U.S. Department of the Interior
Bureau of Land Management

Environmental Impact Statement

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3 Bars Ecosystem and Landscape Restoration Project

Final Environmental Impact Statement

Volume 2: Chapters 4 through 7, Appendices, and Response to Comments on Draft EIS

October 2016

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3 Bars Ecosystem and Landscape Restoration Project

Final Environmental Impact Statement

Volume 2:

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4 – 7

Appendices

Response
to Comments
on Draft EIS

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CHAPTER 4

CONSULTATION AND COORDINATION

4.1 Preview of this Section

This section summarizes the public involvement, scoping, and Draft EIS review process for the preparation of the 3 Bars Project EIS. Summaries of agency and government-to-government consultation are provided. The individual preparers of the EIS, with their areas of expertise and/or responsibility, are also listed.

4.2 Summary of Major Changes between the Draft and Final EIS

One major change was made to the 3 Bars Project Draft EIS and incorporated into this chapter of the Final EIS based on public comments on the Draft EIS. This change is (and Section where the change is made):

1. Added a new section describing public review and comment on the Draft EIS (Section 4.3.2).

4.3 Public Involvement

4.3.1 Public Scoping

4.3.1.1 Federal Register Notices and Newspaper Advertisements

On January 25, 2010, the BLM published a Notice of Intent in the *Federal Register* (Volume 75, Number 15, pages 3916-3917) notifying the public that the BLM had formed a team to prepare an EIS on restoration activities proposed for the 3 Bars Ecosystem. The Notice stated that public comments on the proposal would be accepted until February 24, 2010. However, the BLM stated at the public scoping meetings that it would consider all comments received prior to the close of the scoping period or 15 days after the last public meeting, whichever was later, during development of the Draft EIS. The last scoping meeting was on February 23, 2010, and scoping comments were accepted through March 10, 2010. The dates and locations of the scoping meetings were announced at least 15 days in advance through local new media, newspapers, and the BLM web site at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field.html.

4.3.1.2 Scoping Meetings

Public scoping meetings were held in Battle Mountain on February 22 and Eureka, Nevada, on February 23, 2010. The scoping meetings were conducted in an open-house style. Informational displays were provided at the meetings, and handouts describing the project, the NEPA process, and issues/alternatives were given to the public. A formal presentation provided the public with additional information on program goals and objectives. Representatives from the BLM and their consultant responsible for preparing the EIS were present to answer questions from the public.

The BLM received 24 comment letters on the proposed 3 Bars Project EIS. In addition, comments were recorded from informal discussions with the public at the public scoping meetings. However, not all individuals commenting orally at the meeting were able to be identified, making it difficult to determine the exact number of individuals presenting comments at the meetings. Based on written and oral comments given during the scoping period, 637 catalogued individual comments were recorded during scoping for the 3 Bars Project EIS.

A *Scoping Comment Summary Report for the 3 Bars Ecosystem and Landscape Restoration Project EIS* (Scoping Report; AECOM 2010) was prepared that summarized the issues and alternatives identified during scoping. This document was made available to the public in February 2012 on the 3 Bars Project website at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/0.html.

4.3.2 Public Review and Comment on the Draft EIS

The Notice of Availability of the *Draft Environmental Impact Statement for the 3 Bars Ecosystem and Landscape Restoration Project in Eureka County, NV* was published in the Federal Register on September 27, 2013 (Federal Register, Volume 78, Number 188, Pages 59712-59713). The public comment period was originally scheduled from September 27 through November 12, 2013; however, due to a government shutdown, a notice extending the public comment period to November 29, 2013, was published in the Federal Register on November 12, 2013 (Federal Register, Volume 78, Number 218, Pages 67392-67393). The BLM issued a news release on September 27, 2013, notifying the public that the Draft EIS was available for public review, and listing the schedule for public comment hearings. The BLM also issued a news release on October 22, 2013, notifying the public that the comment period had been extended due to the government shutdown. Information on the Draft EIS was also posted on the BLM website. The public was able to access the website to download a copy of the Draft EIS.

A public meeting was held in Eureka, Nevada, on November 7, 2013. The Draft EIS meeting was conducted in an open-house style. Informational displays were provided at the meeting, and handouts describing the project, the NEPA process, and issues/alternatives were given to the public. In addition, a formal presentation provided the public with additional information on program goals and objectives. Representatives from the BLM and their consultant responsible for preparing the Draft EIS were present to answer questions from the public. Three individuals attended the meeting, in addition to BLM and contractor staff.

The BLM accepted all comments received from September 27 through November 29, 2013. Over 6,800 comment submissions were received on the Draft EIS; nearly all (99 percent) of these were from a non-government organization mass mailing. Comments included letters and electronic mail. Appendix D of this Final EIS contains a summary of the issues and includes BLM responses to specific comments.

4.4 Agency Coordination and Consultation

4.4.1 Endangered Species Act Section 7 Consultation

As part of this EIS, the BLM consulted with the USFWS as required under Section 7 of the Endangered Species Act. The BLM prepared a formal initiation package that included: 1) a description of the program, listed threatened and endangered species, species proposed for listing, and critical habitats that may be affected by the program; and 2) a *Biological Assessment for the 3 Bars Ecosystem and Landscape Restoration Project* (USDOI BLM 2014). The Biological Assessment (BA) evaluated the likely impacts to listed species, species proposed for listing, and critical habitats from the 3 Bars Project and identified management practices to minimize impacts to these species and habitats. Consultation is ongoing and will be completed before publication of the ROD.

4.4.2 Cultural and Historic Resource Consultation

The BLM consulted with the Advisory Council on Historic Preservation and Nevada SHPO as part of Section 106 consultation under the National Historic Preservation Act to determine how proposed treatment actions could impact cultural resources. A *Programmatic Agreement between the Mount Lewis Field Office of the Bureau of Land Management and the Nevada State Historic Preservation Officer regarding National Historic Preservation Act Compliance for the 3Bars Ecosystem and Landscape Restoration Project, Eureka County, Nevada*, was prepared to ensure that historic properties will be treated to avoid or mitigate effects to the extent practicable to satisfy the BLM's National Historic Preservation Act Section 106 responsibilities for all aspects of the 3 Bars Project (**Appendix B**). Consultation is ongoing and will be completed before publication of the ROD. Formal consultations with the Nevada SHPO and Native American tribes also may be required during implementation of projects at the local level.

4.5 Government-to-Government Consultation

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

The BLM consults with federally recognized tribes, consistent with the Presidential Executive Memorandum dated April 29, 1994, on *Government-to-Government Relations with Native American Tribal Governments*; and Executive Order 13175 dated November 6, 2000, on *Consultation and Coordination with Indian Tribal Governments*.

The BLM consults with federally recognized tribes before making decisions or undertaking activities that will have a substantial, direct effect on federally recognized tribes, or their assets, rights, services, or programs. The BLM initiated consultation with various tribes and bands of the Western Shoshone to identify their cultural values, religious beliefs, traditional practices, and legal rights that could be affected by BLM actions. This included sending out letters to the tribes and groups that could be directly affected by vegetation treatment activities,

requesting information on how the proposed activities could impact Native American interests, including the use of vegetation and wildlife for subsistence, religious, and ceremonial purposes, and conducting meetings and site visits with the interested tribes by the BLM's Native American Coordinator. The results of the meetings and trips are summarized in the *3 Bars Ecosystem and Land Restoration Project: Native American Contacts Review* (Bengston Consulting 2012). Tribes consulted for the project are:

- Te-Moak Tribe of Western Shoshone and constituent bands:
  - Battle Mountain Band
  - South Fork Band
  - Elko Band
- Duckwater Shoshone Tribe
- Ely Shoshone Tribe
- Yomba Shoshone Tribe.

4.6 List of Preparers of the 3 Bars EIS

The following specialists (and company/agency and area of specialty) that participated in the development of the EIS are listed below (**Table 4-1**). Agencies included the BLM, NDOW, National Park Service, and Eureka County Board of Commissioners. Subcontractors that provided assistance to the BLM during preparation of the EIS included AECOM, Bengston Consulting, Blankenship Consulting, Eastern Nevada Landscape Coalition, and Sammons/Dutton Consulting.

TABLE 4-1

List of Preparers of the 3 Bars EIS

Contributor	Areas of Specialty	Years of Experience	Highest Degree/Education
Bureau of Land Management			
Ethan Arky	Recreation, Wilderness, Visual, and Auditory Resources	1	B.S., Recreation, Park, and Leisure Studies
Kent Bloomer	Noxious Weeds and Invasive and Non-native Species, and Health and Human Safety	5	M.A., Geography
Chris Cook	Field Manager	15	M.S., Anthropology
Ethan Ellsworth	Wildlife and Special Status Species	20	Ph.D., Wildlife Resources
Steve Foree	Team Leader, Project Manager, Contracting Officer's Representative, and Native American Coordinator	32	B.S., Biology
Kathy Graham	Geographic Information System Mapping	16	B.S., Wildlife Management
Dorothy Harvey	Information Technology Specialist and Acting Public Affairs Officer	20	B.S., Business Technology
Ashley Johnson	Rangeland, Soils, and Vegetation	4	M.S., Rangeland Management/ Watershed Management
Casey Johnson	Rangeland, Soils, and Vegetation	10	B.S., Range Resources Management
Cheryl LaRoque	Hazardous Materials	12	B.S., Environmental Science
Chad Lewis	Team Leader, Project Manager, Fuels, Forestry, Fire Management, and Air Quality	20	B.S., Forestry and Natural Resource Management
Nancy Lockridge	Land Use	10	A.A., Business
Shawna Richardson	Wild Horses and Burros	20	B.S., Natural Resource Management
Kat Russell	Cultural Resources, Geographic Information System, and Paleontology	30	B.A., Archaeology
Alden Shallcross	Riparian Soils, Water Quality and Quantity, and Wetlands, Floodplains, and Riparian Zones	2	M.S., Hydrologic Sciences
Jon Sherve	Minerals, Mining, and Geology	17	M.S., Hydrology/Hydrogeology
Gloria Tibbetts	NEPA, Environmental Justice, and Social and Economic Values	9	B.A., Environmental Studies, and Master of Public Administration
Josh Tibbetts	Fuels, Fire Management, and Air Quality	13	Undergraduate Certificate - Biological Sciences for Federal Land Managers

TABLE 4-1 (Cont.)

List of Preparers of the 3 Bars EIS

Contributor	Areas of Specialty	Years of Experience	Highest Degree/Education
***Bureau of Land Management* (Cont.)**			
Mike Vermeys	Noxious Weeds and Invasive and Non-native Species and Health and Human Safety	16	B.A., Biology
Nevada Department of Wildlife			
Steve Foree	Wildlife	32	B.S., Biology
Alan Jenne	Habitat	19	B.S., Wildlife Management
Mike Podborny	Wildlife	27	B.S., Wildlife Ecology
Mike Starr	Fisheries	2	B.S., Wildlife Ecology and Conservation
Eureka County			
Jake Tibbitts	Natural Resources and Socioeconomics	8	M.S., Geographic Information Science – Geospatial Rangeland
National Park Service			
Lee Kreutzer	Cultural Resources and Historic Trails	20	Ph.D., Archaeology
AECOM			
Kimberly Anderson	Noxious Weeds and Invasive Species and Human Health	14	M.S., Botany
Bill Berg	Geology, Topography, Minerals, and Paleontology	24	M.S., Geology
Robert Berry	Groundwater Resources	37	Ph.D., Geology and Geochemistry
Jim Burrell	Surface Water Resources	33	M.S., Surface Water Resources
Sergio Cappozi	Recreation	12	M.S., Forestry
Sue Coughenour	Document Production	26	General Studies Degree
Rollin Daggett	Fish and other Aquatic Resources	36	M.S., Aquatic Ecology
Richard Deis	Archaeology	22	M.A., Archeology
Doree DuFresne	Project Coordinator	25	B.S., Biology and Chemistry
Chris Dunne	Livestock Grazing, Rangeland, and Wild Horses	15	B.S., Natural Resources Management
David Fetter	Water Resources	8	B.S., Watershed Science
Steve Graber	Land Use, Wilderness Study Areas, and Socioeconomics	8	B.S., Natural Resources Management, B.A., Economics
Liza Gould	Fish and Wildlife Resources	13	B.S., Botany and Vegetation Ecology
Jim Harvey	Administrative Record	25	B.A., Physics, Mathematics and Economics

TABLE 4-1 (Cont.)

List of Preparers of the 3 Bars EIS

Contributor	Areas of Specialty	Years of Experience	Highest Degree/Education
***AECOM*(Cont.)**			
Steve Heipel	Cultural Resources	33	B.S., Anthropology
Ashley Lunde	Fire, Forestry, and Hazardous Materials	7	M.A., Environmental Studies and Political Science
Melanie Martin	Assistant Project Manager	13	M.S., Environmental Policy and Management and Natural Resources Management
Terra Mascarenas	Soil Resources	15	B.S., Soil and Crop Science
Tina Mirabile	Human Health	13	B.S., Geology, Master of Business Administration
Merlyn Paulson	Visual Resources	36	M.S., Landscape Architecture
Kathy Paulus	Administrative Record	26	M.Ed., Education
Stuart Paulus	Project Manager, Wildlife Resources, and Fire Management	33	Ph.D., Wildlife Ecology
Brent Read	Geographic Information System Lead	11	M.S., Watershed Science, and Geographic Information System
Peggy Roberts	Public Participation	15	M.S., Biology
Vince Scheetz	Air Quality	43	M.S., Systems Management
Jason Thoene	Geographic Information System	13	M.S., Geographic Information System
Petra Unger	Vegetation	19	Diploma (similar to M.S.), Biology
Bengston Consulting			
Ginny Bengston	Native American Resources	22	M.A., Anthropology
Blankenship Consulting			
George Blankenship	Social Resources	33	M.S., Urban and Regional Planning
Eastern Nevada Landscape Coalition			
Moira Kolada	Rangeland Resources	6	M.S., Range Science and Wildlife Management
Betsy MacFarlan	Executive Director	20	M.S., Animal Science
Sammons/Dutton			
Ron Dutton	Socioeconomics	33	M.S., Economics

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REFERENCES

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CHAPTER 6

GLOSSARY

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CHAPTER 6

GLOSSARY

A

Active ingredient (a.i.): The chemical or biological component that kills or controls the target pest.

Activity fuel: Fuels resulting from, or altered by, forestry practices such as timber harvest or thinning, as opposed to naturally created fuels.

Adaptive management: A system of management practices based on clearly identified outcomes, and monitoring to determine if management actions are meeting outcomes, and if not, to facilitate management changes that will best ensure that outcomes are met or are re-evaluated.

Additive effect: A situation in which the combined effects of exposure to two effects simultaneously is equal to the sum of the effects given alone.

Adverse impact: Impact that causes harm or a negative result.

Air pollutant: Any substance in the air that, if in high enough concentration, could harm humans, animals, vegetation, or material. Air pollutants may include almost any natural or artificial matter capable of being airborne, in the form of solid particles, liquid droplets, gases, or a combination of these.

Air quality: The composition of air with respect to quantities of pollution therein; used most frequently in connection with "standards" of maximum acceptable pollutant concentrations.

Allotment (grazing): Area designated for the use of a certain number and kind of livestock for a prescribed period of time.

Alternative: In an Environmental Impact Statement (EIS) or Environmental Assessment, one of a number of possible options for responding to the purpose and need for action.

Ambient air: Any unconfined portion of the atmosphere; open air and surrounding air. Often used interchangeably with "outdoor air."

Animal Unit (AU): A standardized unit of measurement for range livestock that is equivalent to one mature cow of approximately 1,000 pounds and a calf as old as 6 months, one horse, five sheep, five goats, or four reindeer, all over 6 months of age.

Animal Unit Month (AUM): The amount of feed or forage required by one animal unit grazing on a pasture for 1 month.

Appropriate Management Level (AML): An estimate of the number of wild horses and burros that public lands can support while maintaining a thriving natural ecological balance.

Aquatic: Growing, living in, frequenting, or taking place in water; used to indicate habitat, vegetation, or fish or wildlife in freshwater.

Areas of Critical Environmental Concern: An area within public lands that requires special management attention to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; other natural systems or processes; or to protect life or provide safety from natural hazards.

Attainment area: A geographic area that is in compliance with the National Ambient Air Quality Standards (NAAQS). An area considered to have air quality as good as or better than the National Ambient Air Quality Standards as defined in the Clean Air Act.

B

Baffle: A baffle is a deflector of various configurations and materials, used to create lateral erosion of a streambank in order to widen the channel and alter the meander geometry. A baffle functions by concentrating stream velocity along the opposite bank while decreasing velocity along the adjacent bank. The result is accelerated erosion of the opposite bank with a commensurate increase in sediment deposition along the adjacent bank, causing point bar formation. As the point bar becomes colonized by riparian vegetation, it becomes increasingly resistant to erosion and more effective at deflecting flow towards the opposite bank. In order to achieve the desired meander pattern, baffles must be properly sized and spaced.

Biological Assessment (BA): A document prepared by or under the direction of a federal agency that addresses federally listed and proposed species and designated and proposed critical habitat that may be present in the action area, and evaluates the potential effects of the action on such species and habitat.

Biological diversity (biodiversity): The variety and variability among living organisms and the ecological complexes in which they occur.

Biological soil crust: Thin crust of living organisms on or just below the soil surface and composed of lichens, mosses, algae, fungi, cyanobacteria, and bacteria.

Broad scale: A large, regional area, such as a river basin; typically a multi-state area.

Buffer strip/zone: A strip of vegetation that is left or managed to reduce the impact that a treatment or action on one area might have on another area.

Bunchgrass: A grass having the characteristic growth habit of forming a bunch and lacking stolons or rhizomes.

C

Carrying capacity: The maximum population of a particular species that a particular region can support without hindering future generations' ability to maintain the same population.

Class I area: Under the 1977 Clean Air Act amendments, all international parks, parks larger than 6,000 acres, and national wilderness areas larger than 5,000 acres that existed on August 7, 1977. This class provides the most protection to pristine lands by severely limiting the amount of additional air pollution that can be added to these areas.

Classical biological control: The use of agents, including invertebrate parasites and predators (usually insects, fungi, mites, and nematodes) and plant pathogens, to reduce populations of invasive plants.

Clean Air Act: Establishes a mandate to reduce emissions of specific pollutants via uniform federal standards. Under the Act, the U.S. Environmental Protection Agency (USEPA) is responsible for setting standards and approving state implementation plans to ensure that local agencies comply with the Act. The standards set by the USEPA include primary and secondary NAAQS for six pollutants, referred to as criteria pollutants, to protect public health and welfare. The criteria pollutants are sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, lead, and particulate matter.

Climate: The composite or generally prevailing weather conditions of a region throughout the year, averaged over a series of years.

Climate change: Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. The United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition, and climate variability attributable to natural causes.

Coarse woody debris: Pieces of woody material derived from tree limbs, boles, and roots in various stages of decay, generally having a diameter of at least 3 inches and a length greater than 3 feet.

Code of Federal Regulations (CFR): A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Consultation: Exchange of information and interactive discussion; when the "C" in consultation is capitalized it refers to consultation mandated by statute or regulation that has prescribed parties, procedures, and timelines (e.g., Consultation under the National Environmental Policy Act or Section 7 of the Endangered Species Act).

Cooperating Agency: Under Council on Environmental Quality regulations implementing the National Environmental Policy Act, tribal, state, and local governments, as well as other federal agencies, that cooperate with the lead agency (BLM for the 3 Bars Project) in the preparation of an EIS. Agencies that have been granted cooperating agency status for preparation of the 3 Bars Project EIS are the National Park Service, Nevada Department of Wildlife, and Eureka Board of County Commissioners.

Council on Environmental Quality (CEQ): An advisory council to the President of the United States and established by the National Environmental Policy Act (NEPA) of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters.

Countervailing: A type of cumulative impact where negative effects are compensated for by beneficial effects.

