not bats are using the abandoned mine as habitat. If they are, then the gating is a more likely outcome for closing the abandoned mine.

Above all else, the primary reason for closing abandoned mine shafts and adits is safety.

Closing these hazards also removes the scar of a man-made development within the wilderness which enhances the undeveloped character of the area. On one hand installing a structure within an existing structure raises the level of development within a wilderness, while enhancing a wildlife species ability to persist and operate within the ecosystem fully increases the natural characteristic of a wilderness. Small trade-offs are necessary to preserve the overall wilderness character of an area at times, however they may not be in other circumstances. Removal of these sites from the wilderness is not a trammeling action and therefore there will be no impacts to that attribute of wilderness character.

3.7.6.2. Natural

3.7.6.2.1. *Vegetation Manipulation Utilizing Prescribed Fire*

Prescribed fire is a tool used to re-establish the natural role of fire within a landscape that has seen a century or more of fire suppression. When implemented successfully, prescribed fire provides a beneficial ingredient necessary to generate a more resilient ecosystem, establish a broader spectrum of vegetation types, canopy cover and age classes within the vegetative communities throughout the ecosystem and maintain ecosystem services. The long-term outcome of using prescribed fire within wilderness is to re-establish the once natural fire interval for a particular dominant vegetative type and reducing the need for future man-made interference.

Prescribed fire can be implemented in smaller areas, across a landscape as a way to provide a less intense fire event that is more beneficial to plant communities. Using a heli-torch or PSD device (plastic sphere dispenser), allows for a more focused delivery that mimics lightning strikes. Sometimes fires will grow and burn from lightning strikes, sometimes they smolder around in the duff or burn only a single tree and are either rained out or burn out on their own. This same outcome is possible with the above mentioned implementation strategies.

Fire scars are part of the natural scenic nature of most wilderness areas and mountain ranges. A visitor to the wilderness is not able to determine whether or not a fire scar is from a lightning caused fire or a man-made fire. However, proximity to any man-made developments, such as a road, may lead a visitor to conclude that the fire was man-made. However, implemented from the air in the manner suggested above, the likelihood that a visitor would conclude that the fire was man-made is greatly reduced.

If implemented as described above, prescribed fire will cause no negative affects to the Apparent Naturalness; instead it will create positive affects by meeting the goals stated in the preceding paragraph.

3.7.6.2.2. *Vegetation Manipulation Utilizing Mechanical Methods*

None of this work will be conducted within any designated Wilderness. This work will occur along road corridors adjacent to wilderness boundaries to improve access and to act as a fuel break in case of wildfire emergency calling for suppression actions.

3.7.6.2.3. *Watershed Treatments*

Using natural materials (cut pinyon/juniper or fir trees) to exclude grazing animals from the spring source in the Mustang Spring and White River headwaters will greatly improve water quantity and quality in the entire watershed. The apparent naturalness will be enhanced as more water will be available downstream and riparian vegetation will be able to grow and spread from the spring source on down. Downstream increases in water will enable the grazing animals to be spread out across the riparian system instead of congregating near the source. The impacts associated from hoof-shearing will gradually decrease and stream banks will become more stabilized over time.

3.7.6.2.4. *Road Decommissioning*

Thirteen routes totaling 4.4 miles have been identified within the wilderness areas within the Currant-Ellison Project Area. Treatments will be implemented to restore vegetation cover from motor-vehicle use along the road corridor of each route. Signing at the beginning of each route will be installed indicating restoration work is underway and that the wilderness boundary is located there. Barricading the initial 100' or so of the route will occur with available dead and downed vegetation and boulders. The remainder of the route will be broken up with hand tools to loosen the compacted two-track that comprises the road tread. This will free up the available seed bed, create micro-sites for seed establishment and help make the corridor less visible from a distance. Further work will include debris and other available materials in the area being dragged into the corridor, transplanting grasses and other vegetation when practicable and possibly seeding with a native seed mix derived from the local vegetation composition.

This work will be realized through the application of man-power and hand-tools. During implementation and for a short-term time frame the road rehabilitation work will be noticeable. However, given a few winters and freeze/thaw cycles this work will begin to diminish and given enough time (approx. 5+ years) the scar will heal and will be greatly diminished and less discernable to the visitor's eye. This will result in an improvement to the Apparent Naturalness.

3.7.6.2.5. *Abandoned Mine Closures*

Abandoned mines are developments created by man. The scar and impact associated with a mine is very difficult to hide or reclaim. However, through the application of explosives, other means the entrances to these developments can be hidden and possibly even be re-vegetated in time. Initially, the impacts from closing these developments are very obvious as there can be soil coloration differentiation that catches the eye from a distance. However, given adequate time frames these man-made disturbances will begin to blend back into the landscape and be less obvious. Closure and rehabilitation of these sites will improve the apparent naturalness by removing a man-made disturbance/structure from the landscape.

3.7.6.3. Undeveloped

3.7.6.3.1. *Vegetation Manipulation Utilizing Prescribed Fire*

No effects will occur to the undeveloped attribute of wilderness character by implementing prescribed fire as no permanent structures will be constructed or removed.

3.7.6.3.2. *Vegetation Manipulation Utilizing Mechanical Methods*

None of this work will be conducted within any designated Wilderness. This work will occur along road corridors adjacent to wilderness boundaries to improve access and to act as a fuel break in case of wildfire emergency calling for suppression actions.

3.7.6.3.3. *Watershed Treatments*

Using natural materials (cut pinyon/juniper or fir trees) to exclude grazing animals from the spring source in the Mustang Spring and White River headwaters will greatly improve water quantity and quality in the entire watershed. The Undeveloped attribute will be slightly degraded by the presence of a man-made development, even though it will be built utilizing natural components. The use of these components is key in minimizing the appearance of the structure to a visitor. However it is an accounted for structure that is known to the USFS and as such does detract from the undeveloped nature of wilderness.

3.7.6.3.4. *Road Decommissioning*

Thirteen routes totaling 4.4 miles have been identified within the wilderness areas within the Currant-Ellison Project Area. This work will be realized through the application of man-power and hand-tools. During implementation and for a short-term time frame the road rehabilitation work will be noticeable. However, given a few winters and freeze/thaw cycles this work will begin to diminish and given enough time (approx. 5+ years) the scar will heal and will be greatly diminished and less discernable to the visitor's eye. This will result in an improvement to the undeveloped attribute.

3.7.6.3.5. *Abandoned Mine Closures*

Abandoned mines are developments created by man. The scar and impact associated with a mine is very difficult to hide or reclaim. However, through the application of explosives, other means the entrances to these developments can be hidden and possibly even be re-vegetated in time. Initially, the impacts from closing these developments are very obvious as there can be soil coloration differentiation that catches the eye from a distance. However, given adequate time frames these man-made disturbances will begin to blend back into the landscape and be less obvious. Closure and rehabilitation of these sites will improve the undeveloped attribute by removing a man-made disturbance/structure from the landscape.