Cover: 1) Trees, shrubs, rocks, or other landscape features that allow an animal to partly or fully conceal itself, and 2) the area of ground covered by plants of one or more species, usually expressed as a percent of the ground surface.

Criteria pollutants: Air pollutants designated by the USEPA as potentially harmful and for which ambient air quality standards have been set to protect the public health and welfare. The criteria pollutants are carbon monoxide, sulfur dioxide, particulate matter, nitrogen dioxide, ozone, hydrocarbons, and lead.

Cultural resources: Nonrenewable evidence of human occupation or activity as seen in any area, site, building, structure, artifact, ruin, object, work of art, architecture, or natural feature.

Culvert retrofit: A method of stabilization that consists of raising the effective invert elevation of an existing culvert without replacing the existing installed pipe. Streambed control can be achieved without the cost of a new culvert installation.

Cumulative effects: Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

D

Degradation: Physical or biological breakdown of a complex compound into simpler compounds.

Densification: As it applies to the 3 Bars Project, an increase in the density of pinyon-juniper within woodland stands due to fire exclusion and livestock grazing.

Density: The number of individuals per a given unit area.

Desired plant community: One of the several plant communities that may occupy a site that has been identified through a management plan to best meet the plan's objectives for the site.

Direct effects: Impacts on the environment that are caused by the action and occur at the same time and place.

Dispersed recreation: Recreation that does not occur in a developed recreation site; for example, hunting or backpacking.

Dispersion: The act of distributing or separating into lower concentrations or less dense units.

Disturbance: Refers to events that alter the structure, composition, or function of terrestrial or aquatic habitats. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens. Human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and introduction of exotic species.

Dominant: A group of plants that by their collective size, mass, or number exerts a primary influence onto other ecosystem components.

Draft Environmental Impact Statement (Draft EIS): The draft statement of the environmental effects of a major federal action which is required under Section 102 of the NEPA, and released to the public and other agencies for comment and review.

Drift: That part of a sprayed chemical that is moved by wind off a target site.

E

Early successional stage: A successional stage, or collection of stages, that occurs immediately following a disturbance.

Ecological site: A type of land with specific physical characteristics that differs from other types of land in its ability to produce distinctive kinds and amounts of vegetation and its response to management.

Ecological site inventory: The basic inventory of present and potential vegetation on BLM rangelands. Ecological sites are differentiated on the basis of the kind, proportion, or amount of plant species.

Ecological status: The present state of vegetation of a range site in relation to the potential natural community for that site.

Ecoregion: Ecoregions are geographic areas that are delineated and defined by similar climatic conditions, geomorphology, and soils. Since these factors are relatively constant over time and strongly influence the ecology of vegetative communities, ecoregions may have similar potentials and responses to disturbance.

Ecosystem: Includes all the organisms of an area, their environment, and the linkages or interactions among all of them; all parts of an ecosystem are interrelated. The fundamental unit in ecology, containing both organisms and abiotic environments, each influencing the properties of the other and both necessary for the maintenance of life.

Ecosystem health (forest health, rangeland health, aquatic system health): A condition where the parts and functions of an ecosystem are sustained over time and where the system's capacity for self-repair is maintained, such that goals for uses, values, and services of the ecosystem are met.

Edge effect: The influence of two communities on populations in their adjoining boundary zone or ecotone, affecting the composition and density of the populations in these bordering areas.

Effect: Environmental change resulting from a proposed action. Direct effects are caused by the action and occur at the same time and place, while indirect effects are caused by the action but are later in time or further removed in distance, although still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effect and impact are synonymous as used in this document.

Encroachment: Natural succession resulting in densification or interspace in-filling, causing an understory or previously dominant species to decline.

Endangered species: Plant or animal species that are in danger of extinction throughout all or a significant part of their range.

Endemic species: Plants or animals that occur naturally in a certain region and whose distribution is relatively limited to a particular locality.

Environment: 1) The physical conditions that exist within an area (e.g., the area that will be affected by a proposed project), including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance; and 2) the sum of all external conditions that affect an organism or community to influence its development or existence.

Environmental Assessment: A concise public document, for which a federal agency is responsible, that serves to: 1) briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact; 2) aid an agency's compliance with the NEPA when no EIS is necessary; and 3) facilitate preparation of an EIS when one is necessary.

Environmental Impact Statement (EIS): A required report for all federal actions that will lead to significant effects on the quality of the human environment. The report must be systematic and interdisciplinary, integrating the natural and social sciences as well as the design arts in planning and decision-making. The report must identify 1) the environmental impacts of the proposed action, 2) any adverse environmental effects which cannot be avoided should the proposal be implemented, 3) alternatives to the proposed action, 4) the relationship between short-term uses of human environment and the maintenance and enhancement of long-term productivity, and 5) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Erosion: The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities. Erosion can be accelerated or intensified by human activities that reduce the stability of slopes or soils.

Exotic species: Includes species introduced into an area that may have adapted to the area and compete with resident native (indigenous) species.

Expansion: Occurs when vegetation, such as pinyon-juniper, expands into new areas where it was not found historically.

Evapotranspiration: Discharge of water from the earth's surface into the atmosphere by transpiration by plants during growth and by evaporation from the soil, lakes, and streams.

F

°F: Degrees Fahrenheit.

Fauna: The vertebrate and invertebrate animals of the area or region.

Feasible: Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Federal Land Policy and Management Act: Law mandating that the BLM manage lands under its jurisdiction for multiple uses. Establishes guidelines for its administration and provides for the management, protection, development, and enhancement of the public lands, among other provisions.

Fertility control: A tool to decrease fertility and which, when implemented, reduces (slows) population growth rates and extends the wild horse gather cycle.

Final Environmental Impact Statement (Final EIS): A revision of the Draft EIS based on public and agency comments on the draft.

Fire adapted: Plants that can withstand a certain frequency and intensity of fire.

Fire break: A fire break is a gap in vegetation or other combustible material that acts as a barrier to slow or stop the progress of a wildfire. A firebreak may occur naturally where there is a lack of vegetation, such as a river, lake, or canyon. Firebreaks may also be man-made, and many of these also serve as roads, such as a logging road, four-wheel drive trail, secondary road, or a highway.

Fire dependent: An ecosystem evolving under periodic perturbations by fire and that consequently depends on periodic fires for normal ecosystem function.

Fire intolerant: Species of plants that do not grow well with or die from the effects of too much fire.

Fire management plan: A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational procedures such as preparedness plans, pre-planned dispatch plans, prescribed fire plans, and prevention plans.

Fire regime: The patterns of fire occurrences, frequency, size, and severity, and sometimes vegetation and fire effects, in a given area or ecosystem.

Fire return interval: The average time between fires in a given area.

Fisheries habitat: Streams, lakes, and reservoirs that support fish populations.

Fishery: The act, process, occupation, or season of taking an aquatic species.

Floodplain: The area starting at or just above the bankfull elevation of the stream channel, where frequent flood events spill out of the channel. The floodplain is inundated relatively frequently, such as once every 1 to 3 years. The floodplain is normally a relatively flat topographic feature adjacent to the stream channel that allows floodwaters to spread out and thus dissipate energy.

Forage: Vegetation eaten by animals, especially grazing and browsing animals.

Forbs: Broad-leafed pants; includes plants that commonly are called weeds or wildflowers.

Forestland: Land where the potential natural plant community contains 10 percent or more tree canopy cover.

Formulation: The commercial mixture of both active and inactive (inert) ingredients.

Fossilization: The process of fossilizing a plant or animal that existed in some earlier age; the process of being turned to stone.

Fragmentation (habitat): The breaking-up of a habitat or cover type into smaller, disconnected parcels.

Fuel (fire): Dry, dead parts of trees, shrubs, and other vegetation that can burn readily.

Fuel break: A fuel break is a strip or block of land on which the vegetation, debris, and detritus have been reduced and/or modified to control or diminish the risk of the spread of fire crossing the strip or block of land.

Functional-at-risk: Riparian or wetland areas are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

G

General Habitat Management Areas (GHMA): General Habitat Management Areas consist of habitat types of moderate importance to Greater sage-grouse, however, GHMA may also include areas of higher quality habitat that lacks bird survey and inventory data to support a priority habitat ranking. General Habitat Management Areas provides some benefit to Greater sage-grouse populations but, in many instances, lacks a key component, such as adequate shrub height or density or sufficient herbaceous understory, which prevents it from meeting its full ecological potential. General Habitat Management Areas also may include areas burned recently that have not sufficiently recovered or sagebrush communities with pinyon-juniper encroachment. The BLM and the Forest Service define GHMA as lands where some special management will apply to sustain Greater sage-grouse populations. General Habitat Management Areas have the potential to be reclassified as Priority Habitat Management Areas if restoration efforts enhance the habitat quality or ongoing field efforts document Greater sage-grouse use.

Geographic Information System (GIS): An information processing technology to input, store, manipulate, analyze, and display data; a system of computer maps with corresponding site-specific information that can be combined electronically to provide reports and maps.

Great Basin: The Great Basin is defined as the area wedged between the Sierra Nevada Mountains on the west and the Wasatch branch of the Rocky Mountains on the east, and the Snake River to the north. Its southern boundary cuts across the lower tip of Nevada and the southwestern corner of Utah, where land takes on the characteristics of the Mojave and Sonora Deserts. Within the region, three major plant communities grow: sagebrush, salt desert shrub, and pinyon and/or juniper woodlands.

Groundwater: Subsurface water that is in the zone of saturation. The top surface of the groundwater is the "water table." Source of water for wells, seeps, and springs.

H

Habitat: The natural environment of a plant or animal, including all biotic, climatic, and soil conditions, or other environmental influences affecting living conditions. The place where an organism lives.

Habitat fragmentation: The break-up of a large land area (such as forest) into smaller patches isolated by areas converted to a different land type. The opposite of connectivity.

Hardened rock crossing: A form of low water crossing with utilizes rock to reduce the impact of vehicle and animal traffic on a stream crossing.

Hazardous fuels: In the context of wildfire includes living and dead and decaying vegetation that form a special threat of ignition and resistance to control.

Headcut: An erosional feature of some intermittent streams and perennial streams, also known as a knickpoint, where an abrupt vertical drop in a streambed occurs. The knickpoint, where a headcut begins, can be as small as an overly-steep riffle zone or as a large as a waterfall. When not flowing, the headcut will resemble a very short cliff or bluff. A small plunge pool may be present at the base of the headcut due to the high energy of falling water. As erosion of the knickpoint and the streambed continues, the headcut will migrate upstream.

Herbaceous: Non-woody plants that include grasses, grass-like plants, and forbs.

Herbicide: A chemical pesticide used to control, suppress, or kill vegetation, or severely interrupt normal growth processes.

Herbivore: An animal that feeds on plants.

Herd Area: Geographic area of the public lands identified as habitat used by wild horses and burros at the time the Wild and Free-roaming Horses and Burros Act was enacted (December 15, 1971).

Herd Management Area (HMA): Areas designated for the long-term management of wild horses. Herd Management Areas are designated through the land use planning process for the maintenance of wild horse and burro herds. In delineating each HMA, the authorized officer shall consider the AML for the herd, the habitat requirements of the animals, the relationships with other uses of the public and adjacent private lands, and the constraints contained in 43 CFR 4710.4.

Hydric soil: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation. Hydrophytic (wetland) vegetation is defined as any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water.

Hydrologic Unit Code: A hierarchical coding system developed by the U.S. Geological Survey to identify geographic boundaries of watersheds of various sizes.

Hydrophobic: Any macrophyte that grows in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water.

I

Indigenous: Living or occurring naturally in an area; native, endemic people, flora, or fauna.

Indirect effects: Impacts that are caused by an action, but are later in time or farther removed in distance, although still reasonably foreseeable.

Infilling: An increase in the density and competition as a result of encroachment by an invasive species, such as pinyon-juniper, into the native plant community, such as a sagebrush community, at a rate that exceeds the natural vegetation replacement rate.

Infiltration: The movement of water through soil pores and spaces.

Interim Management Policy for Lands under Wilderness Review: Policy for managing public lands under wilderness review. Section 603(c) of the Federal Land Policy and Management Act states: "During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable laws in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act: *Provided*, that, in managing the public lands the Secretary shall by regulation or otherwise take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection." Manual 6330 – Management of Wilderness Study Areas (WSAs), states the desire by the BLM not to approve any activity in WSAs which may impair their suitability for Wilderness designation via Congressional action.

Intermittent stream: A stream that flows only at certain times of the year when it receives water from other streams or from surface sources such as melting snow.

Invasive plants: Plants that 1) are not part of (if exotic), or are a minor component of (if native), the original plant community or communities; 2) have the potential to become a dominant or co-dominant species on the site if their future establishment and growth is not actively controlled by management interventions; or 3) are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants.

Invasive species: Per Executive Order 13112, an invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Invertebrate: Small animals that lack a backbone or spinal column. Spiders, insects, and worms are examples of invertebrates.

Irretrievable commitment: A term that applies to losses of production or commitment of renewable natural resources. For example, while an area is used as a ski area, some or all of the timber production there is "irretrievably" lost. If the ski area closes, timber production could resume; therefore, the loss of timber production during the time the area is devoted to skiing is irretrievable, but not irreversible, because it is possible for timber production to resume if the area is no longer used as a ski area.

Irreversible commitment: A term that applies to non-renewable resources, such as minerals and archaeological sites. Losses of these resources cannot be reversed. Irreversible effects can also refer to the effects of actions on resources that can be renewed only after a very long period of time, such as the loss of soil productivity.

Issue: A matter of controversy, dispute, or general concern over resource management activities or land uses.

J

K

Key species: Forage species whose use serves an indicator to the degree of use of associated species, or those species which must, because of their importance, be considered in a management program.

Knickpoint: **S**harp break in the slope of the channel due to erosion; also see Headcut.

L

Ladder fuel: Material on or near the ground that will carry fire from the ground to the crowns of trees; sagebrush, bitterbrush, and dead and down woody material.

Land management: The intentional process of planning, organizing, programming, coordinating, directing, and controlling land use actions.

Landscape: All the natural features such as grasslands, hills, forest, and water, which distinguish one part of the earth's surface from another part; usually that portion of land that the eye can comprehend in a single view, including all of its natural characteristics.

Land use allocation: The assignment of a management emphasis to particular land areas with the purpose of achieving the goals and objectives of some specified use(s) (e.g., campgrounds, wilderness, logging, and mining).

Land Use Plan: Land Use Plans are prepared in accordance with established land use planning procedures in 43 CFR § 1600 and pursuant to Federal Land Policy and Management Act. They establish goals and objectives (desired outcomes), identify the management actions needed to achieve the desired outcomes, and identify the allowable uses of the public lands.

Large woody debris: Pieces of wood that are of a large enough size to affect stream channel morphology.

Leasable minerals: Minerals that are leased to individuals for exploration and development. The leasable minerals have been subdivided into two classes, fluid and solid. Fluid minerals include oil and gas, geothermal resources and associated by-products, and oil shale, native asphalt, oil impregnated sands and any other material in which oil is recoverable only by special treatment after the deposit is mined or quarried. Solid leasable minerals are specific minerals such as coal and phosphates.

Lek: A traditional place where males assemble during the mating season and engage in competitive displays that attract females. For purposes of the 3 Bars Project, lek refers to a place where male Greater sage-grouse congregate to attract female sage-grouse.

Lifeways: The manner and means by which a group of people lives; their way of life. Components include language(s), subsistence strategies, religion, economic structure, physical mannerisms, and shared attitudes.

Litter: The uppermost layer of organic debris on the soil surface, which is essentially the freshly fallen or slightly decomposed vegetation material such as stems, leaves, twigs, and fruits.

Locatable minerals: Locatable minerals include precious and base metallic ores and nonmetallic minerals such as bentonite, gypsum, chemical grade limestone, and chemical grade silica sand. Uncommon varieties of sand, gravel, building stone, pumice, rock, and cinders are also managed as locatable minerals. Locatable minerals are acquired by a company or individual under the General Mining Law of 1872, as amended and Surface Use and Occupancy Act of July 23, 1955.

Log and fabric step fall: A structure used to control headcuts advancing through wet soil areas such as wet meadows and spring seeps. The erosive action can be stopped if a healthy mat of wet soil vegetation can become established to hold the lip of the headwall in place.

Long-term: Generally refers to a period longer than 10 years.

M

Memorandum of Understanding (MOU): Usually documents an agreement reached amongst federal and/or state agencies.

Microbiotic crust: See biological crust.

Minimize: Apply best available technology, management practices, and scientific knowledge to reduce the magnitude, extent, and/or duration of impacts.

Mitigation: Steps taken to: 1) avoid an impact altogether by not taking a certain action or parts of an action; 2) minimize an impact by limiting the degree or magnitude of the action and its implementation; 3) rectify an impact by repairing, rehabilitating, or restoring the affected environment; 4) reduce or eliminate an impact over time by preserving and maintaining operations during the life of the action, and, 5) compensate for an impact by replacing or providing substitute resources or environments (40 CFR § 1508.20).

Mitigation measures: Means taken to avoid, compensate for, rectify, or reduce the potential adverse impact of an action.

Monitoring: The orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting management objectives.

Multiple uses: A combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These may include recreation, range, timber, minerals, watershed, wildlife, and fish, along with natural scenic, scientific, and historical values.

N

National Ambient Air Quality Standards (NAAQS): Standards set by the USEPA for the maximum levels of pollutants that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

National Environmental Policy Act (NEPA): An act of Congress passed in 1969, declaring a national policy to encourage productive and enjoyable harmony between people and the environment, to promote efforts that will prevent or eliminate damage to the environment and the biosphere and stimulate the health and welfare of people,

and to enrich the understanding of the ecological systems and natural resources important to the nation, among other purposes.

National Landscape Conservation System: A single system that encompasses some of the BLM's premier land designations. By putting these lands into an organized system, the BLM hopes to increase public awareness of these areas' scientific, cultural, educational, ecological, and other values.

Native species: Species that historically occurred or currently occur in a particular ecosystem and were not introduced.

Natural community: An assemblage of organisms indigenous to an area that is characterized by distinct combinations of species occupying a common ecological zone and interacting with one another.

Natural resources: Water, soil, plants and animals, nutrients, and other resources produced by the earth's natural processes.

No action alternative: The most likely condition to exist in the future if current management direction were to continue unchanged.

Non-native species: A species living outside its native distributional range.

Non-target: Any plant, animal, or organism that a method of treatment is not aimed at, but may accidentally be injured by the treatment.

Noxious weed: A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new, or not common to the U.S.

O

Objective: A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used to achieve identified goals.

Other Habitat Management Areas (OHMA): Other Habitat Management Areas consist of lands identified as unmapped Greater sage-grouse habitat that are within the planning area and contain seasonal or connectivity habitats.

Overgrazing: Continued heavy grazing which exceeds the recovery capacity of the plant community and creates a deteriorated rangeland.

Overstory: The upper canopy layer.

P

Paleontological resources: A work of nature consisting of or containing evidence of extinct multicellular beings and includes those works or classes of works of nature designated by the regulations as paleontological resources.

Paleontology: A science dealing with the life of past geological periods as known from fossil remains.

Particulate Matter (PM): A complex mixture consisting of varying combinations of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These tiny particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil and dust.

Particulates: Solid particles or liquid droplets suspended or carried in the air.

Passive restoration: Allowing natural succession to occur in an ecosystem after removing a source of disturbance.

Pathogen: An agent such as a fungus, virus, or bacterium that causes disease.

Payments in lieu of taxes: Payments made to counties by the BLM to mitigate for losses to counties because public lands cannot be taxed.

Per capita income: Total income divided by the total population.

Perennial: A plant that lives for 2 or more years.

Perennial stream: A stream or reach of a stream that flows continuously throughout the year and whose upper surface is generally lower than the water table in the region adjoining the stream.

Permit: A revocable authorization to use public land for a specified purpose for up to 3 years.

Persistence: Refers to the length of time a compound, once introduced into the environment, stays there.

Petroglyph: An image recorded on stone, usually by prehistoric peoples, by means of carving, pecking, or otherwise incised on natural rock surfaces.

pH: A measure of how acidic or alkaline (basic) a solution is on a scale of 0 to 14 with 0 being very acidic, 14 being very alkaline, and 7 being neutral. The abbreviation stands for the potential of hydrogen.

Phase class: Phases of woodland succession for pinyon-juniper. Phase I, trees are present but shrubs and herbs are the dominant vegetation that influence ecological processes (hydrologic, nutrient, and energy cycles) on the site; Phase II, trees are co-dominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site; and Phase III, trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site.

Phreatophytes: Plants (including, but not limited to, greasewood, rabbitbrush, and saltgrass in the 3 Bars Project area) whose root systems tap into the water table.

Plant community: A vegetation complex, unique in its combination of plants, which occurs in particular locations under particular influences. A plant community is a reflection of integrated environmental influences on the site, such as soil, temperature, elevation, solar radiation, slope aspect, and precipitation.

Playas: Flat land surfaces underlain by fine sediment or evaporate minerals deposited from a shallow lake on the floor of a topographic depression.

$PM_{2.5}$: Fine particulates that measure 2.5 microns in diameter or less.

PM_{10}: Particulate matter that measures 10 microns in diameter or less.

Porosity: The ratio of the volume of void space in a material (e.g., sedimentary rock or sediments) to the volume of its mass.

Potential Natural Community: The plant community that will persist under pre-settlement disturbance regimes and climate. It is an expression of environmental factors such as topography, soil, and climate across an area where the cover type is a classification of the existing vegetation community.

Predator: An organism that captures and feeds on parts or all of a living organism of another species.

Preferred alternative: The alternative identified in an EIS that has been selected by the agency as the most acceptable resolution to the problems identified in the purpose and need.

Priority Habitat Management Areas (PHMA): Priority Habitat Management Areas consist of essential, irreplaceable and important habitats for Greater sage-grouse. These areas include breeding habitat (lek sites and nesting habitat), brood-rearing habitat, winter range, and important movement corridors. Priority Habitat Management Areas primarily consist of sagebrush, but may also include riparian communities, perennial grasslands, agricultural land, and restored habitat, including recovering burned areas. The BLM and the Forest Service define PHMA as having the highest conservation value to maintaining sustainable Greater sage-grouse populations.

Prescribed fire: A management ignited wildland fire that burns under specified conditions and in a predetermined area, and that produces the fire behavior and fire characteristics required to attain fire treatment and resource management objectives. An approved prescribed fire plan, and conformance with the NEPA, are required prior to ignition.

Prescribed fire projects: Includes the BLM's efforts to utilize fire as a critical natural process to maintain and restore ecosystems, rangeland, and forestlands, and to reduce the hazardous buildup of fuels that may threaten healthy lands and public safety.

Prescribed grazing: The careful application of grazing or browsing prescriptions (i.e., specified grazing intensities, seasons, frequencies, livestock species, and degrees of selectivity) to achieve natural resource objectives. Livestock production is a secondary objective when using prescribed grazing as a natural resource management tool.

Prevention of Significant Deterioration (PSD): A USEPA program in which state and/or federal permits are required in order to restrict emissions from new or modified sources in places where air quality already meets or exceeds primary and secondary ambient air quality standards.

Productivity: The innate capacity of an environment to support plant and animal life over time. Plant productivity is the rate of plant production within a given period of time. Soil productivity is the capacity of a soil to produce plant growth, due to the soil's chemical, physical, and biological properties.

Programmatic EIS: An area-wide EIS that provides an overview when a large-scale plan is being prepared for the management of federally administered lands on a regional or multi-regional basis.

Proper Functioning Condition: Riparian and wetland areas achieve Proper Functioning Condition when adequate vegetation, landform, and/or large woody debris are present to dissipate stream energy associated with high water flows. This reduces erosion and improves water quality; filters sediment, captures bedload, and aids in floodplain development; improves floodwater retention and groundwater recharge; develops root masses that stabilize streambanks against cutting; develops diverse ponding and channel characteristics to provide habitat and water depth, duration, and temperature necessary for fish production, avian breeding habitat, and other uses; and support greater biodiversity.

Proposed action: A proposal by a federal agency to authorize, recommend, or implement an action.

Public lands: Any land and interest in land owned by the United States that are administered by the Secretary of the Interior through the BLM, without regard to how the United States acquired ownership, except for (1) lands located on the Outer Continental Shelf, and (2) lands held for the benefit of Native Americans, Aleuts, and Eskimos. Includes public domain and acquired lands.

Public scoping: A process whereby the public is given the opportunity to provide oral or written comments about the influence of a project on an individual, the community, and/or the environment.

Q

Qualitative: Traits or characteristics that relate to quality and cannot be readily measured with numbers.

Quantitative: Traits or characteristics that can be measured with numbers.

R

Radiometric dating: The use of the naturally occurring isotope of carbon-14 in radiometric dating to determine the age of organic materials.

Rangeland: Land on which the native vegetation is predominantly grasses, grass-like plants, forbs, or shrubs; not forests.

Rangeland health assessment: Assessment used to determine if rangeland conditions are achieving Land Use Plan objectives and Rangeland Health Standards and Guidelines. The Indicators of Rangeland Health—actual use, utilization, use pattern maps, ecological status, rangeland trend studies, and professional judgment—are used to evaluate conditions in accordance with BLM's Handbook 4180, *Rangeland Health Standards*.

Raptor: Bird of prey; includes eagles, hawks, falcons, and owls.

Receptor: An ecological entity exposed to a stressor.

Recharge: Replenishment of water to an aquifer.

Record of Decision (ROD): A document separate from, but associated with, an EIS, which states the decision, identifies alternatives (specifying which were environmentally preferable), and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not.

Recovery plan: Identifies, justifies, and schedules the research and management actions necessary to reverse the decline of a species and ensure its long-term survival.

Registered herbicide: All herbicides sold or distributed in the United States must be registered by the USEPA, based on scientific studies, showing that they can be used without posing unreasonable risks to people or the environment.

Rehabilitation: The "repair" of an area using native and/or non-native plant species to obtain a stable plant community that will protect the area from erosion and invasion by noxious weeds.

Resident fish: Fish that spend their entire life in freshwater.

Resource Management Plan (RMP): Comprehensive land management planning document prepared by and for the BLM's administered properties under requirements of the Federal Land Policy and Management Act. Bureau of Land Management lands in Alaska are exempted from this requirement.

Restoration: Implementation of a set of actions that promotes plant community diversity and structure and that allows plant communities to be more resilient to disturbance over the long-term.

Revegetation: Establishing or re-establishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation), or by seeding or transplanting (artificial revegetation).

Rights-of-way (ROW): A permit or an easement that authorizes the use of lands for certain specified purposes, such as the construction of forest access roads or a gas pipeline.

Riparian: Occurring adjacent to streams and rivers and directly influenced by water. A riparian community is characterized by certain types of vegetation, soils, hydrology, and fauna and requires free or unbound water or conditions more moist than that normally found in the area.

Riparian vegetation manipulation: The selective planting or removal of protective streambank vegetation to increase or decrease the rate of erosion or deposition of material within a stream channel.

Risk: The likelihood that a given exposure to an item or substance that presents a certain hazard will produce illness or injury.

Risk assessment: The process of gathering data and making assumptions to estimate short- and long-term harmful effects on human health or the environment from particular products or activities.

Rock channel liner: A long, narrow one rock dam, much longer than it is wide, built in a recently incised gully bottom and used to armor the bed and/or reconnect bankfull flow with the recently abandoned floodplain.

Runoff: That part of precipitation, as well as any other flow contributions, that appears in surface streams, either perennial or intermittent.

S

Salable minerals: Salable minerals are all other common mineral materials that were not designated as leasable or locatable, and include sand, gravel, roadbed, ballast, and common clay.

Salmonids: Fishes of the family Salmonidae, including salmon, trout, chars, whitefish, ciscoes, and grayling.

Scoping: The process by which significant issues relating to a proposal are identified for environmental analysis. Scoping includes eliciting public comment on the proposal, evaluating concerns, and developing alternatives for consideration.

Sedimentation: The process of forming or depositing sediment; letting solids settle out of wastewater by gravity during treatment.

Sediments: Unweathered geologic materials generally laid down by or within waterbodies; the rocks, sand, mud, silt, and clay at the bottom and along the edge of lakes, streams, and oceans.

Sensitive species: 1) Plant or animal species susceptible or vulnerable to activity impacts or habitat alterations, and 2) species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species.

Seral: Refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition. In a forest, for example, early seral forest refers to seedling or sapling growth stages; mid-seral refers to pole or medium saw timber growth stages; and mature or late seral forest refers to mature and old-growth stages.

Short-term impacts: Impacts occurring during project construction and operation, and normally ceasing upon project closure and reclamation. The definition of short-term may vary for each resource.

Significant: The description of an impact that exceeds a certain threshold level. Requires consideration of both context and intensity. The significance of an action must be analyzed in several contexts, such as society as a whole, and the affected region, interests, and locality. Intensity refers to the severity of impacts, which should be weighted along with the likelihood of its occurrence.

Slope: The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, and then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Snag: A standing dead tree, usually larger than 5 feet tall and 6 inches in diameter at breast height.

Sociocultural: Of, relating to, or involving a combination of social and cultural factors.

Socioeconomic: Pertaining to, or signifying the combination or interaction of social and economic factors.

Soil adsorption: The tendency of a chemical to bind to soil particles. Adsorption occurs onto clay particles and onto both the solid and dissolved forms of organic matter.

Soil compaction: The compression of the soil profile from surface pressure, resulting in reduced air space, lower water holding capacity, and decreased plant root penetrability.

Soil horizon: A layer of soil material approximately parallel to the land surface that differs from adjacent, genetically related, layers in physical, chemical, and biological properties.

Soil texture: The relative proportions of sand, silt, and clay particles in a mass of soil.

Solitude: The state of being alone or remote from habitations; a lonely, unfrequented, or secluded place. The intent is to evaluate the opportunity for solitude in comparison to habitations of people.

Solubility: Tendency of a chemical to dissolve in water.

Special status species: Refers to federally listed threatened, endangered, proposed, or candidate species, and species managed as sensitive species by the BLM.

Stand: A group of trees in a specific area that is sufficiently alike in composition, age, arrangement, and condition so as to be distinguishable from the forest in adjoining areas.

Standard Operating Procedures (SOPs): Procedures that are followed by the BLM to ensure that risks to human health and the environment from treatment actions are kept to a minimum.

Step-down: Refers to the process of applying broad-scale science findings and land use decisions to site-specific areas using a hierarchical approach of understanding current resource conditions, risks, and opportunities.

Step pools and rock rundowns: A stabilization method that repairs a high energy headcut by laying back the headcut at a less steep gradient by building a series of step pools to gradually dissipate the energy of the falling water. Several structures of different types applied in sequence are often required to stabilize a headcut.

Stream channel: The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Subsistence: Customary and traditional uses of wild renewable resources (plants and animals) for food, shelter, fuel, clothing, tools, etc.

Succession: A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as seral stages.

Suckering: The regeneration process for aspen by developing new shoots along the root system of the parent tree. The new shoots are called root suckers.

Sustainability: 1) meeting the needs of the present without compromising the abilities of future generations to meet their needs; emphasizing and maintaining the underlying ecological processes that ensure long-term productivity of goods, services, and values without impairing productivity of the land, and 2) in commodity production, refers to the yield of a natural resource that can be produced continually at a given intensity of management.

Synergistic: A type of cumulative impact where total effect is greater than the sum of the effects taken independently.

T

Target species: Plant species of competing vegetation that is controlled in favor of desired species.

Terrestrial: Of or relating to the earth, soil, or land; inhabiting the earth or land.

Threatened species: A plant or animal species likely to become an endangered species throughout all or a significant portion of its range within the foreseeable future.

Threshold: A dose or exposure below which there is no apparent or measurable adverse effect.

Tier: In an EIS, refers to incorporating by reference the analyses in an EIS or similar document of a broader scope. For example, this *3 Bars Ecosystem and Landscape Restoration Project EIS* tiers to the *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement*.

Total suspended particles (TSP): A method of monitoring airborne particulate matter by total weight.

Toxicity: A characteristic of a substance that makes it poisonous.

Transpiration: Water loss from plants during photosynthesis.

Trend: The direction of change in ecological status observed over time. Trend is described as toward or away from the Potential Natural Community, or as not apparent.

Tribe: Term used to designate any Native American tribe, band, nation, or other organized group or community (including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act), which is recognized as eligible for the special programs and services provided by the U.S. to Native Americans because of their status as Native Americans.

U

Understory: Plants that grow beneath the canopy of other plants. Usually refers to grasses, forbs, and low shrubs under a tree or shrub canopy.

Undesirable plants: Species classified as undesirable, noxious, harmful, exotic, injurious, or poisonous under state or federal law, but not including species listed as endangered by the Endangered Species Act, or species indigenous to the planning area.

Upland: The portion of the landscape above the valley floor or stream.

Utilization: The proportion or degree of the current year's forage production that is consumed or destroyed by animals (including insects). Utilization may refer either to a single plant species, a group of species, or to the vegetation as a whole. Utilization is synonymous with use.

V

Vane: A type of deflector that utilizes an upstream-point-barb to divert high velocity flow away from a cutbank or the outboard side of a meander bend. A vane can also be used to direct flow into the opposite bank initiating bank erosion and causing the channel to widen in that direction.

Vertebrate: An animal with a backbone. Fish, amphibians, reptiles, birds, and mammals are vertebrates.

Visual resource: The visible physical feature of a landscape.

Visual resource inventory: Visual resource inventory is an inventory based on scenic quality, sensitivity level, and distance zone criteria and indicates the overall value of the landscape.

Visual Resource Management System: The Visual Resource Management (VRM) System is used by the BLM to manage visual resources on public land. Visual Resource Management objectives are established in RMPs in conformity with land use allocations. The BLM uses the VRM System to systematically identify and evaluate visual resource values and to determine the appropriate level of scenery management. The VRM process involves 1) identifying scenic values, 2) establishing management objectives for those values through the land use planning process, and 3) designing and evaluating proposed activities to analyze effects and develop mitigation measures to meet the established VRM objectives.

W

Water quality: The interaction between various parameters that determines the usability or non-usability of water for on-site and downstream uses. Major parameters that affect water quality include: temperature, turbidity, suspended sediment, conductivity, dissolved oxygen, pH, specific ions, discharge, and fecal coliform.

Watershed: The region draining into a river, river system, or body of water.

Wattle: Erosion control wattles are used to control sediment, silt, and sand in stream channels during stream reconstruction. Wattles are frequently staked into the ground to help filter water and prevent pollution in water collection and transport areas.

Weed: A plant considered undesirable and that interferes with management objectives for a given area at a given point in time.

Weir: A structure of various material content which spans the bankfull width of a channel used to control the slope or grade of a stream.

Wetlands: Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstance do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include habitats such as swamps, marshes, and bogs.

Wilderness: Land designated by Congress as a component of the National Wilderness Preservation System. For an area to be considered for Wilderness designation it must be roadless and possess the characteristics required by Section 2(c) of the Wilderness Act of 1964. These characteristics are: 1) naturalness - lands that are natural and

primarily affected by the forces of nature; 2) roadless and having at least 5,000 acres of contiguous public lands; and 3) outstanding opportunities for solitude or primitive and unconfined types of recreation. In addition, areas may contain "supplemental values," consisting of ecological, geological, or other features of scientific, educational, scenic, or historical importance.

Wilderness Study Area (WSA): Areas that have been designated by the BLM as having wilderness characteristics, thus making them worthy of consideration by Congress for wilderness designation. While Congress considers whether to designate a WSA as permanent Wilderness, the BLM manages the area to prevent impairment of its suitability for wilderness designation.

Wildfire: Unplanned human or naturally caused fires in wildlands.

Wild Free-roaming Horses and Burros: All unbranded and unclaimed horses and burros that use public lands within ten contiguous Western States as all or part of their habitat, or that have been removed from these lands by the authorized officer, or have been born of wild horses or burros in authorized BLM facilities, but have not lost their status under the Wild and Free-roaming Horses and Burros Act (16 United States Code § 1332 [f]).

Wildland fire: Occurs on wildlands, regardless of ignition source, damages, or benefits, and include wildfire and prescribed fire.

Wildland fire for resource benefit: A fire ignited by lightening, but allowed to burn within specified conditions of fuels, weather, and topography, to achieve specific objectives.

Wildland Urban Interface (WUI): An area where structures and other human development intermingle with undeveloped wildlands or vegetative fuels.

Woodland: A forest in which the trees are often small, characteristically short-bolded relative to their crown depth, and forming only an open canopy with the intervening area being occupied by lower vegetation, commonly grass.

X

Xeric: Very dry region or climate; tolerating or adapted to dry conditions.

YZ

Zuni bowl: A headcut control structure which uses the principle of the natural cascade or step pool. Rather than spill water directly over a high falls, the cascade is used to build a series of smaller steps and pools thus keeping the water velocity within manageable range.

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APPENDIX A

COMMON AND SCIENTIFIC NAMES OF PLANTS AND ANIMALS GIVEN IN THE EIS

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APPENDIX A

COMMON AND SCIENTIFIC NAMES OF PLANTS AND ANIMALS GIVEN IN THE EIS

This appendix contains a list of the common and scientific names of plant and animal species mentioned in the text of the EIS.

Common Name	Scientific Name
PLANTS	
Grasses and Grass-like Plants	
Alkali Sacaton	*Sporobolus airoides*
Barley, Foxtail	*Hordeum jubatum*
Beargrass	*Xerophyllum tenaz*
Bluegrass	*Poa* spp.
Bluegrass, Alkali	*Poa juncifolia*
Bluegrass, Kentucky	*Poa pretensis*
Bluegrass, Nevada	*Poa nevadensis*
Bluegrass, Sandberg's	*Poa secunda*
Brome, Downy	*Bromus tectorum*
Brome, Mountain	*Bromus carinatus*
Brome, Red	*Bromus rubens*
Cheatgrass	*Bromus tectorum*
Cordgrass, Alkali	*Spartina gracilis*
Corn	*Zea mays*
Fescue, Idaho	*Festuca idahoensis*
Grama, Blue	*Bouteloua gracilis*
Hairgrass, Tufted	*Deschampsia cespitosa*
Muhly Grass	*Muhlenbergia capillaris*
Muttongrass	*Poa fendleriana*
Needle-and-thread	*Hesperostipa comata*
Needlegrass, Columbia	*Achnatherum nelsonii*
Needlegrass, Letterman's	*Achnatherum lettermanii*
Needlegrass, Thurber's	*Achnatherum thurberianum*
Needlegrass, Western	*Achnatherum occidentale*
Quackgrass	*Elymus repens*
Redtop	*Agrostis gigantea*
Ricegrass, Indian	*Achnatherum hymenoides*
Rush, Baltic	*Juncus balticus*
Rush, Spike	*Eleocharis* spp.
Saltgrass	*Distichlis spicata*
Rye, Medusahead	*Taeniatherum caput-medusae*
Saltgrass, Inland	*Distichlis spicata*
Sedge, Clustered Field	*Carex praegracilis*
Sedge, Nebraska	*Carex nebrascensis*

Common Name	Scientific Name
PLANTS (Cont.)	
Grasses and Grass-like Plants (Cont.)	
Sedge, Water-loving	*Carex aquatilis*
Squirreltail	*Elymus* spp.
Squirreltail, Bottlebrush	*Elymus elymoides*
Timothy, Alpine	*Phleum alpinum*
Wheatgrass, Bluebunch	*Pseudoroegneria spicata*
Wheatgrass, Crested	*Agropyron cristatum*
Wheatgrass, Slender	*Elymus trachycaulus*
Wheatgrass, Western	*Pascopyrum smithii*
Wildrye, Basin	*Leymus cinereus*
Forbs and Nonvascular Plants	
Balsamroot	*Balsamorhiza* spp.
Bassia, Fivehook	*Bassia hyssopifolia*
Beet	*Beta vulgaris*
Buckwheat, Beatley	*Eriogonum beatleyae*
Bulrush	*Scirpus* spp.
Cabbage	*Brassica oleracea*
Camas	*Camassia* spp.
Cat-tail	*Typha latifolia*
Cinquefoil	*Potentilla* spp.
Clover, Sierra	*Trifolium* spp.
Cress, Hoary	*Cardaria draba*
Eriogonum	*Eriogonum* spp.
Forage Kochia	*Bassia prostrata*
Goldenweed	*Haplopappus acaulis*
Halogeton	*Halogeton glomeratus*
Hawksbeard	*Crepis* spp.
Henbane, Black	*Hyoscyamus niger*
Houndstongue	*Cynoglossum officinale*
Iris, Wild	*Iris missouriensis*
Knapweed, Russian	*Acroptilon repens*
Knapweed, Spotted	*Centaurea stoebe*
Lahontan Beardtongue	*Penstemon palmeri*
Least Phacellia	*Phacelia minutissima*
Locoweed	*Oxytropis lambertii*
Lupine	*Lupine* spp.
Milkvetch, One-leaflet Torrey	*Astragalus calycosus*
Mint	*Mentha* spp.
Mustard, Elongated	*Brassica elongata*
Mustard, Tansy	*Descurainia pinnata*
Mustard, Wild	*Sinapis arvensis*
Nevada Willowherb	*Epilobium nevadense*
Onion	*Allium* sp.
Paintbrush, Monte Neva	*Castilleja salsuginosa*
Parsnip	*Allium cepa*
Penstemon	*Penstemon* spp.
Pepperweed, Perennial	*Lepidium latifolium*
Phlox	*Phlox* spp.