3.7.6.4. Opportunities for Solitude or a Primitive, Unconfined Type of Recreation

3.7.6.4.1. Vegetation Manipulation Utilizing Prescribed Fire

Prescribed fire in the identified areas within designated wilderness will have limited effects on a visitors' solitude but a distinct effect on a visitor's opportunities for primitive or unconfined recreation. There is an abundance of acreage on either side of the mountain outside of the prescribed fire area that a visitor can experience solitude and not know about fire operations. During any fire situations in wilderness if there are vehicles in the area that suggest there may be someone in the wilderness, people are dispatched to find and contact them to leave the area as it is unsafe. During fire operations no members of the public are allowed in the area as a safety precaution. Limiting entry to portions of a wilderness is a negative impact on opportunities for primitive or unconfined recreation and solitude.

3.7.6.4.2. Vegetation Manipulation Utilizing Mechanical Methods

None of this work will be conducted within any designated Wilderness.

3.7.6.4.3. Watershed Treatments

The treatment activities associated with the headwaters of White River and Mustang Spring will not negatively impact a visitor's opportunities for primitive or unconfined recreation or for solitude, as these sites are easily avoided.

3.7.6.4.4. Road Decommissioning

Thirteen routes totaling 4.4 miles have been identified within the wilderness areas within the Currant-Ellison Project Area. In the short term there could be an impact to solitude depending on whether or not a visitor comes across other people conducting this restoration work, however, this will be short term in nature and in the longer term once this road is closed and rehabilitated it will actually increase the ability of a visitor to experience solitude as the mark of man is removed from the landscape.

3.7.6.4.5. Abandoned Mine Closures

The treatment activities associated with the mine closures will not negatively impact a visitor's opportunities for solitude, as these sites are easily avoided. However, this sort of activity has a negative effect on visitor's opportunities for primitive or unconfined recreation.

3.7.6.5. Special Features

3.7.6.5.1. Vegetation Manipulation Utilizing Prescribed Fire

The White Pine Peak RNA is within the planning area, however, no activities are proposed that would affect the RNA.

In 2013, the White Pine Fire presented a danger to the Shoshone Tribe's identified sacred site; however, through constant communication with the tribe and mitigation actions implemented the

site was protected from fire impacts. None of the proposed activities will occur near the Shoshone Tribe's identified sacred site.

3.7.6.5.2. Vegetation Manipulation Utilizing Mechanical Methods

None of this work will be conducted within any designated Wilderness. This work will occur along road corridors adjacent to wilderness boundaries to improve access and to act as a fuel break in case of wildfire emergency calling for suppression actions.

3.7.6.5.3. Watershed Treatments

No project activities will occur within the RNA or near the Shoshone Tribe's identified sacred site.

3.7.6.5.4. Road Decommissioning

No project activities will occur within the RNA or near the Shoshone Tribe's identified sacred site.

3.7.6.5.5. Abandoned Mine Closures

Currant Mtn. Wilderness is characterized by the massive limestone structure that comprises its entire length. Bristlecone pines and Bighorn sheep occur on the mountains higher reaches and comprise the core of the few unique resources found in this wilderness. There are no known caves in this wilderness although the potential is high. Also found in the Currant Mtn. Wilderness is the White Pine Peak Research Natural Area. There is a site associated with the Ely and Duckwater Shoshone Tribes near the Currant Mtn. Wilderness. Located along a cherry-stemmed road this site is used for traditional ceremonies.

3.7.7. Environmental Consequences, Wilderness Character, Alternative 2—No Action

Under the No Action Alternative, the current management direction will continue to be implemented. None of the proposed action activities will be conducted as proposed. Instead these treatment activities will need to undergo separate NEPA analysis and be implemented independently over a longer time frame. Under this alternative the vegetation across the landscape will continue to increase in departure from desired conditions due to continual fire suppression efforts, lack of prescribed fire where appropriate, drought stresses and other impacts from the multitude of uses occurring across the landscape both inside wilderness and outside wilderness, as well as, inventoried roadless areas (i.e. livestock grazing, unmanaged recreation, etc...). The probability of catastrophic or severe fire events will continue to grow. Impacts to water sources and stream courses by wild horses and permitted livestock will continue until actions are taken under the appropriate management tools that apply to these resource areas. Habitat fragmentation caused by excessive miles of motorized road and trails will continue as these routes will not be decommissioned in a timely manner and as a result these routes will further contribute to sedimentation of streams where they are in close proximity, as well as contribute to the spread of noxious weeds throughout the project area. None of the identified abandoned mines will be closed and will continue to pose a health risk to the public as a result.

3.7.8. Environmental Consequences, Wilderness Character, Alternative 3—No Treatments in Wilderness

Under this alternative prescribed fire and the identified exclusions within designated wilderness will not occur. All of the proposed activities outside of designated wilderness will move forward and will benefit the resources within the project area boundary. However, within designated wilderness resource conditions will continue to increase in departure from desired conditions as prescribed fire will not be approved. Instead management will have to make decisions based upon whether or not a naturally occurring wildfire occurs or doesn't. Wildlife resources within these wilderness areas will suffer as a result due to the habitat they rely upon being further degraded by drought, lack of fire and other pressures from permitted livestock and wild horses. Springs identified for treatment activities will further degrade from the impacts being inflicted upon them. As a result the wilderness character of these areas will be degraded resulting in negative experiences for the visiting public to these areas, as well as detrimental impacts to the long term sustainability of the wilderness resource into the future.

3.7.9. Summary

3.7.9.1. Roadless

Taken together over the project area's Roadless Area, the proposed action treatment activities will have a positive effect overall on the resources affected. Water quality and quantity, landscape integrity, vegetative health and condition, a number of safety-related items and deferred maintenance will all see benefits from these proposed treatments. There are certainly situations (mastication and prescribed fire) with which outcomes could be negative. Prescribed fire, while not being implemented within any inventoried roadless area has the potential to run into an IRA and do damage to the various resources on the ground. Mastication operations also have the potential to do substantial damage to soil resources. However, design criteria have been developed to ensure that negative outcomes do not occur or if they do that their impacts are very limited and will not affect the overall landscape.

3.7.9.2. Wilderness

The primary proposed action treatment that has the potential to do severe damage to wilderness resources is prescribed fire. Implementing prescribed fire within a designated wilderness doesn't necessarily mean outcomes will be negative. However, the act of management ignited fire (prescribed fire) is considered a trammeling of the wilderness character. Taken individually, the attributes of wilderness character can all be negatively affected by man's actions. Taken holistically, which is mandated by the Wilderness Act, a trammeling action can be taken to benefit the remaining attributes. Implementing management ignited fire under very thought-out and planned prescriptions will be key to successful outcomes. Fire has a role to play within these landscapes and has been suppressed (trammed) for too long. The remaining proposed action treatment activities will all benefit wilderness resources as they are small in scale and seek to remedy impacts from the past, as well as, ongoing non-conforming use impacts associated with mining and grazing.