Common Name	Scientific Name
PLANTS (Cont.)	
Forbs and Nonvascular Plants (Cont.)	
Pickleweed	*Salicornia* spp.
Potato	*Solanum tuberosum*
Puncturevine	*Tribulus terrestris*
Ragwort, Tansy	*Senecio jacobaea*
Reedgrass	*Calamagrostis* spp.
Scarlet Globe-mallow	*Sphaeralcea coccinea*
Seepweed	*Suaeda intermedia*
Snakeweed	*Gutierrezia* spp.
Snakeweed, Broom	*Gutierrezia sarothrae*
Sorrel	*Rumex acetosa*
Spikerush	*Elocharis* spp.
Spurge, Leafy	*Euphorbia esula*
St. Johnswort, Common	*Hypericum perforatum*
Thistle, Bull	*Cirsium vulgare*
Thistle, Canada	*Cirsium arvense*
Thistle, Musk	*Carduus nutans*
Thistle, Russian	*Salsola tragus*
Thistle, Scotch	*Onopordum acanthium*
Tomato	*Solanum lycopersicum*
Turnip	*Brassica rapa*
Watercress	*Nasturtium officinale*
Whitetop, Tall	*Lepidium latifolium*
Yarrow	*Achillea* spp.
Shrubs and Trees	
Aspen, Quaking	*Populus tremuloides*
Birch, Water	*Betula occidentalis*
Bitterbrush, Antelope	*Purshia tridentata*
Bud Sagebrush	*Picrothamnus desertorum*
Cactus, Cholla	*Opuntia* spp.
Ceanothus	*Ceanothus* spp.
Chokecherry	*Prunus virginiana*
Cottonwood, Black	*Populus balsamifera* var. *trichocarpa*
Cottonwood, Narrow-leaf	*Populus salicifolia*
Creosote	*Larrea tridentata*
Dogwood, Redosier	*Cornus sericea*
Fir, White	*Abies concolor*
Gooseberry	*Ribes* spp.
Greasewood	*Sarcobatus* spp.
Greasewood, Black	*Sarcobatus vermiculatus*
Greenstem Paperflower	*Psilostrophe sparsiflora*
Hemlock, Poison	*Conium maculatum*
Hopsage	*Grayia* spp.
Hopsage, Spiny	*Grayia spinosa*
Horsebrush, Littleleaf	*Tetradymia glabrata*
Iodine Bush	*Allenrolfea occidentalis*
Juniper, Utah	*Juniperus osteosperma*
Mahogany, Cur-leaf Mountain	*Cercocarpus ledifolius*

Common Name	Scientific Name
PLANTS (Cont.)	
Shrubs and Trees (Cont.)	
Manzanita	*Arctostaphylos* spp.
Mormon Tea	*Ephedra* spp.
Nevada Ephedra	*Ephedra nevadensis*
Pine, Limber	*Pinus flexilis*
Pinyon, Singleleaf	*Pinus monophylla*
Poison hemlock	*Conium maculatum*
Rabbitbrush	*Chrysothamnus* spp. and *Ericameria* spp.
Rabbitbrush, Douglas'	*Chrysothamnus viscidiflorus*
Rabbitbrush, Rubber	*Chrysothamnus nauseosus*
Rose, Wild	*Rosa* spp.
Sage, Mediterranean	*Salvia aethiopis*
Sagebrush	*Artemisia* spp.
Sagebrush, Basin Big	*Artemesia tridentata tridentata*
Sagebrush, Big	*Artemisia tridentata*
Sagebrush, Black	*Artemisia nova*
Sagebrush, Low	*Artemisia arbuscula*
Sagebrush, Mountain big	*Artemesia tridentata* ssp. *vaseyana*
Sagebrush, Wyoming big	*Artemesia tridentata* spp. *whyomingensis*
Saltbush	*Atriplex* spp.
Saltbush, Four-wing	*Atriplex canescens*
Saltcedar (tamarisk)	*Tamarix ramosissima*
Serviceberry	*Amelanchier utahensis*
Shadscale	*Atriplex confertifolia*
Snowberry	*Symphoricarpos albus*
Willow	*Salix* spp.
Willow, Arroyo	*Salix lasiolepis*
Willow, Narrow-leaf	*Salix exigua*
Willow, Rock	*Salix vestita*
Winterfat	*Krascheninnikovia lanata*
INVERTEBRATES	
Beetle	Coleoptera
Caddisfly	Trichoptera
Fly	Diptera
Leach	Hirdinea
Mayfly	Ephemeroptera
Snail	Gastropoda
Springsnail	*Pyrgulopsis* spp.
Stonefly	Plecoptera
True Bug	Hemiptera
FISH	
Chub, Newark Valley Tui	*Siphateles bicolor newarkensis*
Chub, Tui	*Gila* spp.
Dace, Monitor Valley Speckled	*Rhinichthys osculus* spp.
Dace, Speckled	*Rhinichthys osculus*
Shiner, Redside	*Cyprinella lutrensis*
Sucker, Mountain	*Catostomus platyrhynchos*
Sucker, Tahoe	*Catostomus tahoensis*

Common Name	Scientific Name
FISH (Cont.)	
Trout, Brook	*Salvelinus frontinalis*
Trout, Brown	*Salmo trutta*
Trout, Rainbow	*Oncorhynchus myliss*
REPTILES AND AMPHIBIANS	
Boa, Rubber	*Charina bottae*
Coachwhip	*Masticophis flagellum*
Frog, Columbia Spotted	*Rana luteiventris*
Frog, Northern Leopard	*Lithobates pipiens*
Lizard, Great Basin Collared	*Crotaphytus bicinctores*
Lizard, Greater Short-horned	*Phrynosoma douglasii*
Lizard, Long-nosed Leopard	*Gambelia wislizenii*
Lizard, Sagebrush	*Sceloporus graciosus*
Lizard, Western Fence	*Sceloporus occidentalis*
Rattlesnake, Western	*Crotalus oreagnus*
Snake, Long-nosed	*Rhinocheilus lecontei*
Snake, Ringneck	*Diadophis punctatus*
Toad, Great Basin Spadefoot	*Spea intermontana*
Toad, Western	*Anaxyrus boreas*
Whipsnake, Striped	*Masticophis taeniatus ornatus*
BIRDS	
American Bittern	*Botaurus lentiginosus*
American Kestrel	*Falco sparverius*
American Robin	*Turdus americanus*
Black Rosy-finch	*Leucosticte atrata*
Bluebird, Mountain	*Sialia currucoides*
Bluebird, Western	*Sialia mexicana*
Chickadee, Mountain	*Poecile gambeli*
Cowbird, Brown-headed	*Moluthrus ater*
Cuckoo, Yellow-billed	*Coccyzus americanus*
Dove, Mourning	*Zenaida macroura*
Eagle, Bald	*Haliaeetus leucocephalus*
Eagle, Golden	*Aquila chrysaetos*
Falcon, Peregrine	*Falco peregrinus*
Falcon, Prairie	*Falco mexicanus*
Finch, Cassin's	*Haemorhous cassinii*
Flicker, Northern	*Colaptes auratus*
Flycatcher, Gray	*Empidonax wrightii*
Flycatcher, Willow	*Empidonax traillii*
Gnatcatcher, Blue-gray	*Polioptila caerulea*
Goose, Canada	*Branta canadensis*
Goose, Snow	*Chen hyperborea*
Grouse, Sharp-tailed	*Tympanachus phasianellus*
Hawk, Cooper's	*Accipiter cooperi*
Hawk, Ferruginous	*Buteo regalis*
Hawk, Red-tailed	*Buteo jamaicensis*
Hawk, Rough-legged	*Buteo lagopus*
Hawk, Sharp-shinned	*Accipiter striatus*
Hawk, Swainson's	*Buteo swainsoni*

Common Name	Scientific Name
BIRDS (Cont.)	
Heron, Black-crowned Night	*Nycticorax nycticorax*
Heron, Great Blue	*Ardea herodias*
Jay, Pinyon	*Gymnorhinus cyanocephalus*
Jay, Western Scrub	*Apelocoma californica*
Mallard	*Anas platyrhynchos*
Meadowlark, Western	*Sturnella neglecta*
Merlin	*Falco columbarius*
Nighthawk, Common	*Chordeiles minor*
Northern Coot	*Fulica americana*
Northern Goshawk	*Accipiter gentilis*
Northern Harrier	*Circus cyaneus*
Nuthatch, Red-breasted	*Sitta canadensis*
Owl, Barn	*Tyto alba*
Owl, Flammulated	*Otus flammeolus*
Owl, Great Horned	*Bubo virginianus*
Owl, Long-eared	*Asio otus*
Owl, Northern Pygmy	*Glaucidium gnoma*
Owl, Northern Saw-whet	*Aegolius acadicus*
Owl, Short-eared	*Asio flammeus*
Owl, Western Burrowing	*Athene cunicularia*
Partridge, Chukar	*Alectoris graeca*
Quail, Mountain	*Oreortyx pictus*
Raven, Common	*Corvus corax*
Robin, American	*Turdus americanus*
Sage-grouse, Greater	*Certrocercus urophasianus*
Screech-owl, Western	*Otus asio*
Shrike, Loggerhead	*Lanius ludovicianus*
Solitaire, Townsend's	*Myadestes townsendi*
Sora	*Porzana carolina*
Sparrow, Black-throated	*Amphispiza bilineata*
Sparrow, Brewer's	*Spizella breweri*
Sparrow, Lark	*Chondestes grammacus*
Sparrow, Sage	*Amphispiza belli*
Sparrow, Vesper	*Pooecetes gramineus*
Swan, Tundra	*Cygnus columbianus*
Thrasher, Sage	*Oreoscoptes montanus*
Titmouse, Juniper	*Baeolophus ridgwayi*
Towhee, Green-tailed	*Pipilo chlorurus*
Vulture, Turkey	*Cathartes aura*
Warbler, Black-throated Gray	*Setophaga nigrescens*
Warbler, Macgillvray's	*Geothlypis tolmiei*
Warbler, Orange-crowned	*Oreothlypis celata*
Warbler, Virginia's	*Vermivora virginiae*
Waxwing, Cedar	*Bombycilla cedrorum*
Woodpecker, Lewis'	*Melanerpes lewis*
Wren, Bewick's	*Thryomanes bewickii*

Common Name	Scientific Name
MAMMALS	
Antelope, Pronghorn	*Antilocapra americana*
Bat, Little Brown	*Myotis lucifugus*
Bat, Silver-haired	*Lasionycteris noctivagans*
Bat, Townsend's Big-eared	*Corynorhinus townsendii*
Cottontail, Mountain	*Sylvilagus nuttallii*
Cougar	*Puma concolor*
Cow, Domestic	*Bos primigenius taurus*
Coyote	*Canis latrans*
Deer, Mule	*Odocoileus hemionus*
Dog, Domestic	*Canis lupus familiaris*
Horse	*Equus ferus caballus*
Jackrabbit, Black-tailed	*Lepus californicus*
Marmot, Hoary	*Marmota caligata*
Mouse, Dark Kangaroo	*Microdipodops megacephalus*
Mouse, Deer	*Peromyscus maniculatus*
Mouse, Pinyon	*Peromyscus truei*
Myotis, California	*Myotis californicus*
Myotis, Fringed	*Myotis thysanodes*
Myotis, Hoary	*Lasiurus cinereus*
Myotis, Long-eared	*Myotis evotis*
Myotis, Long-legged	*Myotis volans*
Myotis, Western Small-footed	*Myotis ciliolabrum*
Pipistrelle, Western	*Parastrellus hesperus*
Porcupine	*Erethizon dorsatum*
Rabbit, Pygmy	*Brachylagus idahoensis*
Rat, Desert Kangaroo	*Dipodomys deserti*
Rat, Ord's Kangaroo	*Dipodomys ordii*
Sheep, Bighorn	*Ovis canadensis*
Sheep, Domestic	*Ovis aries*
Shrew, Montane	*Sorex monticolus*
Vole, Sagebrush	*Lemmiscus curtatus*
Woodrat, Bushy-tailed	*Neotoma cinerea*

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APPENDIX B

PROGRAMMATIC AGREEMENT BETWEEN THE MOUNT LEWIS FIELD OFFICE OF THE BLM AND THE NEVADA STATE HISTORIC PRESERVATION OFFICER

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PROGRAMMATIC AGREEMENT BETWEEN
THE MOUNT LEWIS FIELD OFFICE OF THE BUREAU OF LAND MANAGEMENT
AND
THE NEVADA STATE HISTORIC PRESERVATION OFFICER
REGARDING
NATIONAL HISTORIC PRESERVATION ACT COMPLIANCE
FOR
THE 3 BARS ECOSYSTEM AND LANDSCAPE RESTORATION PROJECT
EUREKA COUNTY, NEVADA

WHEREAS, the Mount Lewis Field Office of the Bureau of Land Management (BLM) is preparing a plan to conduct multiple phased vegetation treatments on +/-200,000 acres of public lands at various locations within the Roberts Mountain, Simpson Park Range, Kobeh and Pine Valley, Eureka County, Nevada (hereinafter referred to as the "undertaking" as defined in 36 C.F.R. § 800.16[y]); and

WHEREAS, the undertaking is officially identified as the 3 Bars Ecosystem and Landscape Restoration Project (undertaking), Eureka County, Nevada; and

WHEREAS, the BLM proposes to implement the undertaking to comply with all relevant Federal regulations, policies, and laws; and implementing these policies subject to the requirements of the National Environmental Policy Act of 1969 (NEPA); the BLM is responsible for completing NEPA and ensuring that it is in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. § 800; and

WHEREAS, the BLM has determined that the undertaking may have an effect upon properties eligible for inclusion in the National Register of Historic Places (NRHP), and has consulted with the Nevada State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA); and

WHEREAS, the BLM has consulted with the Advisory Council on Historic Preservation (ACHP), pursuant to 36 CFR §800.14(b), to develop and execute this Programmatic Agreement (PA) and the ACHP has elected not to formally enter consultation on the development of this PA; and

WHEREAS, effects to historic properties in the Area of Potential Effect (APE) cannot be fully determined and the Parties desire to enter into this Agreement to set forth procedures to be followed in satisfaction of the BLM's Section 106 responsibilities of the National Historic Preservation Act, for the Project in the APE, and

WHEREAS, the BLM is responsible for conducting Native American Tribal consultation on a government to government level and ensuring that it is in compliance with the BLM Manual Handbook, H-8120-1, Guidelines for Conducting Tribal Consultation and Secretarial Order 3317;

WHEREAS the undertaking would be implemented over the course of the next 15 years; and

WHEREAS, this Programmatic Agreement (PA) covers all aspects of the planning, development, and implementation of undertaking including use of prescribe fire, tree cutting and removal, chaining, herbicide treatments, weed prevention and treatment, aspen restoration, seeding, stream and spring restoration and protection;

NOW THEREFORE, the signatories agree that implementation of the NEPA decision record shall be administered in accordance with the following stipulations to ensure that historic properties will be treated to avoid or mitigate effects to the extent practicable to satisfy the BLM's NHPA Section 106 responsibilities for all aspects of the undertaking.

I. ROLES AND RESPONSIBILITIES

The signatories agree that the *STATE PROTOCOL AGREEMENT between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act, Revised January 2012* (Protocol), except as amended here, will be utilized for this PA. This Protocol is incorporated by reference.

The BLM is responsible for administering this PA. This includes but is not limited to: ensuring that signatories carry out their responsibilities; overseeing cultural resource work; assembling submissions to the SHPO including reports, determinations of eligibility and effect, and treatment plans; and for seeking SHPO concurrence with agency compliance decisions.

II. AREA OF POTENTIAL EFFECT

The APE for cultural resources is defined as the project boundary (+/-750,000 acres) or the area considered for vegetation and fire management in the undertaking NEPA documents. The overall APE is shown on the map in Appendix A.

The APE shall be defined to include potential direct and indirect effects to cultural resources and properties of traditional religious and cultural importance from any activities associated with the undertaking without regard for land ownership.

Based on current data, there are no known historic properties outside of the direct APE that would have the characteristics that qualify them for listing in the NRHP adversely affected by visual impacts from the proposed action. However, the APE for assessing indirect effects on known historic properties will be the area plus one mile outward in all directions from the perimeter of each area, which would include some areas outside the undertaking area.

The BLM may amend the APE as needed or as requested by the SHPO without amending the PA proper.

III. STIPULATIONS

The BLM shall ensure that the stipulations of this PA are carried out by its contractors, subcontractors, or other personnel involved with this undertaking.

The BLM shall ensure that ethnographic, historic, architectural, and archaeological work conducted pursuant to this PA is carried out by or under the direct supervision of persons meeting qualifications set forth in the *Secretary of the Interior's Professional Qualifications Standards* (currently available at http://www.nps.gov/history/local-law/arch_stnds_9.htm) and that those who require permits for such work by the BLM Nevada have them.

A. Identification

1. The BLM, in consultation with the SHPO, shall ensure that appropriate cultural resource identification activities, including records research; informant interviews; context development; and archaeological, historic, or ethnographic inventory for the APE are conducted in a manner consistent with the Protocol.

2. The BLM shall make a good faith effort to consult with the Tribes and affected tribal members to identify properties of traditional religious or cultural importance in accordance with Secretarial Order 3317.

B. Eligibility

1 For each phase of undertaking within the APE, the BLM shall evaluate cultural resources for eligibility to the NRHP. The BLM will determine NRHP eligibility prior to the initiation of activities that may affect cultural resources, using the Protocol as guidance.

2. The BLM shall consult with the Tribes or identified affected tribal members to evaluate the NRHP-eligibility of properties of traditional religious and cultural importance. Based on information shared with the BLM, the BLM would determine the NRHP eligibility of identified properties, and consult on these determinations with SHPO and the Tribes.