3.7.10. Cumulative Effects

Activities that may contribute to cumulative effects on the roadless character of these areas include livestock grazing, oil and gas exploration, mineral exploration/mining, noxious/invasive weed management, legal and illegal fuel wood cutting, unmanaged recreation, fuels management and wildfire suppression.

Oil and gas exploration is on the horizon. The Ely Ranger District finalized an EIS in 2006 specifically for this and the area on the west side of the White Pine Management Division has potential for drilling for these resources.

Mineral exploration and mining activity are being proposed in the northern portion of the project area in and around a previously existing mining operation (the Griffin Mine). At this time exploratory drilling is occurring.

Livestock grazing is anticipated to continue into the future across the project area. The Ely Westside EIS reauthorized grazing within the White Pine Management Division and is anticipated to reduce the impacts associated with grazing activities when fully implemented. Drought conditions are also impacting livestock operations by requiring reduced numbers of animals being put out on the range. It is assumed that reduced numbers of animals for shorter durations of time on the range will translate into reduced impacts, however, in the context of a drought this is not necessarily what will occur.

Noxious/invasive weed infestations occurring on adjacent lands have the potential to impact the natural, untrammeled, habitat for certain species of sensitive plants and animals, soil and water resources, the diversity of plant and animal communities, and reference landscapes characteristics associated with Wilderness and Inventoried Roadless Areas. Through an aggressive inventory and treatment program it is hoped that noxious/invasive weeds will not gain a strong foothold on the Ely Ranger District or in any of its Wilderness Areas. The proposed action treatment activity associated with road decommissioning, watershed treatments and Halogeton treatment will all play a role in combating the spread of noxious, invasive weed species throughout the project area. All of the listed attributes above will benefit from these proposed actions.

Fuel wood cutters have historically cut roads into unroaded areas. It is inherent in the activity. This type of activity is very difficult to regulate and enforcement is hit and miss at best. This type of activity occurs on lands adjacent to USFS lands and can cross over to IRA's and designated wilderness and can impact the natural, untrammeled, habitat for certain species of sensitive plants and animals, soil and water resources and the diversity of plant and animal communities characteristics. By utilizing chainsaws to cut large acreages of pinyon pine and juniper trees out of sagebrush communities we are providing more fuel wood available for harvest by those wishing to fill their permits. This proposed action coupled with existing fuel wood harvest will not contribute to negative impacts. The cutting areas will be open to limited cross-country travel to afford harvesters the ability to access material. The impacts associated with this activity will be minimal and short term.

Unmanaged recreation, typically motorized recreation, has seen an increase in use over the past 25 years across the country. This has been especially true in eastern Nevada. Through the 2009 Ely Ranger District Travel Management Decision, motorized recreation has been limited to designated routes and trails. This decision is slowly being implemented on the ground and there

is still potential for people to drive off roads and trails and cause great damage to the surrounding vegetation and soils. This type of impact, over an extended time can severely impact the natural, untrammelled, habitat for certain species of sensitive plants and animals, soil and water resources, plant and animal diversity characteristics of inventoried roadless areas and wilderness areas. Closing routes will further reduce the amount of illegal incursions which in turn will lessen the impacts to soil and vegetation resources throughout the project area.

Fuels treatments can occur in roadless areas. Prescribed fires can occur in wilderness areas under the right conditions. However, these types of activities occurring on adjacent lands can impact all of the characteristics of inventoried roadless areas and wilderness areas. The mechanical types of activities may potentially have a short-term effect on the apparent naturalness of the area but would not alter the roadless designation or change the overall roadless character. However, uncontrolled fire has the potential to do catastrophic damage to all resource characteristics in and outside of wilderness and roadless areas. Wildfire suppression has occurred on the USFS administered lands for over a century. It is widely accepted today that allowing naturally ignited fires to burn is a good thing as it reintroduces disturbance regimes that most of the vegetation thrive under. However, this is a very slippery slope, as fire cannot be controlled 100% of the time and can explode into a catastrophic fire that does more damage than good. Fires escaping control lines on adjacent lands can have negative consequences and cause unintentional harm to the characteristics of both roadless areas and wilderness areas. Wildfire occurring within designated wilderness will have the opportunity to do what it will with little to no suppression actions being taken. When conditions do not allow for wildfire to run on its own, suppression actions will be taken. This creates the conditions and situation where prescribed fire may be utilized in the near future to realize the benefits of naturally occurring fire could have provided were it allowed to burn.

Chapter 4 — Consistency with Other Laws, Regulations, and Policies

A number of disclosures involving compliance with various applicable laws, executive orders, and regulations are required in NEPA analysis for proposed resource management projects. These disclosures are listed below:

American Indian Treaty Rights—The proposed alternatives would not conflict with any treaty provisions.

Clean Water Act—The Clean Water Act (CWA) is a federal statute that requires states and tribes to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33U.S.C. 466 et seq., Title I, Section 101). The hydrology analysis discloses the potential effects of the alternatives on water quality. The project does not involve the filling, alteration or modification of any waterway or riparian area. Based on the analysis disclosed in this document, both alternatives would comply with the CWA. This project includes design features to ensure management activities maintain or improve watershed conditions (Chapter 2). The project area contains no 303d listed streams.

Clean Air Act—The Proposed Action is in compliance with the Clean Air Act, 1977 as amended. All required permits would be secured to ensure compliance with federal and state laws. Pollutant emissions would be within state and federal standards.

Consultation with Tribal Governments (E.O. 13175) —Consultation with the Duckwater Tribe, Goshute Tribe and the Ely Shoshone Colony has been ongoing during project analysis (see EA Section 1.9).

Effects of Alternatives on Social Groups—The alternatives do not differ with one another in their effects on minorities, Native American Indians, women, or Civil Liberties of any American Citizen. The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Endangered Species Act—The project area contains no known populations or potential habitats for any federally listed threatened or endangered species.

Environmental Justice (*E.O. 12898*) —Executive Order 12898 (59 Fed. Register 7629, 1994) directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low income populations. The proposed alternatives would not result in unequal impacts on any part of the population within White Pine or Nye Counties, Nevada and complies with E.O. 12898.

Executive Order 11988 Floodplain Management and Executive Order 11990 Protection of Wetlands—The alternatives will not result in significant adverse impacts on wetlands or floodplains as they relate to protection of human health, safety, and welfare; preventing the loss of property values, and; maintaining natural systems. The goals of Executive Orders 11988 and 11990 would be met. All wetlands would be protected through design features which conform to Executive Order 11990.

Executive Order 13186 and the Migratory Bird Treaty Act—Both alternatives would comply with the Migratory Bird Treaty Act. This project may result in an “unintentional take” of individuals during proposed activities; however, the project complies with the U.S. Fish and Wildlife Service Director’s Order #131 related to the applicability of the Migratory Bird Treaty Act to federal agencies and requirements for permits for “take”. This project complies with Executive Order 13186 because the analysis meets agency obligations as defined under the January 16, 2001 Memorandum of Understanding between the Forest Service and U.S. Fish and Wildlife Service designed to complement Executive Order 13186.

Facilitation of Hunting Heritage and Wildlife Conservation (E.O. 13443)—On August 16, 2007, President George Bush signed an Executive Order directing appropriate federal agencies to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. The proposed action will result in improved habitats for big game species such as mule deer and elk. The no action alternative will have a long term adverse impact on big game species and would not work to meet the objectives outlined in this executive order.

Inventoried Roadless Areas (IRA)—The 185,000 acre project area includes all or portions of several IRAs. None of the alternatives would have lasting effects on the attributes of any of the IRAs (Section 3.7).

National Historic Preservation Act—Neither alternative would have any direct or indirect effects on historically significant sites. Previously identified sites would be protected under these alternatives. The State Historic Preservation Officer has reviewed the cultural resources 106 report and agreed to provisions in a memorandum of understanding regarding how to address cultural resources during project implementation (see project record).

Best Available Science—The conclusions summarized in this document are based on a review of the project record that reflects consideration of relevant scientific information and responsible opposing views where raised by internal or external sources and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and/or risk where pertinent to the decision being made.

Humboldt National Forest Land and Resource Management Plan (1986) —The Proposed Action is in compliance with the Humboldt National Forest Land and Resource Management Plan (1986) as amended.

Climate Change— “The Forest Service is responding to climate change through ecological restoration—by restoring the functions and processes characteristic of healthy, resilient ecosystems.” (Thomas L. Tidwell, Chief April 20, 2010). The purpose of this project is to restore and maintain healthy and resilient vegetation communities, wildlife habitats and to reduce fuels and wildfire risks near private lands and structures. The prescribed fire portions of this project will result in short term smoke impacts into the atmosphere, however there will be no lasting effects as a result of these actions. The proposed action and design features are designed to

restore resilient vegetation communities and ecosystems while minimizing the effects of invasive species. This project will not result in any long-term adverse impacts associated with climate change. Specific actions identified within the proposed action will create more resilient vegetative communities which are viable under changing climatic conditions.

Chapter 5 — List of Primary Preparers

Name	Responsibility	Education	Years' Experience
Jose Noriega	District Ranger	BS Wildlife Management	24
Joshua Simpson	IDT Leader Recreation/Wilderness/Roadless	BS Forest Recreation Resources	13
Carol Carlock	Fuels/Vegetation	Course work through NWGC, University of Colorado, Washington Institute, National Advanced Fire Resource Institute	34
Kathy Johnson	Wildlife	BS Wildlife Management	26
Nate Millet	Hydrology/Soils	BS Environmental Engineering	7
Justin Rozich	Wildlife	BS Wildlife Management	11
Amery Sifre	Range/Weeds	BS Forest and Rangeland Management	8
Caine Daugherty	GIS	MS GIS BS Geography	14
Eric Stever	Heritage/Cultural Resources	MA Historical Archeology	7