3. The BLM shall ensure that appropriate cultural resource inventories that identify and evaluate cultural resources are completed and that appropriate reports are prepared in accordance with the Protocol and with the Nevada BLM's *Guidelines and Standards for Archaeological Inventory, 5th edition (January 2012)*, or the latest edition issued by BLM Nevada (Guidelines) at the date of implementation of each phase.

C. Treatment

1. To the extent practicable, the BLM shall ensure that project activities avoid adverse effects to historic properties through project design, or redesign, relocation of activities, or by other means in a manner consistent with the Protocol.

2. In avoiding or mitigating effects, the BLM, in consultation with the SHPO, shall determine the precise nature of effects to historic properties identified in the APE, using the Protocol as guidance.

3. The BLM shall consult with the Tribes, or identified affected tribal members, to evaluate effects to properties of traditional religious and cultural importance. Based on information shared with the BLM, the BLM would determine the appropriate treatment to avoid or to minimize to the extent practicable adverse effects, and consult on these determinations with SHPO and the Tribes.

4. For properties eligible under NRHP criteria (a) through (c), mitigation other than data recovery may be considered in the treatment plan (e.g., Historic American Buildings Survey/Historic American Engineering Record recording, oral history, historic markers, exhibits, interpretive brochures or publications, etc.). Where appropriate, treatment plans may include provisions (content and number of copies) for a publication for the general public.

5. The BLM shall, in consultation with the SHPO, ensure that the fieldwork portions of any treatment plan (using BLM staff or contractors and subcontractors) are completed prior to initiating any activities that may affect historic properties located within the area covered by the plan.

6. The BLM shall ensure that all field records, artifacts, and samples (soil, carbon...) collected during the identification, recordation, and any treatment efforts are maintained until the final treatment report is complete. All artifacts will be curated in accordance with 36 C.F.R. § 79 or 43 C.F.R. § 10.

IV. DURATION

This PA shall remain in effect for fifteen (15) years from the date of its execution. If proposed actions in the APE are not completed prior to such time, the BLM may consult with the other signatories to reconsider the terms of the PA and amend it in accordance with Section X below or extend the document for additional fifteen (15) years. The BLM shall notify the signatories as to the course of action it will pursue.

V. POST-REVIEW DISCOVERY SITUATIONS

Stipulations of this PA and the Protocol are intended to identify and treat cultural resources that are eligible for inclusion in the NRHP. Unplanned discoveries of buried cultural resources are not anticipated. In the case of an unplanned discovery, the BLM will ensure that provisions in the Protocol (Section VI.B) and Appendix B of this PA are met.

Prior to initiating any ground disturbing activities within the APE, all BLM employees, contractors, and subcontractors empowered to halt activities in a discovery situation shall be informed about who to contact and under what time frame. At least one of these individuals will be present during any project field activities.

Activities in the area of the discovery will be halted until the BLM Authorized Officer provides written authorization that the required mitigation is complete and activities can resume.

VI. NOTICES TO PROCEED

When appropriate, in consultation with the SHPO and in compliance with the PA stipulations, the BLM may issue Notices to Proceed for individual project phases, under the following conditions:

A. The BLM, in consultation with the SHPO, has determined that

   1. either there are no historic properties within the APE or through project design all historic properties will be avoided for the current phase of the undertaking; and

   2. in consultation with the Tribes, no properties of traditional religious or cultural importance were identified within the APE for the current phase of the undertaking; or

B. The BLM, after consultation with the SHPO and in the case of properties of traditional religious or cultural importance, the Tribes, has implemented an adequate treatment plan for the current phase of the undertaking, and

   1. the fieldwork phase of the treatment option has been completed; and

   2. the BLM has prepared or accepted a summary description of the fieldwork performed and a schedule for reporting that work; and

   3. the BLM shall provide a copy of the summary to SHPO; and

   4. the SHPO shall review the summary and if the SHPO concurs or does not respond within two working days of receipt, BLM shall assume concurrence and issue the NTP; and

   5. the BLM shall not begin any ground disturbing activities within the boundaries of any historic property until a NTP is issued for the property; and

   6. a partial NTP may be issued for portions of the APE that are outside of the area that may affect historic properties.

VII. MONITORING AND REPORTING

A. Any signatory may monitor actions carried out pursuant to this PA. To the extent practicable, monitoring activities should minimize the number of monitors involved in the undertaking.

B. Reporting

1. A draft report of the identification, recordation, evaluation, treatment or other mitigative activities will be due to the BLM from any contractor within three (3) months after the completion of the fieldwork associated with the activity, unless otherwise negotiated.

2. BLM should review and comment on any report submitted by contractors within 30 calendar days of receipt.

3. The BLM shall submit the results of identification, recordation, evaluation, and treatment efforts, including discovery situations, and treatment plans to the SHPO for a 30 calendar day review and comment period.

4. If the SHPO fails to respond to the BLM within 30 calendar days of the receipt of a submission, the BLM shall presume concurrence with the findings and recommendations as detailed in the submission and proceed accordingly.

5. The BLM shall ensure that all final archaeological reports resulting from actions pursuant to this PA will be provided to the SHPO. All such reports shall be consistent with contemporary professional standards and the *Department of Interior's Formal Standards for Final Reports of Data Recovery Programs* (48 Federal Register 44716-44740).

VIII. OTHER CONSIDERATIONS

A. The BLM shall ensure that all its personnel and all the personnel of its contractors and subcontractors are directed not to engage in the illegal collection of historic and prehistoric materials. All parties shall cooperate with the BLM to ensure compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470), as amended, on public lands and with Nevada Revised Statute (NRS) 383 for private lands.

B. The BLM shall ensure that any human remains, grave goods, items of cultural patrimony, and sacred objects encountered during the undertaking are treated with respect. In coordination with this PA, human remains and associated grave goods found on public land will be handled according to the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3001 et seq., and its implementing regulations (43 C.F.R. § 10). Human remains and associated grave goods on private land will be handled according to the provisions of NRS 383.

C. The BLM shall bear the expense of the identification, evaluation, and any treatment of historic properties directly or indirectly affected by project-related activity. Such costs may include, but not be limited to, pre-field planning, fieldwork, post-fieldwork analysis, research and report preparation, interim and summary report preparation, publications for the general public, and the cost of curating project documentation and artifact collections.

D. Information on the location and nature of cultural resources, and information provided by and considered proprietary by the Tribes, will be held confidential to the extent provided by Federal and state law.

IX. DISPUTE RESOLUTION

If any signatory to this PA objects to any activities proposed pursuant to the terms of this PA, the BLM Mount Lewis Field Office (MLFO) Manager shall consult with the objecting party and the SHPO to resolve the issue. If the BLM MLFO Manager determines that the objection cannot be resolved, they shall request the assistance of the BLM Nevada Deputy Preservation Officer and the Battle Mountain District Manager to resolve the objection. The BLM Battle Mountain District Manager's decision will be considered final.

The signatories may continue all actions under this PA that are not in dispute.

X. AMENDMENT

Any signatory to this PA may request that this PA be amended, whereupon the signatories will consult to consider such amendment. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XI. TERMINATION

Any signatory to this PA may terminate the PA by providing thirty (30) days advance written notice with cause to the other signatories, provided that the signatories will consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination.

EXECUTION of this PA and implementation of its terms is evidence that the BLM has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

U.S. DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT

_____ Date 8/28/12

Christopher J. Cook, Mount Lewis Field Office Manager

NEVADA STATE HISTORIC PRESERVATION OFFICER

for _____ Date 9/5/12

Ronald M. James, SHPO

3 Bars Programmatic Agreement Concurring Party Signatures:

Battle Mountain Band Council

_____ Date
Michael Price, Chair

Duckwater Shoshone Tribe

Virginia Sanchez, Chair Date 9/12/2012

Elko Band Council

_____ Date
Gerald Temoke, Chair

Ely Shoshone Tribe

_____ Date
Alvin Marques, Chair

South Fork Band Council

_____ Date
Sim Malotte, Chair

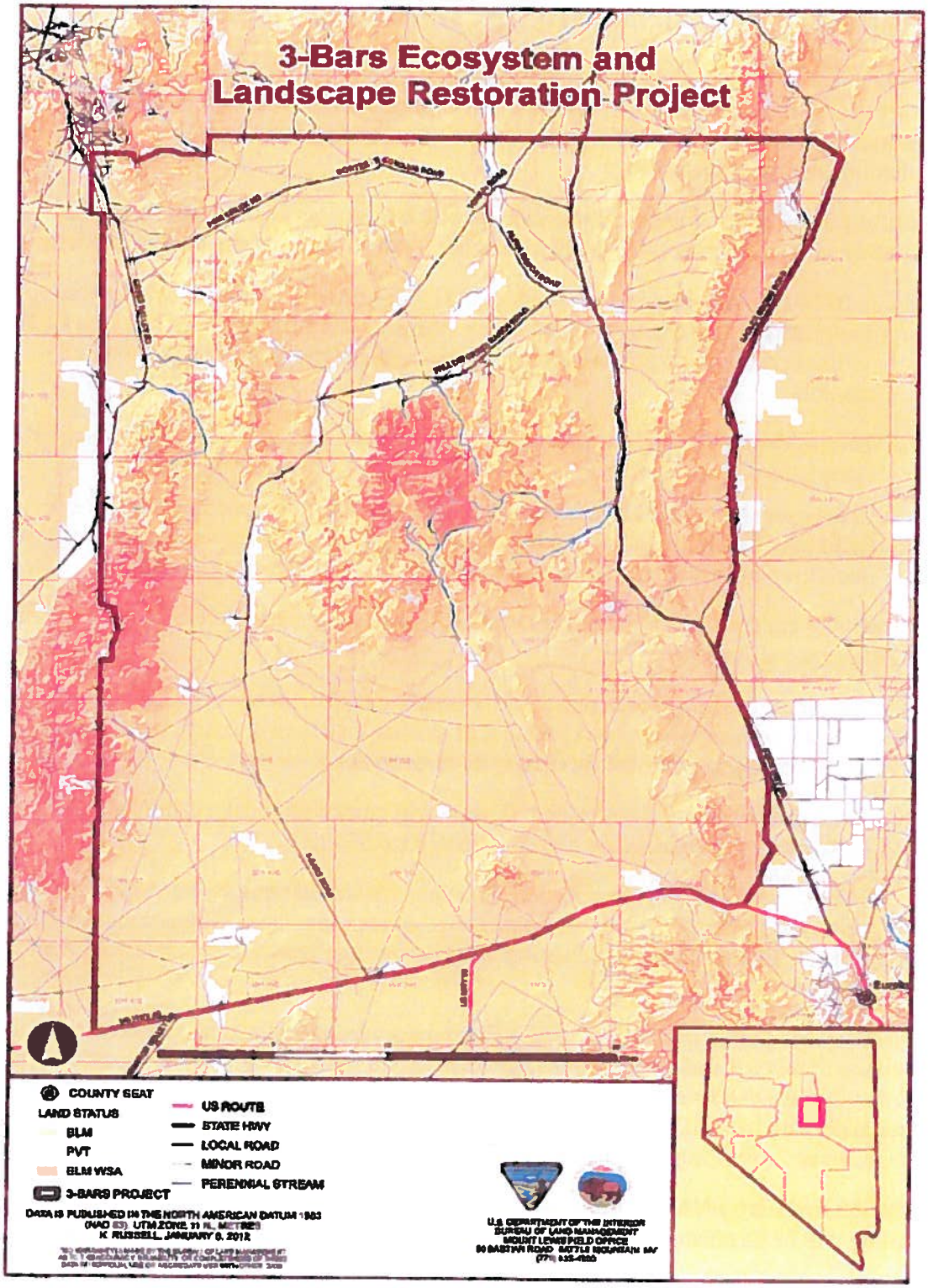
Te-Moak Tribe of Western Shoshone

_____ Date
Bryan Cassadore, Chair

Yomba Shoshone Tribe

_____ Date
Elisha Mockerman, Chair

Appendix A: Area of Potential Effect



APPENDIX B:

DISCOVERY AND UNANTICIPATED IMPACTS PROCEDURES

In the event that previously unknown cultural resources are discovered within the area of potential effects of the undertaking, or should known resources be directly or indirectly impacted in an unanticipated manner, the following actions, at a minimum, would be initiated by the BLM in consultation with the signatories:

1. All activities will halt in the immediate vicinity of the discovery and all actions will be directed away from an area at least 100 meters in all directions from the point of discovery.

    a. A BLM cultural resources specialist (CRS) will be notified immediately by the contractors or BLM staff working on the project. The BLM will ensure that a CRS, with the proper expertise for the suspected resource type, is on-site as soon as possible.

    b. The BLM will initiate consultation with the appropriate parties, including the SHPO, other federal agencies, the Tribes, and interested parties as appropriate.

    c. In the event that a CRS or other necessary persons are not immediately available, BLM may be required to cover and/or otherwise protect the resource until such time that the appropriate parties can be present for inspection and/or evaluation.

2. Upon arriving at the site of the discovery, the CRS will assess the resource. At a minimum, the assessment will include:

    a. The nature of the resource (e.g., number and kinds of artifacts, presence/absence of features). This may require screening of already disturbed deposits, photographs of the discovery, and/or other necessary documentation.

    b. The spatial extent of the resource. This may require additional subsurface testing, mapping or inspection, as is appropriate to the resource.

    c. The nature of deposition/exposure. This may require interviews with construction personnel, other persons having knowledge concerning the resource or, in rare instances, the expansion of existing disturbances to establish the characteristics of the deposits.

3. Discoveries and unanticipated impacts to known resources will be managed according to the provisions of this PA and the Protocol. After consultation with the appropriate parties, BLM shall then make a determination of eligibility, treatment and effect. If necessary, BLM, in consultation with the SHPO, the Tribes and appropriate parties, shall ensure that a treatment plan is prepared following the guidance provided in this PA.

4. Any items covered by NAGPRA encountered in a discovery, or unanticipated impact situation, will be handled according to 43 C.F.R. § 10 or Nevada state laws, as appropriate.

5. All implementation activities in the area of the discovery will be halted until the BLM documents in writing that identification and treatment is complete and activities can resume.

APPENDIX C

STANDARD OPERATING PROCEDURES

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APPENDIX C

STANDARD OPERATING PROCEDURES

This section identifies Standard Operating Procedures (SOPs) that would be followed by the U.S. Department of the Interior (USDOI), Bureau of Land Management (BLM), under all alternatives to ensure that risks to human health and the environment from 3 Bars Project treatment actions would be kept to a minimum. Standard Operating Procedures are the management controls and performance standards required for streambank restoration and vegetation management treatments. These practices are intended to protect and enhance natural resources that could be affected by future treatments.

C.1 General Standard Operating Procedures

The BLM will comply with SOPs identified in the 17-States PEIS (USDOI BLM 2007a:2-22 to 2-38), and PER (USDOI BLM 2007b:2-31 to 2-44). These SOPs are provided in **Table C-1**. These SOPs have been identified to reduce adverse effects to environmental resources and human health from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard agency and industry practices. The SOPs listed in these documents are not all encompassing, but give an overview of practices that should be considered when designing and implementing a vegetation treatment project on public lands. In addition to these SOPs, the Mount Lewis Field Office has identified the following additional SOPs that would apply to the 3 Bars Project.

C.2 Project Specific Standard Operating Procedures

C.2.1 General

1. Several site-specific projects would likely take place each year. Treatment locations and acreage to be treated within any one year would be dependent upon availability of funding. The BLM will coordinate with the affected livestock operator(s) to ensure that livestock are managed in a way that supports the accomplishment of treatment objectives.

2. If multiple projects are proposed for an area, the BLM will try to complete all or several of the projects at similar times to reduce/avoid the occurrence of multiple disturbances in the area over an extended period of time.

3. Treatments would occur during those times of the year when they are most likely to be successful. The BLM will make every effort to ensure through treatment design that restorative actions achieve site-specific objectives.

4. The BLM will consult the LR2000 database to identify locations of existing authorizations and avoid disturbance of active mining claim markers prior to any treatment. The LR2000 is the BLM's Legacy Rehost System that provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, rights-of-way, coal and other mineral development, land and mineral title, mining claims, withdrawals, and classifications, on federal lands or on the federal mineral estate.

TABLE C-1

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Guidance Documents	BLM handbooks H-9211-1 (*Fire Management Activity Planning Procedures*) and H-9214-1 (*Prescribed Fire Management*), and manuals 1112 (*Safety*), 9210 (*Fire Management*), 9211 (*Fire Planning*), 9214 (*Prescribed Fire*), and 9215 (*Fire Training and Qualifications*).	BLM Handbook H-5000-1 (*Public Domain Forest Management*), and manuals 1112 (*Safety*) and 9015 (*Integrated Weed Management*).	BLM *Domain Forest Management*, and manuals 1112 (*Safety*), and 9015 (*Integrated Weed Management*).	BLM manuals 1112 (*Safety*), 4100 (*Grazing Administration*), 9014 (*Use of Biological Control Agents on Public Lands*), and 9015 (*Integrated Weed Management)*, and Handbook H-4400-1 (*Rangeland Health Standards*).
General	Prepare a fire management plan. Use trained personnel with adequate equipment. Minimize frequent burning in arid environments. Avoid burning herbicide-treated vegetation for at least 6 months.	Ensure that power cutting tools have approved spark arresters. Ensure that crews have appropriate fire-suppression tools during the fire season. Wash vehicles and equipment before leaving weed infested areas to avoid infecting weed-free areas. Keep equipment in good operating condition.	Ensure that crews have appropriate fire-suppression tools during fire season. Minimize soil disturbance, which may encourage new weeds to develop.	Use only biological control agents that have been tested and approved to ensure they are host specific. If using domestic animals, select sites with weeds that are palatable and non-toxic to the animals. Manage the intensity and duration of containment by domestic animals to minimize overutilization of desirable plant species. Utilize domestic animals to contain the target species in the treatment areas prior to weed seed set. Or if seed set has occurred, do not move the domestic animals to uninfested areas for a period of 7 days.
Land Use	Carefully plan fires in the wildland urban interface to avoid or minimize loss of structures and property. Notify nearby residents and landowners who could be affected by smoke intrusions or other fire effects.	Collaborate on project development with nearby landowners and agencies.	Collaborate on project development with nearby landowners and agencies.	Notify nearby residents and landowners who could be affected by biological control agents.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Air Quality See Manual 7000 (*Soil, Water, and Air Management*).	Have clear smoke management objectives. Evaluate weather conditions, including wind speed and atmospheric stability, to predict effects of burn and impacts from smoke. Burn when weather conditions favor rapid combustion and dispersion. Burn under favorable moisture conditions. Use backfires, when applicable. Burn small vegetation blocks, when appropriate. Manage smoke to prevent air quality violations and minimize impacts to smoke-sensitive areas. Coordinate with air pollution and fire control officials, and obtain all applicable smoke management permits, to ensure that burn plans comply with federal, state, and local regulations.	Maintain equipment in optimal working order. Conduct treatment activities during the wetter seasons. Use heavy equipment under adequate soil moisture conditions to minimize soil erosion. Minimize vehicle speeds on unpaved roads. Minimize dust impacts to the extent practicable.	Maintain equipment in optimal working order. Conduct treatment activities during the wetter seasons. Minimize vehicle speeds on unpaved roads. Minimize dust impacts to the extent practicable.	
Soil Resources See Manual 7000 (*Soil, Water, and Air Management*).	Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. Prescribe broadcast and other burns that are consistent with soil management activities. Plan burns so as to minimize damage to soil resources. Conduct burns when the moisture content of large fuels, surface organic matter, and soil is high to limit the amount of heat penetration into lower soil surfaces and protect	Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. Time treatments to avoid intense rainstorms. Time treatments to encourage rapid recovery of vegetation. Further facilitate revegetation by seeding or planting following treatment. Use equipment that minimizes soil disturbance and compaction.	Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. Time treatments to avoid intense rainstorms. Time treatments to encourage rapid recovery of vegetation. Further facilitate revegetation by seeding or planting following treatment. Minimize soil disturbance and compaction.	Assess the susceptibility of the treatment site to soil damage and erosion prior to treatment. Minimize the use of domestic animals if removal of vegetation may cause significant soil erosion or impact biological soil crusts. Closely monitor the timing and intensity of biological control with domestic animals. Avoid grazing on wet soil to minimize compaction and shearing.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Soil Resources (cont.)	surface organic matter. Time treatments to encourage rapid recovery of vegetation. Further facilitate revegetation by seeding or planting following treatment. When appropriate, re-seed following burning to re-introduce species, or to convert a site to a less flammable plant association, rather than to specifically minimize erosion.	Minimize use of heavy equipment on slopes greater than 20 percent. Conduct treatments when the ground is sufficiently dry to support heavy equipment. Implement erosion control measures in areas where heavy equipment use occurs. Minimize disturbances to biological soil crusts (e.g., by timing treatments when crusts are moist). Reinoculate biological crust organisms to aid in their recovery, if possible. Conduct mechanical treatments along topographic contours to minimize runoff and erosion. When appropriate, leave plant debris on site to retain moisture, supply nutrients, and reduce erosion.	Minimize disturbance to biological soil crusts (e.g., by timing treatments when crusts are moist). Reinoculate biological crust organisms to aid in their recovery, if possible. When appropriate, leave plant debris on site to retain moisture, supply nutrients, and reduce erosion. Prevent oil and gas spills to minimize damage to soil.	
Water Resources See Manual 7000 (*Soil, Water, and Air Management*).	Prescribe burns that are consistent with water management objectives. Plan burns to minimize negative impacts to water resources. Minimize burning on hillslopes, or revegetate hillslopes shortly after burning. Maintain a vegetated buffer between treatment areas and water bodies.	Minimize the removal of desirable vegetation near residential and domestic water sources. Do not wash equipment or vehicles in water bodies. Maintain a minimum 25-foot wide vegetated buffer near streams and wetlands.	Maintain a vegetated buffer near residential and domestic water sources. Minimize the removal of desirable vegetation near residential and domestic water sources. Minimize the removal of desirable vegetation near water bodies.	Minimize the use of domestic animals near residential or domestic water sources. Minimize the use of domestic animals adjacent to water bodies if trampling or other activities are likely to cause soil erosion or impact water quality.
Wetlands and Riparian Zones	Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently.	Manage riparian areas to provide adequate shade, sediment control, bank stability, and recruitment of wood into stream channels. Following treatment, reseed or replant with native vegetation if the	Following treatment, reseed or replant with native vegetation if the native plant community cannot recover and occupy the site sufficiently.	Manage animals to prevent overgrazing and minimize damage to wetlands. Following treatment, reseed or replant with native vegetation if the native plant community cannot