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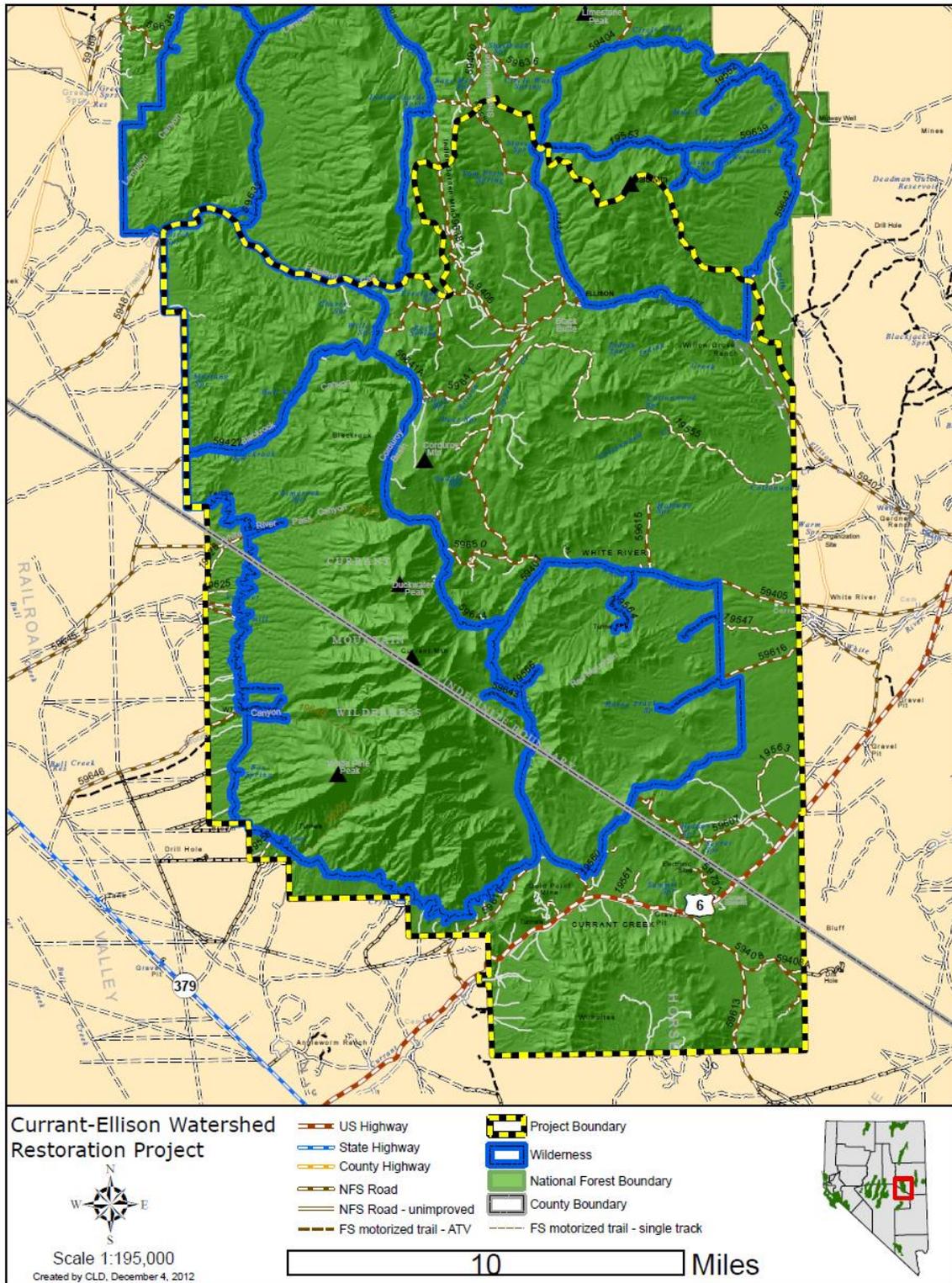
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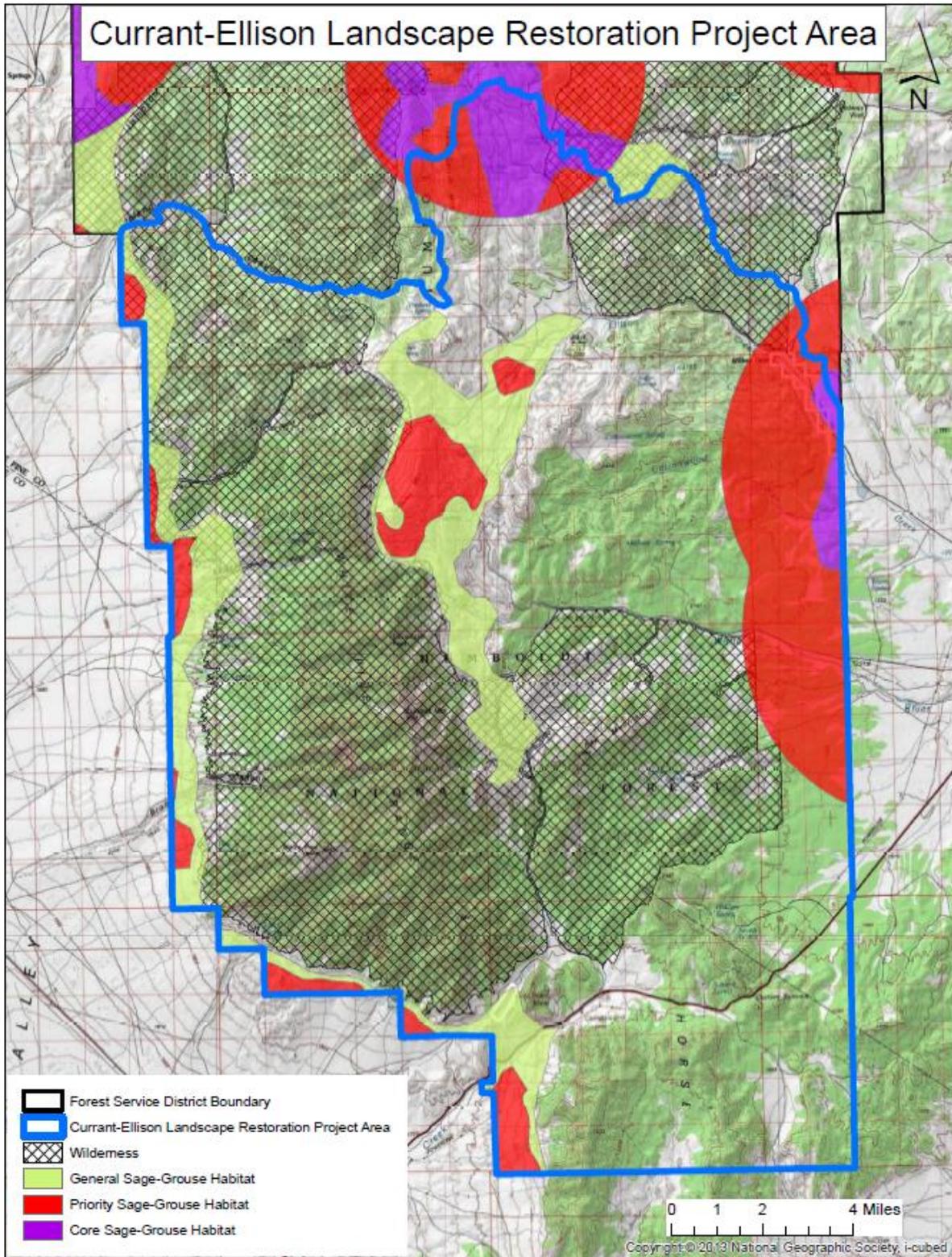
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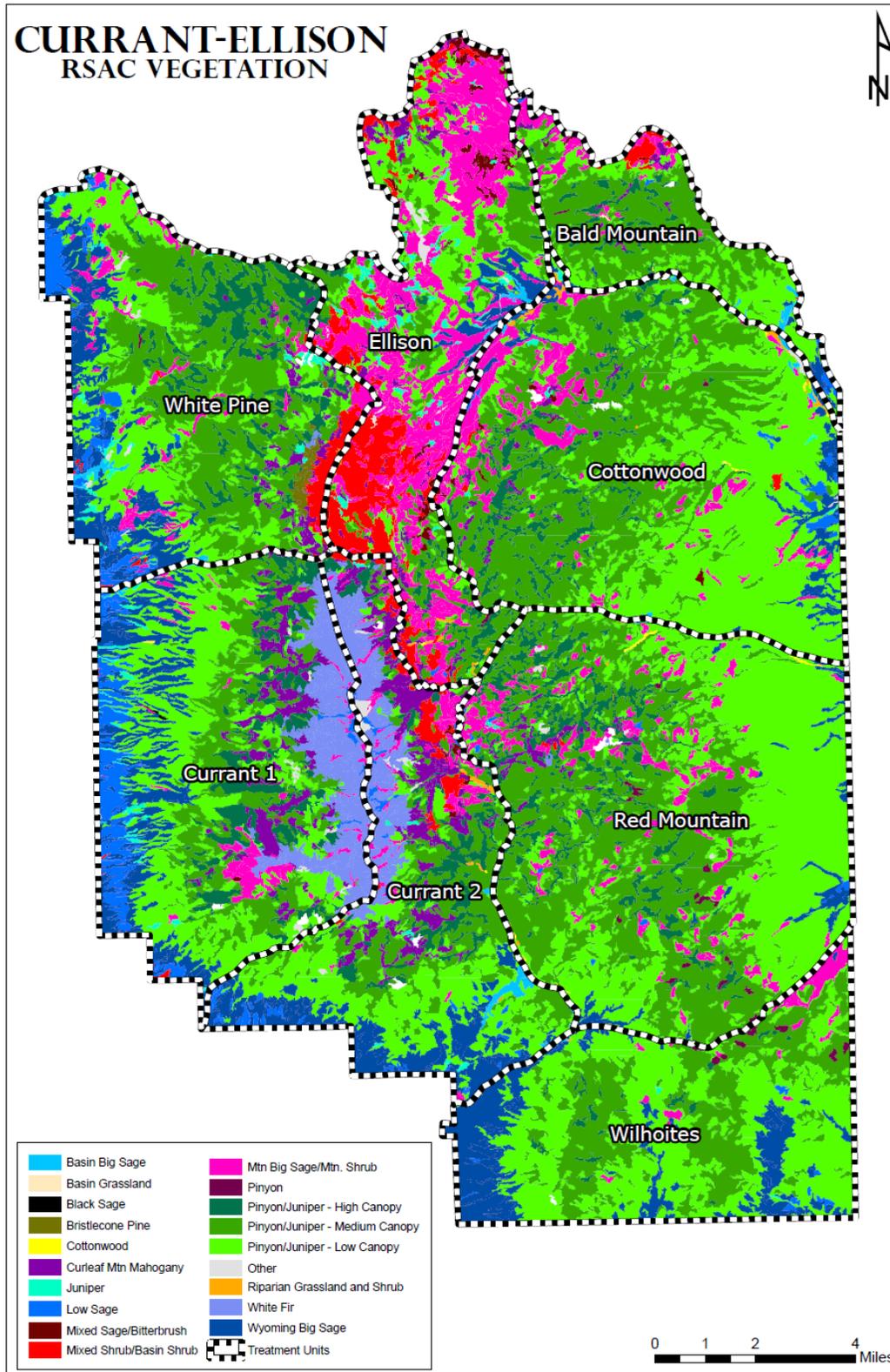
Appendix A: Project Area Map



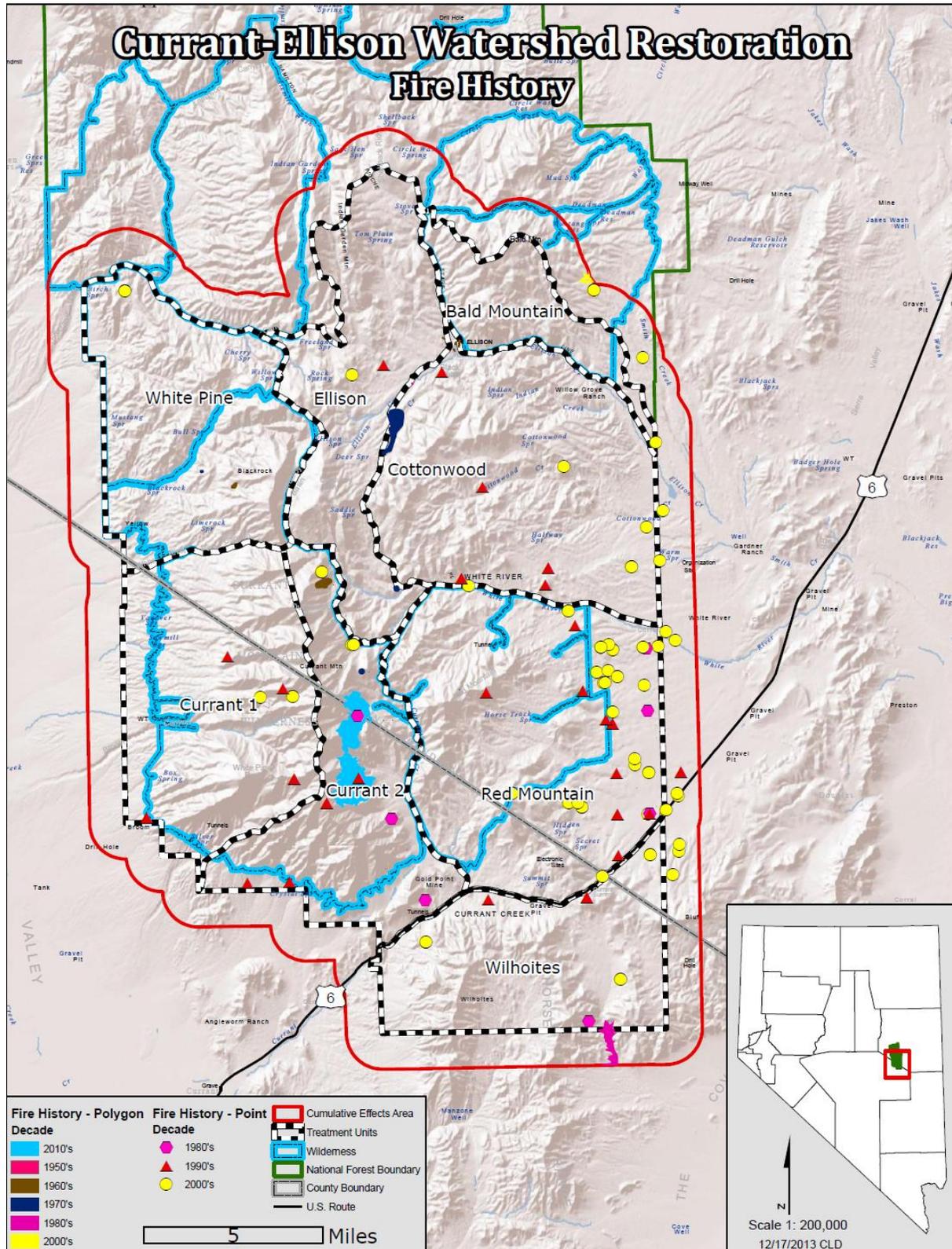
Appendix B: Sage Grouse Habitats



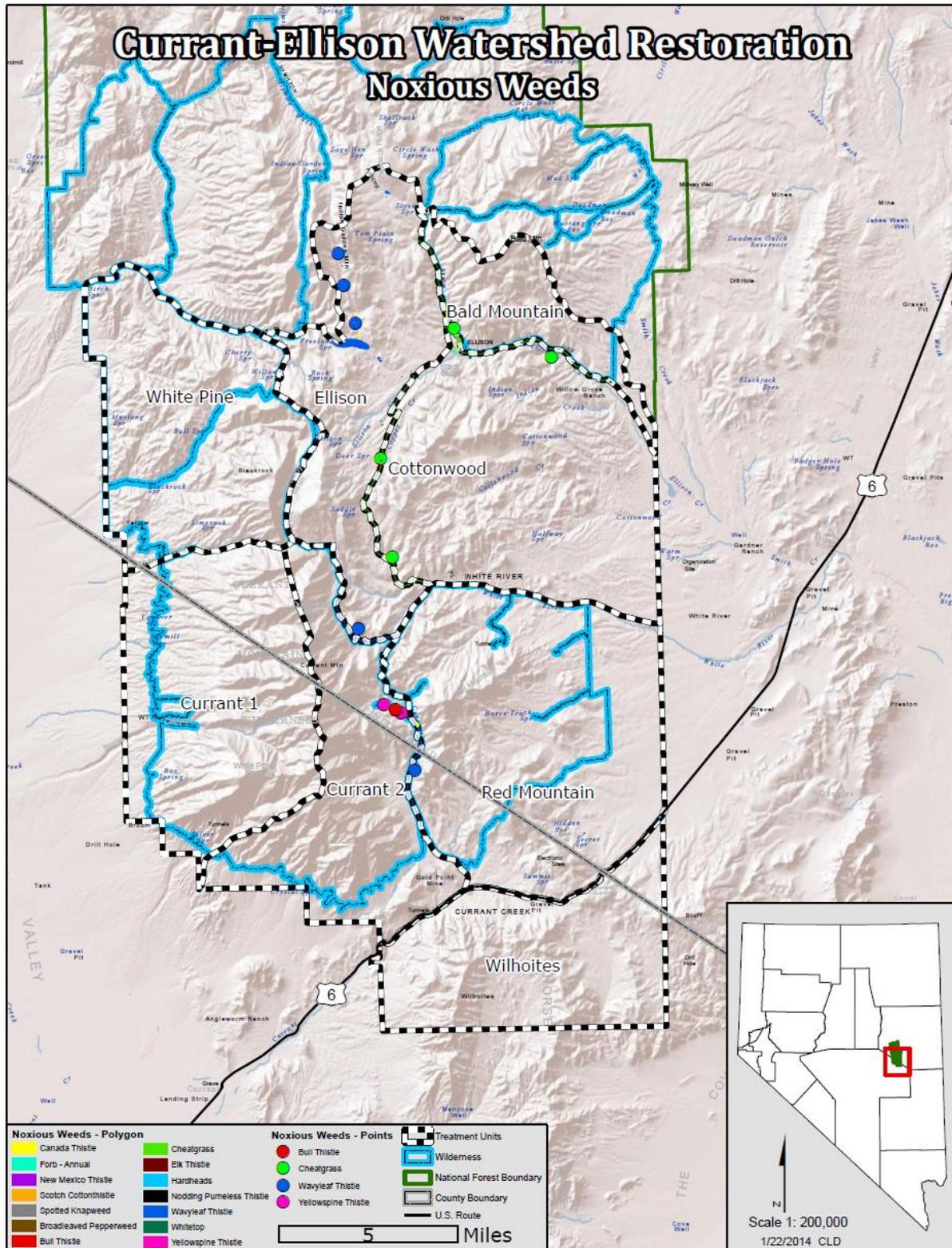
Appendix D: Vegetation Map