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Wetlands and Riparian Zones (cont.)		native plant community cannot recover and occupy the site sufficiently.		recover and occupy the site sufficiently.
Vegetation See Handbook H-4410-1 (*National Range Handbook*), and manuals 5000 (*Forest Management*) and 9015 (*Integrated Weed Management*).	Keep fires as small as possible to meet the treatment objectives. Conduct low intensity burns to minimize adverse impacts to large vegetation. Limit area cleared for fire breaks and clearings to reduce the potential for weed infestations. Where appropriate, use mechanical treatments to prepare forests for the reintroduction of fire. Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation for revegetation.	Power wash vehicles and equipment to prevent the introduction and spread of weed and exotic species. Remove damaged trees and treat woody residue to limit subsequent mortality by bark beetles. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities. Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site.	Remove damaged trees and treat woody residue to limit subsequent mortality by bark beetles. Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities.	Use domestic animals at the time they are most likely to damage invasive species. Manage animals to prevent overgrazing and minimize damage to sensitive areas. Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, including the application of state or regional grazing administration guidelines, needed to maintain desirable vegetation on the treatment site. Use plant stock or seed from the same seed zone and from sites of similar elevation when conducting revegetation activities.
Fish and Other Aquatic Resources See Manual 6500 (*Wildlife and Fisheries Management*).	Maintain vegetated buffers near fish-bearing streams to minimize soil erosion and soil runoff into streams. Minimize treatments near fish-bearing streams during periods when fish are in sensitive life stages	Minimize treatments adjacent to fish-bearing waters. Do not wash vehicles in streams or wetlands. Refuel and service equipment at least 100 feet from water bodies to reduce the chance for pollutants to enter	Refuel and service equipment at least 100 feet from water bodies to reduce the chance for pollutants to enter water. Minimize removal of desirable vegetation near fish-bearing streams and wetlands.	Limit the access of domestic animals to streams and other water bodies to minimize sediments entering water and potential for damage to fish habitat.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Fish and Other Aquatic Resources (cont.)	(e.g., embryo).	water. Maintain an adequate buffer between treatment area and water body to reduce the potential for sediments and other pollutants to enter water body.		
Wildlife Resources See Manual 6500 (*Wildlife and Fisheries Managemen*t).	Minimize treatments during nesting and other important periods for birds and other wildlife. Minimize treatments of important forage areas immediately prior to important use period(s), unless the burn is designed to stimulate forage growth.	Minimize treatments during nesting and other important periods for birds and other wildlife. Retain wildlife trees and other unique habitat features where practical.	Minimize treatments during nesting and other important periods for birds and other wildlife. Retain wildlife trees and other unique habitat features where practical.	Minimize the use of livestock grazing as a vegetation control measure where and/or when it could impact nesting and/or other important periods for birds and other wildlife. Consider and minimize potential adverse impacts to wildlife habitat and minimize the use of livestock grazing as a vegetation control measure where it is likely to result in removal or physical damage to vegetation that provides a critical source of food or cover for wildlife.
Threatened and Endangered Species See Manual 6840 (*Special Status Species*) and *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Biological Assessment.*	Survey for special status species of concern if project may impact federally or state-listed species. Minimize direct impacts to special status species of concern, unless studies show that species will benefit from fire. All burn piles must be located at least 30 feet from Lahontan cutthroat trout occupied streams.	Minimize use of ground-disturbing equipment near special status species of concern. Survey for species of concern if project could impact these species. Use temporary roads when long-term access is not required. Within riparian areas, do not use vehicle equipment off of established roads when possible.	Survey for special status species of concern if project could impact these species.	Survey for special status species of concern if project could impact these species.
Livestock See Handbook H-4120-1 (*Grazing Management*).	Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest	Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest	Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest	Notify permittees of proposed treatments and identify any needed livestock grazing, feeding, or slaughter restrictions. Design treatments to take advantage of normal livestock grazing rest

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Livestock (cont.)	periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.	periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.	periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.	periods, when possible, and minimize impacts to livestock grazing permits. Provide alternative forage sites for livestock, if possible. Notify permittees of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment.
Wild Horses and Burros	Minimize potential hazards to horses and burros by ensuring adequate escape opportunities. Avoid critical periods and minimize impacts to critical habitat that could adversely affect wild horse or burro populations.	Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations.	Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations.	Avoid critical periods and minimize impacts to habitat that could adversely affect wild horse or burro populations.
Paleontological and Cultural Resources See handbooks H-8120-1 (*Guidelines for Conducting Tribal Consultation*) and H-8270-1 (*General Procedural Guidance for Paleontological Resource Management*), and manuals 8100 (*The Foundations for Managing Cultural Resources*), 8120 (*Tribal Consultation Under Cultural Resource Authorities*), and 8270 (*Paleontological*	Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 Code of Federal Regulations (CFR) Part 800, including necessary consultations with the State Historic Preservation Officers and affected tribes. Follow BLM Handbook H-8270-1 to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts.	Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. Identify cultural resource types at risk	Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. Identify cultural resource types at risk	Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the National Programmatic Agreement and state protocols or 36 CFR Part 800, including necessary consultations with the State Historic Preservation Officers and interested tribes. Follow BLM Handbook H-8270-1 to determine known Condition 1 and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Resource Management). See also: *Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act (1997).*	Identify cultural resource types at risk from fire use and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Monitor significant paleontological and cultural resources for potential looting of materials where they have been exposed by fire.	from mechanical treatments and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by mechanical treatments.	from manual treatments and design inventories that are sufficient to locate these resources. Provide measures to minimize impacts. Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by manual treatments.	Identify opportunities to meet tribal cultural use plant objectives for projects on public lands. Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected, adversely or beneficially, by biological treatments.
Visual Resources See handbooks H-8410-1 (*Visual Resource Inventory*) and H-8431-1 (*Visual Resource Contrast Rating*), and Manual 8400 (*Visual Resource Management*).	Minimize use of fire in sensitive watersheds to reduce the creation of large areas of browned vegetation. Consider the surrounding land use before assigning fire as a treatment method. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Avoid use of fire near agricultural or densely populated areas, where feasible. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, texture of the natural	Minimize dust drift, especially near recreational or other public use areas. Minimize loss of desirable vegetation near high public use areas. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Minimize earthwork and locate away from prominent topographic features. Revegetate treated sites. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives.	Minimize dust drift, especially near recreational or other public use areas. Minimize loss of desirable vegetation near high public use areas. At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives.	At areas such as visual overlooks, leave sufficient vegetation in place, where possible, to screen views of vegetation treatments. Lessen visual effects in Class I and Class II visual resource areas. Design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established VRM objectives.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Visual Resources (cont.).	landscape conditions to meet established Visual Resource Management (VRM) objectives.			
Wilderness and Other Special Areas See handbooks H-8550-1 (*Management of Wilderness Study Areas (WSAs)*), and H-8560-1 (*Management of Designated Wilderness Study Areas*).	Minimize soil-disturbing activities during fire control or prescribed fire activities. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers.	Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. If mechanized equipment is required, use the minimum amount of equipment needed. Time the work for weekdays or off-season. Require shut down of work before evening if work is located near campsites. If aircraft are used, plan flight paths to minimize impacts on visitors and wildlife. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers.	Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. Revegetate sites with native species if there is no reasonable expectation of natural regeneration. Maintain adequate buffers for Wild and Scenic Rivers.	Use the least intrusive methods possible to achieve objectives, and use non-motorized equipment in wilderness and off existing routes in wilderness study areas, and where possible in other areas. Maintain adequate buffers for Wild and Scenic Rivers.
Recreation See Handbook H-1601-1 (*Land Use Planning Handbook*).	Control public access to potential burn areas. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.	Control public access until potential treatment hazards no longer exist. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.	Control public access until potential treatment hazards no longer exist. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas.	Control public access in areas with control agents to ensure that agents are effective. Schedule treatments to avoid peak recreational use times, unless treatments must be timed during peak times to maximize effectiveness. Notify the public of treatment methods, hazards, times, and nearby

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Recreation (cont.)				alternative recreation areas.
Social and Economic Values	Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally.	Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally.	Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally.	Post treatment areas. Notify adjacent landowners, grazing permittees, the public, and emergency personnel of treatments. Control public access to treatment areas. Consult with Native American tribes and Alaska Natives whose health and economies might be affected by the project. To the extent feasible, hire local contractors and purchase supplies locally.
Rights-of-way	Coordinate vegetation management activities where joint or multiple uses of a rights-of-way (ROW) exists. Notify other public land users within or adjacent to the ROW proposed for treatment. Manage burns under powerlines so as to avoid negative impacts to the powerline.	Coordinate vegetation management activities where joint or multiple use of a ROW exists. Notify other public land users within or adjacent to the ROW proposed for treatment. Apply appropriate safety measures when operating equipment within utility ROW corridors. Minimize exposed soil areas during treatment. Keep operations within prescribed ROW.	Coordinate vegetation management activities where joint or multiple use of a ROW exists. Notify other public land users within or adjacent to the ROW proposed for treatment. Always use appropriate safety equipment and operating procedures. Utilize methods for disposal of vegetation that prevent spreading or reinfestation of unwanted vegetation.	Coordinate vegetation management activities where joint or multiple use of a ROW exists. Notify other public land users within or adjacent to the ROW proposed for treatment.
Human Health and Safety	Use some form of pretreatment, such as mechanical or manual treatment, in areas where fire cannot be safely introduced because of hazardous fuel buildup. Wear appropriate safety equipment and clothing, and use equipment that is properly maintained.	Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. Cut all brush and tree stumps flat, where possible, to eliminate sharp points that could injure a worker or the public. Ensure that only qualified personnel	Wear appropriate safety equipment and clothing, and use equipment that is properly maintained. Cut all brush and tree stumps flat, where possible, to eliminate sharp points that could injure a worker or the public.	Wear appropriate safety equipment and clothing, and use equipment that is properly maintained.

TABLE C-1 (Cont.)

Vegetation Treatment Methods Standard Operating Procedures and Guidelines

Resource Element	Treatment Method			
	Wildland Fire	**Mechanical**	**Manual**	**Biological**
Human Health and Safety (cont.)	Notify nearby residents who could be affected by smoke. Maintain adequate safety buffers between treatment area and residences/structures. Burn vegetation debris off ROWs to ensure that smoke does not provide a conductive path from the transmission line or electrical equipment to the ground.	cut trees near powerlines.		

5. No new roads will be constructed.

6. Some sites could likely be treated with a combination of methods. For example, an area with cheatgrass could be burned, then disked, then drill seeded with desirable plant species.

7. Although manual and mechanical methods are labor intensive and costly on a per unit of area basis compared to prescribed burning, they are highly selective and can be used in areas such as sensitive habitats or where human health and safety are concerns. Manual and mechanical treatments will be applied when prescribed burning is not appropriate.

8. Several mechanical methods are available for vegetation treatment. With any mechanical treatment, steps will be taken to minimize both soil disturbance and the spread of invasive species. Treatment methods will be matched with site characteristics and potential based on ecological site description.

9. Thinning will be conducted in a manner that blends treated areas into untreated areas, thus maximizing the "edge effect," or the amount of area between two adjacent habitat types. Stumps will be cut as low as possible to the ground.

10. Treatment areas will be maintained using one or more treatment methods based on the alternative chosen by the BLM for the 3 Bars Project.

11. Initiation of maintenance treatments would be based on monitoring results that show that project objectives were not being met.

12. All treatment units would be inventoried for cheatgrass and treated, if necessary, prior to project implementation in a unit.

13. All treatment units will be monitored for noxious weeds or other non-native invasive vegetation for 1 to 3 years following treatment. If noxious weeds or other non-native invasive vegetation were found on the treatment unit, they would be treated with an appropriate and approved method in accordance with the *Integrated Weed Management Plan Battle Mountain District Nevada Mt. Lewis Field Office and Tonopah Field Office* (USDOOI BLM 2009).

14. Map mountain mahogany occurrence prior to conducting treatments in units containing mountain mahogany. Remove mountain mahogany only where it compromises riparian habitat treatment objectives. Use hand thinning only, where feasible, near mountain mahogany.

C.2.2 Livestock

There are 12 livestock allotments within the 3 Bars ecosystem. The following procedures will ensure that the health and safety of livestock are not compromised by treatment activities, and that treatment activities will have minimal impacts on livestock operators. Standard Operating Procedures specific to livestock are:

1. Notify allotment permittee(s) of proposed vegetation treatments to discuss dates of treatment and restoration, current grazing practices, and additional site-specific mitigation, and to resolve issues they may have with the proposed treatments. This will help to ensure safe implementation of treatments.

2. Do not implement any restoration activities unless proper livestock management is in place.

3. Design treatments to take advantage of normal livestock grazing rest periods for a particular area, when possible, to minimize impacts to livestock grazing permits.

4. Rangeland improvements would be documented prior to initiating treatment projects and any damaged improvements will be repaired to previous condition or current BLM standards as soon as project activities in the immediate area are complete.

C.2.2.1 Temporary Livestock Grazing Closures

1. Design treatments to take advantage of normal livestock grazing rest periods for a particular area, when possible, to minimize impacts to livestock grazing permits.

2. Close areas, as needed, for at least 2 growing seasons, or until treatment objectives are met. Closure decisions are associated with the range regulations 43 CFR § 4160 and are required to close the treatment areas to livestock grazing. Animal Unit Months associated with the treatment areas may be temporarily suspended.

3. Re-open treated area to grazing in accordance with livestock grazing mitigation actions developed in the 3 Bars Project EIS or in accordance with existing permitted uses.

Depending upon the vegetation management treatment method used, the length of the temporary grazing closure will vary. Any treatment method used to release understory vegetation, and that meets the following criteria, will result in a temporary closure of that area for a minimum of 2 growing seasons or until vegetation establishment objectives are met. These criteria are:

1. The proposed treatment area understory lacks perennial understory vegetation that is expected and described in the Ecological Site Description(s) for the Ecological Site(s) for the treatment area.

2. Rest from livestock grazing is considered necessary to aid in the establishment/improvement of desired perennial vegetation. Perennial plant species that meet site-specific restoration objectives will be determined by the BLM.

3. Treatment area requires reseeding.

For prescribed fire treatments, a year of grazing rest prior to a prescribed fire treatment may be required in order to build up an adequate amount of fine fuels needed to carry the fire. The BLM will determine if a growing season's rest is required before the prescribed fire treatment. Following the prescribed fire treatment, a minimum of 2 growing seasons of grazing rest may be required to meet vegetation establishment objectives.

Riparian treatment areas will be closed for a minimum of 2 years; however, closure could be extended until the streambank is stabilized and vegetation establishment objectives are met.

The BLM will take steps to reduce the impact of treatment closures on permittees though targeting general areas for treatment as opposed to scattering treatments across the 3 Bars Project Area. The BLM will also work within grazing

authorizations to modify patterns of use to accommodate treatment closure when possible, thus limiting impacts to current management strategies.

C.2.3 Wild Horses

There are four Herd Management Areas (HMAs) within the 3 Bars ecosystem. The wild horse population in the 3 Bars Project area is in excess of the established Appropriate Management Level (AML) in the Roberts Mountains Complex. The Rocky Hills HMA population is currently below AML, but is heavily concentrated in the vicinity of Cadet Trough Spring. The following procedures will ensure that the health and safety of wild horses are not compromised by treatment activities. The procedures will also ensure a desirable distribution of wild horses, and few areas of overuse by wild horses, to ensure treatment success. To meet these objectives, SOPs specific to wild horses are:

C.2.3.1 Roberts Mountains Complex

1. Use temporary fencing to protect riparian treatment areas and include water gaps or off-site water development (trough placement).

2. Where fencing is needed within HMAs, use temporary electric fencing around sagebrush and pinyon-juniper treatment areas to protect from use by wild horses.

3. No use of barbed wire or let-down fencing will be allowed within HMA boundaries, and let-down fencing will not be used where wild horses are present and may become entrapped in the fence.

4. The Roberts Mountain Complex will remain a priority for gathers and use of population growth suppressants to achieve and maintain the AML in order to reduce wild horse impacts on treatment success.

C.2.3.2 Rocky Hills Herd Management Area

1. The Rocky Hills HMA is part of the Catch, Treat, and Release gather and fertility control program. National direction has been to return to these HMAs on a 2- to 3-year basis to re-treat the mares for fertility control. The timing of the gathers will be determined by the BLM Nevada State Office. The Rocky Hills HMA is a priority for gathering and for maintaining the AML through subsequent gathers during the life of the 3 Bars Project.

2. Use temporary fencing to protect riparian treatment areas and include water gaps or off-site water development (trough placement).

3. Where fencing is needed within HMAs, use temporary electric fencing around sagebrush and pinyon-juniper treatment areas to protect from use by wild horses.

4. No use of barbed wire or let-down fencing will be allowed within HMA boundaries, and let-down fencing will not be utilized where wild horses are present and may become entrapped in the fence.

C.2.3.3 Other Measures

1. Minimize disturbance associated with restoration activities within wild horse HMAs during the peak foaling season (March 1-June 30).

2. Do not implement any restoration activities without appropriate adjustments in the management of livestock or wild horses.

3. Aircraft will not be flown in the HMAs below 500 feet above ground level between March 1-June 30 to prevent disruption during foaling period and orphaned or abandoned foals.

4. Aerial application of herbicides will be restricted within HMAs. Aerial applications will only take place after conducting pre-flights of the proposed treatment area to document wild horse numbers and locations. A separation distance between area of herbicide application and wild horse herds will be determined based on animal movement behavior and known use of the area. A Project Inspector or Wild Horse and Burro Specialist will be on-site during aerial applications to ensure that wild horses are not within the treatment area and to ensure that an adequate buffer is maintained between the herbicide spray and wild horses.

5. Where fencing is constructed around riparian areas, access to water by wild horses will be maintained. If water is not already available in the immediate vicinity of the proposed temporary exclosure, then either a water gap will be planned or water will be developed through piping to a trough or troughs.

6. Routine monitoring of the wild horses, vegetation and water sources will continue within the project area with inventory flights scheduled every 2-3 years to document wild horse distribution and estimate the population size. Any post-treatment monitoring would also involve documentation of wild horse sign, observations, and use patterns

7. Should monitoring indicate that wild horses are being negatively impacted by the treatment activities, the Mount Lewis Field Office Manager may require additional measures for the protection of wild horses such as seasonal restrictions during the peak foaling period.

8. Beyond riparian temporary exclosures, no permanent or temporary barbed wire fences will be constructed within HMAs within the 3 Bars Project area. Should protection of vegetation from grazing animals be needed, temporary fences constructed of electric fence poly rope, poly tape, or high tensile cable will be used. Fences will be flagged appropriately and/or bright or reflective electric poly tape will be used. Any steel posts used for riparian or electric fences will be white-topped for visibility, and may include steel post safety caps. Additional reflectors may be necessary if problems with horses impacting fences occur.

9. When livestock are not present, gates will be left open throughout the HMAs to allow for unrestricted movement of wild horses.

10. During treatment, contractors and BLM staff will remain aware of the presence of wild horses in the area and potential conflicts that could result in injury to wild horses. Operations will be modified as needed to prevent excessive disturbance to wild horses. Issues will be reported to the Mount Lewis Field Office Wild Horse and Burro Specialist immediately.

C.2.4 Erosion Control

1. Follow guidance provided in the *Nevada Contractors Field Guide for Construction Site Best Management Practices* (Nevada Division of Environmental Protection 2008) and in *An Introduction to Erosion Control* (Zeedyk and Jansens 2006).

2. Stabilize terrestrial areas as quickly as possible after treatment, including reseeding or replanting with native vegetation, if the existing native plant community cannot recover and revegetate the site sufficiently.

3. Install sediment traps in streams if prescribed fire is used near streams.

4. Leave downed trees and mulch in areas with large-scale pinyon-juniper removal to prevent sediment from entering nearby waterways.

5. Use mulch, wood straw, wattles, and other erosion control features to minimize erosion and movement of sediments into nearby water bodies in areas treated using prescribed fire or where other large-scale vegetation removal occurs.

C.2.5 Planting and Seeding

1. Seeding and planting could be used on all treatment units.

2. Follow BLM Handbook H-1742-1, *Burned Area Emergency Stabilization and Rehabilitation Handbook* (USDOI BLM 2007c) during the seed procurement process, including the sampling and testing of all seed lots for noxious weeds and invasive species, to ensure that noxious weed and other invasive non-native species seed are not present.

3. Follow the contour of the land as much as possible when drill seeding to reduce potential water erosion. Do not disturb intact stands of sagebrush and native perennial vegetation.

4. Non-native seeds could be used to support hazardous fuels projects in areas with low moisture and that have previously burned; in old fire scar areas that cannot be successfully treated using Emergency Stabilization and Rehabilitation methods; and only where seeding using native species will not be successful.

C.2.6 Protective Fences

1. Build fences in accordance with BLM Manual H-1741, *Renewable Resource Improvements, Practices, and Standards* (USDOI BLM 1989). Modifications may be incorporated into the design based on consultation with the Nevada Department of Wildlife (NDOW) and subsequent recommendations to minimize adverse impacts to wildlife. Let-down fences could be constructed in big game ranges and migration corridors where feasible and necessary.

2. Use existing fence infrastructure as much as is practical to protect treatment areas. This may entail modification of grazing on a pasture basis to ensure the appropriate amount of protection for seeding and restoration activities.

3. Use temporary protective fences when feasible. Permanent fences besides those proposed for the 3 Bars Project, if needed, will be analyzed under the National Environmental Policy Act for the effects to cultural, natural, and social resources from the fencing.

4. Construct livestock, wild horse, and other wild ungulate exclusion fences around treatment boundaries. These protective fences will be on an as-needed basis to allow vegetation to establish, and to reduce the need to remove livestock from the pasture or allotment. As noted in Sections C.2.3.1 and C.2.3.2, no use of barbed wire or let-down fencing will be allowed within HMA boundaries, and let-down fencing will not be utilized where wild horses are present and may become entrapped in the fence.

5. Place the top fence wire above horizontal braces to minimize perching by predatory birds.

6. Place domed pipe caps on the top of steel pipes, if steel pipe corners are used, to prevent wildlife entry and to minimize predatory bird perching.

7. Enhance the visibility of fences constructed within Greater sage-grouse habitat or HMAs by using appropriate measures such as installing wide stays, deflectors, and/or white-topped posts. Type or brand of reflectors used will be selected from those that have been previously tested and determined to be effective. Additional measures to reduce impacts to Greater sage-grouse include constructing fences with larger and more conspicuous wooden fence posts, ensuring that fence segments are less than 13 feet wide, avoiding fence construction within 1,640 feet of an inactive lek, and avoiding fence construction within 1¼ miles of an active lek.

C.2.6.1 Types of Temporary Fencing

1. Riparian Treatments - Standard barbed wire fence and temporary electric fence may be used.

2. Aspen Treatments – Standard barbed wire fence and temporary electric fence may be used.

3. Pinyon-juniper Treatments – Temporary electric fence may be used in Birch Creek and Upper Pete Hanson treatment areas, and temporary barbed wire fencing outside of areas utilized by wild horses.

4. Sagebrush Treatments – Temporary electric fencing. Temporary barbed wire fencing will only be used outside of areas utilized by wild horses.

C.2.7 Riparian Management

1. The BLM will work with federal and state agencies to ensure compliance with the Sections 401 and 404 of the Clean Water Act to ensure that impacts to streams are minimal and that treatments are in compliance with federal and state laws.

2. Remove non-riparian trees within the historic floodplains.

3. Chainsaw hand thinning is the preferred method for tree cutting in riparian units. However, other methods may be considered on a case-by-case basis.

4. Mechanical equipment will not be used within the stream where feasible, but could be used to place items or structures within the stream to address stream structural issues.

5. Remove vegetation incrementally over several years if loss of shade near streams and other waterbodies is of concern to minimize stream temperature effects.

6. Hand thinning is the preferred method to remove vegetation around springs.

7. Use only existing fencing or small temporary exclosures to protect treatment units.

8. No fueling within 300 feet of water bodies.

9. No felling of trees, skidding, rigging, or construction of tractor or truck roads or landings, or the operation of vehicles may take place within 200 feet, measured on the slope, of the high-water mark of any lake, reservoir, stream, or other body of water unless a variance is first obtained under the criteria from a committee composed of the State Forester Fire Warden, the Director of the NDOW, and the State Engineer (Nevada Revised Statute § 528.053). The committee may grant a variance authorizing any of the activities prohibited by Statute subsection 1 within a 200-foot buffer area if the committee determines that the goals of conserving forest resources and achieving forest regeneration, preserving watersheds, reaching or maintaining water quality standards adopted by federal and state law, continuing water flows, preserving and providing for the propagation of fish life and stream habitat, and preventing significant soil erosion will not be compromised. In acting on a request for such variances, the committee shall consider the following factors:

    a. the extent to which such requested activity is consistent with good forestry management for the harvesting of timber;

    b. the extent to which such requested activity significantly impedes or interrupts the natural volume and flow of water;

    c. the extent to which such requested activity significantly affects a continuation of the natural quality of the water pursuant to state and federal water quality standards;

    d. the extent to which such requested activity is consistent with the prevention of significant soil erosion;

    e. the extent to which such requested activity may significantly obstruct fish passage, cause sedimentation in fish spawning areas, infringe on feeding and nursing areas and cause variations of water temperatures; and

    f. the filtration of sediment-laden water as a consequence of timber harvesting on adjacent slopes.

C.2.8 Aspen Management

1. Chainsaw hand thinning is the preferred method for tree cutting in aspen units. However, other methods may be considered on a case-by-case basis.

2. Use only existing fencing or small temporary exclosures to protect treatment units.

3. Slash accumulations will remain in place to promote seedling and sapling establishment.

4. Pinyon-juniper removal activities may extend 200 feet beyond the aspen stand.

5. The BLM may protect treated aspen stands until the stand density is 1,500 stems per acre and sapling reach at least 7 feet in height with temporary exclosure fencing. Typically, objectives are met in 3 to 5 years as a result of exclusion.

C.2.9 Pinyon-juniper Management

1. The BLM will survey for old-growth pinyon-juniper and limber pine and map their occurrence prior to treating an area and will make every effort to avoid areas with old-growth pinyon-juniper and limber pine stands.

2. Prescribed fire could be utilized in all pinyon-juniper phase classes and may be carried out at any time of the year depending on treatment objectives.

3. Chainsaw hand thinning is the preferred method for tree cutting. However, other methods may be considered on a case-by-case basis.

4. In most instances, treatment of pinyon-juniper will occur predominately in Phase I and Phase II sites. Only hand-thinning treatments will be use on Phase I sites. Treatments on Phase II and III could include prescribed fire as necessary, and would generally occur in phases of about 550 acre blocks. Treatments within Phase III sites will be used to disrupt the continuity of fuels and reduce the risk of catastrophic wildfire, as well as improve forest health.

5. The BLM may leave downed trees and mulch in areas with large-scale pinyon-juniper removal to prevent sediment from entering nearby waterways.

6. Treatment design will allow for up to 100 cords of fuel wood (greenwood and deadwood combined) to be removed for commercial sale annually.

7. For all pinyon-juniper removal projects, the BLM will implement SOPs to minimize the chance of noxious weeds and other invasive non-native vegetation becoming established on the treatment units, and will monitor all units for noxious weeds and other invasive non-native vegetation for up to 5 years after treatment.

8. Biological control methods would only be used to treat cheatgrass.

9. Fuel breaks will be constructed along existing roads and two-tracks where possible using narrow and small-scale green-stripping. Fuel breaks will not be constructed where they could adversely impact important cultural or natural resources.

C.2.10 Sagebrush Management

1. Treatments will adhere to the September 2015 BLM *Nevada and Northeastern California Greater Sage-Grouse Approved Resource Management Plan Amendment and Record of Decision* (ARMPA) including the Required Design Features (RDFs) specified for fuels and fire management and the strategies outlined in the

Fire and Invasives Assessment Tool (FIAT - Appendix G of the ARMPA) including integrating resilience and resistance concepts for managing Sage-Grouse habitat at the landscape scale.

2. Any treatments on Greater sage-grouse habitat will utilize a mosaic design where treated areas have a width of no greater than 200 feet between untreated areas. No treatment will occur within 0.6 miles of any occupied lek that results in a decrease in canopy cover of greater than 15 percent, unless additional site-specific objectives are identified.

3. Soil tests will be conducted to determine if suitable seeds are present in the seedbank before treatments occur in sagebrush communities.

4. Biological control methods would only be used to treat cheatgrass.

5. Chainsaw hand thinning is the preferred method for tree cutting within sagebrush treatment units. However, other methods may be considered on a case-by-case basis.

6. Treatment design will allow for up to 100 cords of fuel wood (greenwood and deadwood combined) to be removed for commercial sale annually.

7. Only native seed would be used for overseeding in sagebrush units. Seed type would be determined based on monitoring and adaptive management.

C.2.11 Prescribed Fire and Fire for Resource Benefit

1. Develop a burn plan prior to any prescribed burn occurring.

2. Ignite burns under fair to excellent ventilation conditions and suspend operations under poor smoke dispersion conditions.

3. Minimize dirt content when slash piles are constructed.

4. Consolidate burn piles and other burn materials to enhance fuel consumption and to minimize smoke production.

5. The BLM may suspend grazing on burned areas for at least 2 years after the burn, or until standards are met.

6. Use fencing, if necessary, to allow desirable plants to become established in burned areas.

7. Treatments may be conducted next to roads to improve the roads' usefulness as fuel breaks and as control lines for wildfires and prescribed fires.

C.2.12 Activity Fuel Disposal Methods

The following actions will be taken to dispose of felled trees, slash, and other woody materials that remain from treatments to reduce the buildup of hazardous fuels and potential for wildfire.

1. Dispose of activity fuels (slash) using one or more of the disposal options from the activity fuel disposal alternatives listed below.

2. Remove biomass in a manner that minimizes the spread of noxious weeds and other invasive non-native species and promote seeding establishment and development. Should slash accumulations exceed 4 tons/acre, these activity fuels will be disposed of with one or more of the activity fuel disposal methods listed below.

3. Burn during the fall, winter, and spring to take advantage of conditions of soil moisture, snow, precipitation, and vegetation green-up to reduce fire impacts to non-target vegetation.

4. Where appropriate, leave tree materials on the ground and positioned perpendicular to slopes to minimize erosion.

5. Where appropriate, lop and scatter felled trees to reduce fuel loading, buck and stack close to access points to minimize erosion and spread of noxious weeds and other invasive non-native species, or burn in slash piles to minimize ground litter.

6. Where appropriate, allow felled trees to be used for public wood harvesting per District policy and to aid in the removal of tree materials.

C.2.12.1 Biomass Utilization

1. Where appropriate, make juniper activity fuels that are wider than 3 inches available to the public (personal use or commercial) for fire wood or posts.

2. Where appropriate, make activity fuel available to the public (personal use or commercial) as mulch.

3. Where feasible, use coarse and large woody debris for stream restoration to slow stream water flow and reduce the potential for stream erosion.

4. Place coarse and large wood debris perpendicular to slopes greater than 10 percent.

5. Where appropriate, make activity fuel available for personal and commercial biomass use.

C.2.12.2 Pile Burn

1. Burn piles should not exceed 10 feet long by 10 feet wide by 6 feet high.

2. Burn piles will be piled with fine fuels and slash on the interior and larger fuels on the exterior.

3. Burn piles maybe covered with wax paper or similar material (no plastic).

4. Piles will be burned in the spring, fall, or winter.

C.2.12.3 Slash Burn

1. Scatter activity fuels according to guidance from the Fire Behavior Fuel Models for slash.

2. Slash will be burned in the spring, fall, or winter.

C.2.12.4 Leave on Site

1. Where appropriate, leave some material piled on site to provide wildlife habitat or for erosion control.

C.3 Special Precautions

C.3.1 Prevention of Weeds and Early Detection and Rapid Response

Once weed populations become established, infestations can increase and expand in size. Weeds colonize highly disturbed ground and invade plant communities that have been degraded, but are also capable of invading intact communities. Therefore, prevention, early detection, and rapid response are the most cost-effective methods of weed control. Prevention, early detection, and rapid response strategies that reduce the need for vegetative treatments for noxious weeds should lead to a reduction in the number of acres treated using herbicides in the future by reducing or preventing weed establishment.

As stated in the BLM's *Partners Against Weeds - An Action Plan for the BLM* (USDOI BLM 1996), prevention and public education are the highest priority weed management activities. Priorities are as follows:

- Priority 1: Take actions to prevent or minimize the need for vegetation control when and where feasible, considering the management objectives of the site.
- Priority 2: Use effective nonchemical methods of vegetation control when and where feasible.
- Priority 3: Use herbicides after considering the effectiveness of all potential methods or in combination with other methods or controls.

Prevention is best accomplished by ensuring the seeds and reproductive plant parts of new weed species are not introduced into new areas.

The BLM is required to develop a noxious weed risk assessment when it is determined that an action may introduce or spread noxious weeds or when known noxious weed habitat exists (USDOI BLM 1992). If the risk is moderate or high, the BLM may modify the project to reduce the likelihood of weeds infesting the site and to identify control measures to be implemented if weeds do infest the site. The following are actions that can be taken by the BLM to slow the introduction or spread of noxious weeds and other invasive vegetation:

1. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes, all vehicles and heavy equipment that could cause ground disturbance, or are authorized for off-road use, will be cleaned to ensure that they are free of soil and debris capable of transporting weed propagules. All vehicles and equipment will be cleaned prior to entering or leaving the project area. Cleaning efforts will concentrate on vehicle tracks, feet and tires, and undercarriage. Cleaning efforts will also focus on axles, frames, cross members, motor mounts, steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles.
2. Equipment will be washed prior to being moved between project units. Equipment will arrive at the project unit area already cleaned of all dirt and debris. Any subsequent cleanings (i.e., before moving between units) will be recorded using Global Positioning System units or other mutually acceptable equipment and provided to the District Office Weed Coordinator or designated person.

3. All treatment areas where soil is disturbed will be monitored to determine if noxious weeds and other invasive non-native vegetation establish on the site. If so, they will be treated to remove them from the site.

4. Project areas will be surveyed for noxious weeds prior to project implementation. Any noxious weeds discovered within the 3 Bars Project area will be flagged and project treatments will not be allowed within 75 yards of the noxious weed infestation.

C.3.2 Plants and Animals

C.3.2.1 Special Status Species

Federal policies and procedures for protecting federally listed threatened and endangered plant and animal species and species proposed for listing were established by the Endangered Species Act of 1973 (Act) and regulations issued pursuant to the Act. The purposes of the Act are to provide mechanisms for the conservation of threatened and endangered species and their habitats. Under the Act, the Secretary of the Interior is required to determine which species are threatened or endangered and to issue recovery plans for those species.

Section 7 of the Act specifically requires all federal agencies to use their authorities in furtherance of the Act to carry out programs for the conservation of listed species, and to ensure that no agency action is likely to jeopardize the continued existence of a listed species or adversely modify critical habitat. Policy and guidance (BLM Manual 6840, *Special Status Species*; USDOI BLM 2008a) also stipulates that species proposed for listing must be managed at the same level of protection as listed species.

The BLM state directors may designate special status species in cooperation with their respective state. These special status species must receive, at a minimum, the same level of protection as federal candidate species. The BLM will also carry out management activities for the conservation of state-listed species, and state laws protecting these species will apply to all BLM programs and actions to the extent that they are consistent with Federal Land Policy and Management Act and other federal laws. Threatened, endangered, and other special status species are discussed in Sections 3.12 (Native and Non-invasive Vegetation Resources), 3.15 (Fish and Other Aquatic Resources), and 3.16 (Wildlife Resources) of the 3 Bars Project Final EIS.

Before any vegetation treatment or ground disturbance occurs, BLM policy requires that the Mount Lewis Field Office survey the treatment site for species listed or proposed for listing, and for special status species. This must be done by a qualified biologist and/or botanist who consults the state and local databases and visits the site during the appropriate season. For wildlife surveys, the biologist will follow the *BLM Nevada Wildlife Survey Protocols* (USDOI BLM 2013). If a proposed project may affect a proposed or listed species or its critical habitat, the BLM will consult with the USFWS. A project with a "may affect, likely to adversely affect" determination requires formal consultation and receives a Biological Opinion from the USFWS. A project with a "may affect, not likely to adversely affect" determination requires informal consultation and receives a concurrence letter from the USFWS.

The BLM consulted with the USFWS during development of the 3 Bars Project EIS as required under Section 7 of the Act. As part of this process, the BLM prepared a formal consultation package that included a description of the program; species listed as threatened or endangered, species proposed for listing, and critical habitats that could be affected by the program; and a Biological Assessment that evaluated the likely impacts to listed species, species proposed for listing, and critical habitats from the proposed vegetation treatment programs. The Lahontan cutthroat trout was the only species that required evaluation in the Biological Assessment. The BLM will also consult with the

USFWS and NDOW before conducting prescribed fire and other treatments that could adversely impact Lahontan cutthroat trout when working near Lahontan cutthroat trout occupied or potential habitat.