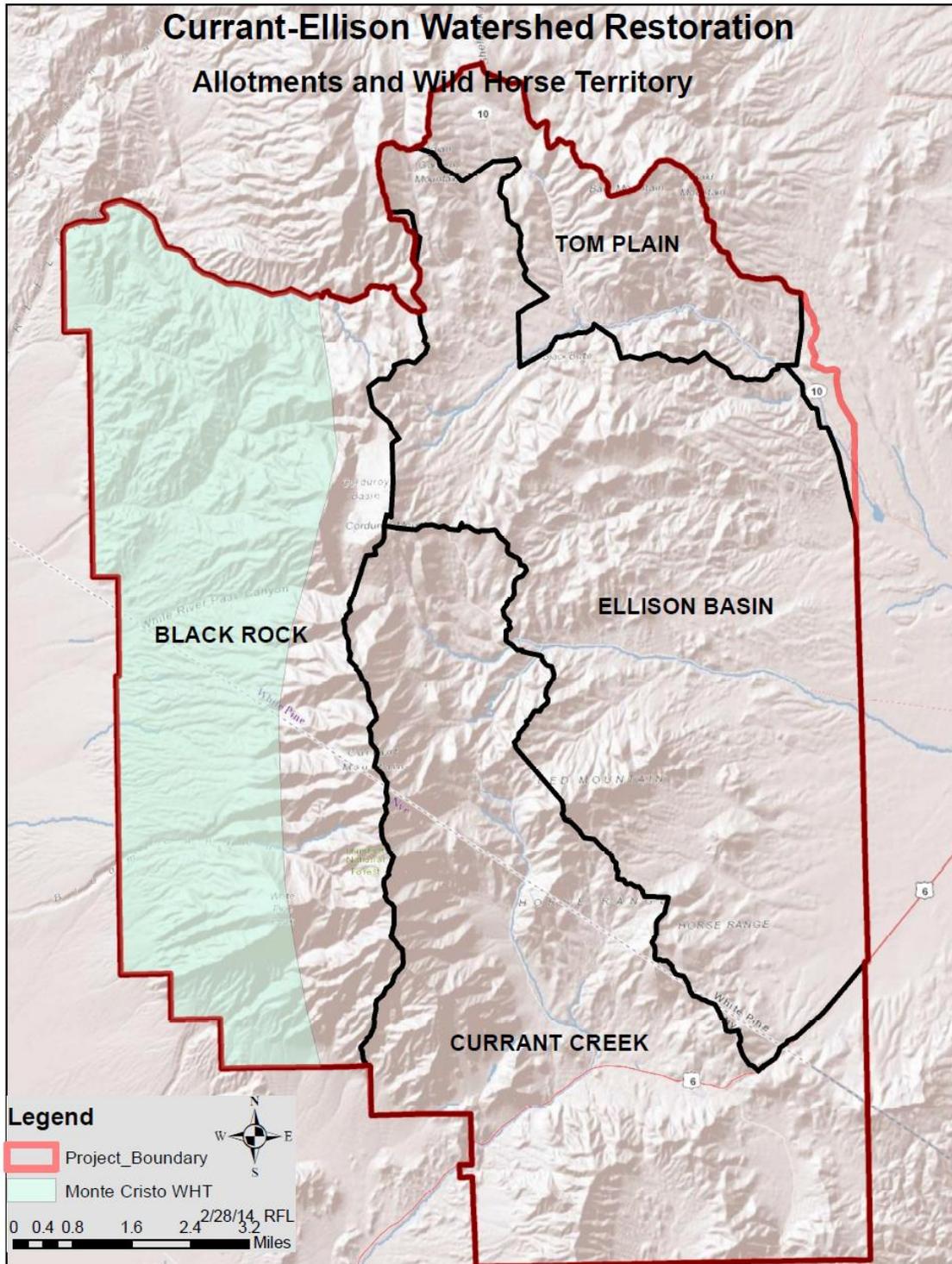
Appendix E: Fire History Map



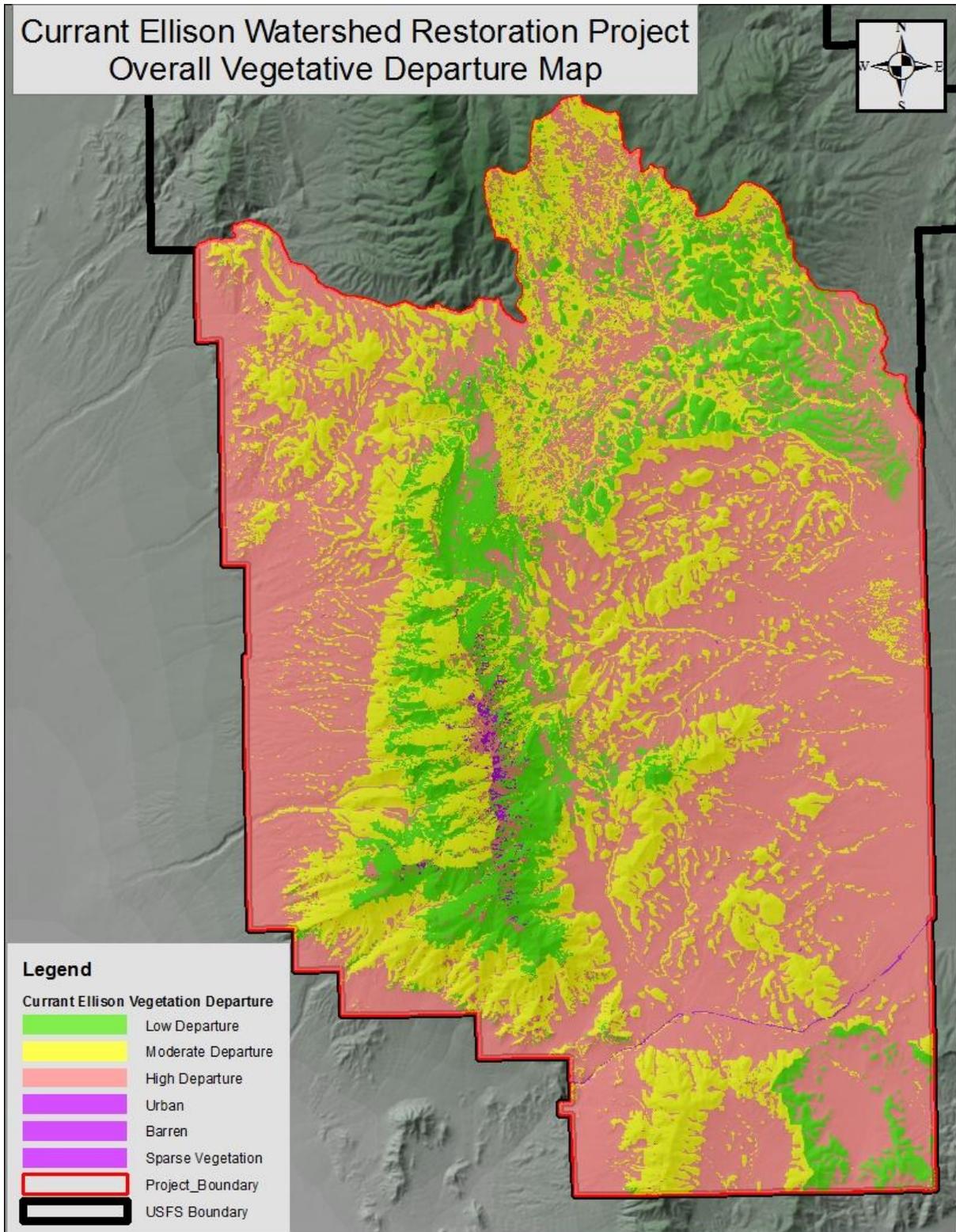
Appendix G: Locations of Noxious Weeds



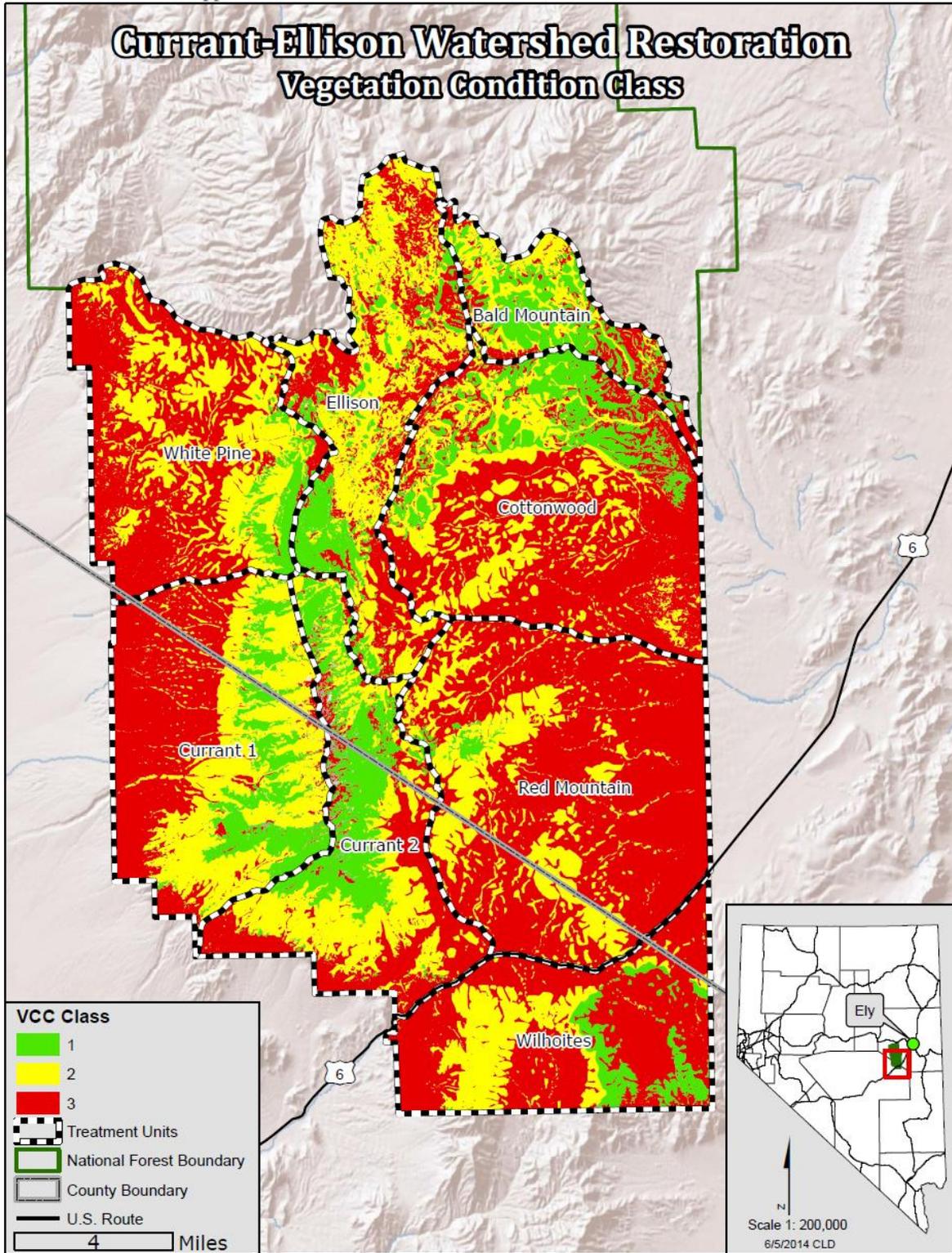
Appendix H: Livestock Grazing Allotments



Appendix I: Vegetation Departure Map



Appendix J: Vegetation Condition Class



Appendix K: Wilderness Areas