C.3.2.2 Fish

1. To ensure fish passage and to protect fish, all culverts will be designed to ensure fish passage unless specifically designed and located to minimize interaction of fish species in coordination with NDOW and U.S. Fish and Wildlife Service (USFWS).

2. Hardened water crossings or raised culverts would be considered in all locations where roads cross lotic or lentic areas.

3. No in-stream treatments would be allowed in waters occupied by Lahontan cutthroat trout during January 1-July 15 to help protect spawning fish and their eggs and young.

C.3.2.3 Migratory Birds

1. The BLM will conduct migratory bird nest surveys prior to any surface disturbing activities that would occur during the avian breeding season (April 1-July 31) following guidance in *BLM Nevada Wildlife Survey Protocols* (USDOI BLM 2013). If nests are found within the treatment area, or if other evidence of nesting (i.e., mated pairs, territorial defense, carrying nest material, transporting food) is observed, treatment activities may be postponed until after the completion of nesting, or a protective buffer (the size depending on the habitat requirements of the species) will be delineated and the buffer area will be avoided to prevent destruction or disturbance to nests and birds until they are no longer active, or the area will be removed from project consideration.

2. Raptor nest sites are subject to seasonal and spatial protection from disturbance to avoid displacement and mortality of raptor young as shown in **Table C-2**.

3. A BLM-approved wildlife biologist will conduct raptor nesting surveys using guidance in the *BLM Nevada Wildlife Survey Protocols* (USDOI BLM 2013). Surveys will be conducted no more than 14 days prior to commencement of surface-disturbing activities in an area. If disturbance does not occur within 14 days of the survey, the site will be resurveyed. If during any surveys nests or nesting behavior are documented, the area will be avoided until the young have fledged from the nest or the nest fails. Compliance with this SOP does not constitute full compliance with, or exemption from, the Migratory Bird Treaty Act as amended, or any other legislation.

C.3.2.4 Mule Deer, Pronghorn Antelope, and other Mammals

1. Ground disturbing activities will not occur in mule deer and pronghorn antelope winter range from November 15-March 16 to avoid displacement and mortality to mule deer and pronghorn antelope during winter. The BLM will consult seasonal range maps prepared by the NDOW to delineate winter range for mule deer and pronghorn antelope at the time of treatment activities.

2. Ground disturbing activities will not occur in pronghorn antelope kidding areas from May 1-June 30 to avoid displacement and mortality to pronghorn antelope during the kidding season. The BLM will consult seasonal range maps prepared by the NDOW to delineate kidding areas at the time of treatment activities.

3. BLM will not conduct treatments within 40 meters (131 feet) of active pygmy rabbit burrows.

TABLE C-2

Raptor Nest Buffers

Species	Seasonal Restrictions	Spatial Buffers (miles)
Turkey vulture	2/1 – 8/15	0.5
Northern harrier	4/1 – 8/15	0.25
Cooper's hawk	3/15 – 8/31	0.25
Sharp-shinned hawk	3/15 – 8/31	0.25
Northern goshawk	3/1 – 8/15	0.5
Red-tailed hawk	3/15 – 8/15	0.33
Swainson's hawk	3/1 – 8/31	0.25
Ferruginous hawk	3/1 – 8/1	1.0
Bald eagle	1/1 – 8/31	1.0
Golden eagle	1/1 – 8/31	0.5
American kestrel	4/1 – 8/15	0.125
Prairie falcon	3/1 – 8/31	0.5
Peregrine falcon	2/1 – 8/31	1.0
Barn owl	2/1 – 9/15	0.125
Burrowing owl	3/1 – 8/31	0.25
Flammulated owl	4/1 – 9/30	0.25
Great-horned owl	12/1 - 9/30	0.125
Long-eared owl	2/1 – 8/15	0.125
Northern pygmy-owl	4/1 – 8/1	0.25
Northern saw-whet owl	3/1 – 8/31	0.125
Short-eared owl	3/1 – 8/1	0.25
Western screech-owl	3/1 – 8/15	0.125

Sources: Herron et al. (1985), Romin and Muck (1999), Whittington and Allen (2008), and USDOI BLM (2013).

C.3.2.5 Greater Sage-grouse

1. Ground disturbing activities will not occur within 4 miles of active sage grouse leks from 6 p.m. to 9 a.m., Pacific Time, during March 1-May 15, or in accordance with any revised guidelines and policies. The BLM will conduct lek and other surveys based on the *BLM Nevada Wildlife Survey Protocols* (USDOI BLM 2013) and the September 2015 ARMPA.

2. Ground disturbing activities will not occur in sage-grouse brood rearing areas from May 15-September 15, or in accordance with current guidelines and policies. The BLM will consult seasonal range maps prepared by NDOW to delineate Greater sage-grouse use areas at the time of treatment activities.

3. Ground disturbing activities will not occur in sage-grouse winter habitat use areas from November 1-February 28, or in accordance with current guidelines and policies. The BLM will consult seasonal range maps prepared by NDOW to delineate Greater sage-grouse use areas at the time of treatment activities.

C.3.3 Native American Concerns and Cultural Resources

The BLM meets its responsibilities for consultation and government-to-government relationships with Native American tribes by consulting with appropriate tribal representatives prior to taking actions that affect tribal interests. The BLM's tribal consultation policies are detailed in BLM Manual 8120 (*Tribal Consultation under Cultural Resource Authorities*; USDOI BLM 2004a) and Handbook H-8120-1 (Handbook H-8120-1, *General Procedural Guidance for Native American Consultation: Guidelines for Conducting Tribal Consultation*; USDOI BLM 2004b). The BLM consulted with various tribes and bands of the Western Shoshone during development of this EIS. Information gathered on important tribal resources and potential impacts to these resources from restoration activities is presented in the analysis of impacts.

The BLM meets its responsibilities for compliance with Section 106 of the National Historic Preservation Act, and has adopted the following SOPs that would in part ensure compliance. All disturbance activities would comply with Section 106 in accordance with the measures outlined in the *State Protocol Agreement between the Bureau of Land Management and the Nevada State Historic Preservation Office for Implementing the National Historic Preservation Act* (Protocol Agreement) and specifically the Programmatic Agreement for the 3 Bars Project between the Nevada BLM and the Nevada State Historic Preservation Office. Actions that could be taken to address Native American concerns and cultural resources and to meet its responsibilities for compliance with Section 106 of the National Historic Preservation Act include:

1. All disturbance activities will comply with Section 106 of the National Historic Preservation Act. Compliance will be achieved in accordance with the measures outlined in the Protocol Agreement.

2. Wherever possible, the project will be designed to avoid potential adverse effects to historic properties (i.e. archeological sites eligible for inclusion on the National Register of Historic Places[NRHP]). Where it is not possible to avoid potential adverse effects, a mitigation plan will be crafted in accordance with National Historic Preservation Act as guided by the 36 CFR § 800 regulations and the site(s) will be fully mitigated.

3. Each treatment will be monitored to ensure that avoidance measures have been effective and that project activities have not impacted cultural resources in an unforeseen manner. All persons participating in the construction, operation, or maintenance of a project will not disturb, alter, injure, or destroy any scientifically important remains, or any eligible archeological site, structure, building, object or artifact on lands associated with the project. Individuals involved in illegal activities will be subject to penalties under the Archaeological Resource Protection Act (16 United States Code [USC] § 470ii), the Federal Land Policy and Management Act (43 USC § 1701), the Native American Graves and Repatriation Act (16 USC § 1170), or other applicable statutes.

4. If human remains/burials or other previously unidentified cultural resources or vertebrate paleontological resources are discovered during project operations, all activities within 300 feet of the discovery will immediately cease and the BLM archeologist will be notified by telephone, followed by written confirmation. Work will not resume and the discovery will be protected until the BLM authorized officer issues a Notice to Proceed. All discoveries of human remains (regardless of location in association with the project area) will be reported to the BLM Mount Lewis Field Office.

5. Sites identified as holding special significance to Native American groups from a cultural or spiritual importance will be avoided if restoration activities would compromise the site's value.

6. Phase III cultural resource inventories Handbook H-8120-1, *General Procedural Guidance for Native American Consultation: Guidelines for Conducting Tribal Consultation* be conducted prior to project implementation.

Under all alternatives, the BLM Handbook H-8120-1, *General Procedural Guidance for Native American Consultation: Guidelines for Conducting Tribal Consultation* implement the following measures as outlined in the Programmatic Agreement prepared for the 3 Bars project and signed by the BLM and Nevada State Historic Preservation Officer on September 5, 2012.

1. Complete a cultural resource inventory of the proposed project area and consult with the Tribes in accordance with Stipulation III (A) of the Programmatic Agreement.

2. For each phase of the undertaking, evaluate cultural resources for NRHP eligibility, consult with the Tribes or tribal members regarding areas of cultural or traditional religious importance, and consult with the State Historic Preservation Office and tribes regarding the NRHP determinations per Stipulation III(B) of the Programmatic Agreement.

3. Develop and implement appropriate treatment measures to mitigate adverse effects to those resources determined eligible for inclusion in the NRHP and in accordance with Stipulation III(C) of the Programmatic Agreement.

4. Treat unanticipated finds in accordance with the protocols outlined in Stipulation VII of the Programmatic Agreement.

5. Provide training to all BLM and contract personnel to ensure compliance with the Archeological Resource Protection Act of 1979 (16 USC § 470), as amended, and ensure that human remains and burial associated items are treated with respect and are handled according to the provisions of the Native American Grave Protection and Repatriation Act and Nevada Revised Statute 383 in accordance with Stipulation VIII of the Programmatic Agreement.

C.3.4 Paleontological Resources

Standard Operating Procedures that apply to paleontological resources are in BLM Manual 8270, *Paleontological Resource Management*, and BLM Handbook H-8270-1, *General Procedural Guidance for Paleontological Resource Management* (USDOI BLM 2008b, c).

If it is the opinion of the authorized officer that particular treatment areas may contain valuable fossil resources that may be placed at risk by invasive treatments, then paleontological surveys will be conducted by a BLM-permitted paleontologist. Paleontological surveys would assess the potential for valuable resources to be present by using the Potential Fossil Yield Classification (PFYC) System. Once geologic deposits have been classified according to the PFYC system, and if there is a medium to high potential for valuable fossil resources to be present in a given area, then protective measures according to BLM rules and guidance will be implemented to protect potential fossil resources. Such protective measures will include, but are not limited to, the following actions:

1. If any scientifically important fossils are found during a field survey, a program will be developed and implemented to remove at risk fossils prior to ground disturbing activities.

2. Treatment areas identified as having a high potential for buried paleontological resources based upon field surveys will be monitored by a qualified paleontologist during ground disturbing activities. The method of treatment will determine the level of monitoring needed. For instance, a stream restoration that potentially involves substantial excavation will require more intense monitoring than other activities.

3. Personnel will be instructed about the types of fossils they could encounter and the steps to take if fossils are uncovered during construction. Instruction would stress the nonrenewable nature of paleontological resources and that collection or excavation of fossil materials from federal land without a federal permit is illegal.

4. Fossils recovered during the field surveys or monitoring will be prepared in accordance with standard professional paleontological techniques. A report on the findings of the salvage program, including a list of the recovered fossils, will be prepared following completion of the program. A copy of this report will accompany the fossils to the BLM-approved facility where they are curated.

C.3.5 Wilderness Study Areas

The guidance for managing each Wilderness Study Areas (WSAs) is provided in the BLM Manual 6330 (*Management of Wilderness Study Areas*; USDOI BLM 2012). The general management standard is that the suitability of the WSAs for preservation as Wilderness must not be impaired. Additional policies for specific activities are provided in the manual and will be followed for the 3 Bars Project.

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APPENDIX D

RESPONSE TO PUBLIC COMMENTS ON THE DRAFT EIS

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APPENDIX D

RESPONSE TO PUBLIC COMMENTS ON THE DRAFT EIS

D.1 Introduction

This chapter provides a summary of the public and agency comments that were received on the *3 Bars Ecosystem and Landscape Restoration Project Draft Environmental Impact Statement* (Draft EIS) and responses to those comments. Additional information about the public comment period can be found in Chapter 4 of the Final EIS.

D.2 Comment Response Process

All comments were reviewed and organized so that an objective analysis and presentation of the comments could be made. Comment letters were assigned tracking numbers and entered into a database. All comments received on the Draft EIS documents are included in the Administrative Record.

The project interdisciplinary team reviewed all comments. Per guidance in the U.S. Department of the Interior (USDOI), Bureau of Land Management (BLM), *National Environmental Policy Act Handbook* H-1790-1 (USDOI BLM 2008), a comment was deemed substantive and received a specific response if it 1) questioned, with reasonable basis, the accuracy of information in the EIS; 2) questioned, with reasonable basis, the adequacy of, methodology for, or assumptions used for the environmental analysis; 3) presented new information relevant to the analysis; 4) presented reasonable alternatives other than those analyzed in the EIS; or 5) caused changes for revisions in one or more of the alternatives. Each individual communication was assigned a number and each substantive comment was identified within a comment response database. Substantive comments were identified and responded to in this chapter (see Section D.5). Comments deemed non-substantive were also evaluated and any resulting issues are summarized below in Section D.4. Non-substantive comments included opinions in favor or against the project or an alternative and communications that expressed an opinion about the project. Non-substantive comments were recorded, but no response is included in the summary in Section D.4. The original letters and emails and a copy of the comment response database output have been entered into the Administrative Record and copies of unique letters are included at the end of this Appendix in Section D.8.

D.3 Quantitative Analysis of Comments Received

D.3.1 Summary of Comments Received on the Draft EIS and the Response Process

Approximately 6,819 email communications were received on the Draft EIS. Of these, approximately 6,530 reflected the views of, and closely mirrored language suggested by, members and other interested persons associated with the American Wild Horse Preservation Campaign; numerous individuals submitted their comment more than once. Each of the comment letters and emails was read and substantive and non-substantive issues were identified. Substantive comments were collated and responded to by the project team. Substantive comments and the project team's

responses are provided in Section D.5. A petition style email that was submitted by American Wild Horse Preservation Campaign and its member/interested individuals included several substantive comments. This letter was included in the comment review as a single response, even though it was submitted by over 6,500 individuals.

D.3.2 Public Meetings and Oral Comments

A public meeting was held at the Eureka Opera House, Eureka, Nevada, on November 7, 2013. The meeting started with an informal open house to encourage open dialogue between the project team and members of the public. BLM staff members were available to answer questions. Posters describing the project were displayed, and copies of the Draft EIS were available for the public to review and take with them. The public was also provided with a mail-in comment form and an email address for submitting comments. BLM staff presented a PowerPoint presentation that explained the project and gave a brief summary of the contents of the Draft EIS. The presentation was followed by a question and answer session to allow people the opportunity to ask questions in an open forum. Three individuals, representing Eureka County (2) and Nevada Department of Wildlife (NDOW; 1), attended the meeting, in addition to BLM staff and contractor representatives. No oral comments were taken at the meeting.

D.3.3 Comments by Affiliation

Table D-1 presents a breakdown of the affiliation of comments received (where the author stated an affiliation). Agency comments were received from the U.S. Environmental Protection Agency, USDOI National Park Service, NDOW, and Eureka County Board of Commissioners. Two non-government organizations, American Wild Horse Preservation Campaign and Western Watersheds Project, provided comments. In addition, 14 individuals provided unique comment letters, while about 6,530 individuals provided comments similar to those of the American Wild Horse Preservation Campaign through a mass mailing. The names of individuals providing comments are provided in Section D.7. Copies of agency and public letters are provided in Section D.6.

TABLE D-1

Affiliation of Commenters on the Draft EIS

Affiliation	Number of Comments Received
Federal Agencies	2
State Agencies	1
Local Agencies	1
Non-government Organizations	2
Individuals	6,544

D.4 Summary of Issues Identified in Non-substantive Comments

The majority of non-substantive comments were summaries of text given in the Draft EIS; opinions on the appropriateness of the treatments, treatment areas, and methods given in the Draft EIS to restore the health of the landscape; and opinions on the need to protect Special Status Species, springs and other water sources, pinyon-juniper, and other resources on the 3 Bars Project area. Other non-substantive comments included:

- Livestock industry experts were the source for information in the Draft EIS.
- The ownership of the Mount Hope Project bought public lands with grazing permits to acquire water rights and deflect rancher concerns.
- The BLM needs to reduce the number of livestock grazing on the 3 Bars Project area.
- The BLM wasted public money in developing the Draft EIS.
- The BLM doesn't know what it is doing.
- The BLM is really trying to make the 3 Bars ecosystem unnatural and unbalanced.
- The BLM plans to use the 3 Bars Project area for toxic waste incineration.
- The BLM needs to reconsider further land sales.

D.5 Summary of Issues Identified in Substantive Comments

This section provides substantive comments received on the Draft EIS, followed by the BLM's responses to those comments. The comments were organized into 23 main topic areas. **Table D-2** lists where specific comment topics were addressed in the Comment Summary. Text has been added to some comments to help clarify the comment; this text is included in brackets [ ]. Each comment letter provided in Section D-8 that included substantive comments is given a unique document and comment number (e.g., 4-1) to allow the reader to cross-reference comments and comment responses given below to the comment letter. The full citations for documents referenced in BLM responses are given in Section D-8.

TABLE D-2

Summary of Comment Topics and Where Addressed in this Appendix

TABLE D-2 (Cont.)

Summary of Comment Topics and Where Addressed in this Appendix

D.5.1 Air Quality

Comment No. 4-121 from Western Watersheds Project:

Contrary to BLM's Three [3] Bars claims - This all represents a massive release of carbon dioxide now naturally stored in woody and other vegetation into the atmosphere. It represents significant loss and destruction of soil (that will erode in wind and spur early snowmelt and other adverse climate change amplifying impacts, microbiotic crusts (that sequester carbon, stabilize soils, and help retain moisture on-site).

Response to Comment No. 4-121:

As discussed under Environmental Consequences in Final EIS Sections 3.5 (Meteorology and Climate Change) and 3.6 (Air Quality), modeling was done to estimate carbon dioxide emissions, including emissions from prescribed fire. Based on modeling, carbon dioxide emissions would be insignificant when compared to other carbon dioxide emissions in Nevada, and that use of prescribed fire would reduce the likelihood of wildfire, especially large-scale wildfire. In a modeling study by Wiedinmyer and Hurteau (2010) that evaluated the use of prescribed fire as a means of reducing forest carbon emissions, they found that carbon dioxide fire emissions could be reduced by 18 to 25 percent in the western U.S., and by as much as 60 percent in some forest systems, by using prescribed fire as prescribed burns typically release substantially less carbon dioxide emissions than wildfires of the same size. The Association of Fire Ecology and others (2013) noted that prescribed fires can be used to reduce the risk of wildfire and help to promote a stable and resilient ecosystem and long-term carbon sequestration. This information has been included in Section 3.5.3 (Meteorology and Climate Change, Environmental Effects) of the Final EIS.

3 Bars Project EIS Final Section 3.9 (Soil Resources) discusses the potential for short-term loss and alteration of soils due to prescribed fire and other treatment methods. It identifies areas where 3 Bars lands are susceptible to fire damage (see Figure 3-19); the BLM would limit use of prescribed fire in highly susceptible areas where feasible. As discussed in Section 3.9.3 (Soil Resources, Environmental Consequences) of the Final EIS, however, prescribed fires generally have fewer impacts on soils than wildfires. Reducing the incidence and severity of wildfires is an important long-term goal of 3 Bars Project treatments and would result in improved soil function in treated areas long-term, as noted in Section 3.9.3.3.1 under Beneficial Impacts and elsewhere in Section 3.9 of the Final EIS.

Comment No. 4-131 from Western Watersheds Project:

Dioxins are an insidious risk. The D[raft] EIS does not assess potential dioxin pollution from burning biomass.

Response to Comment No. 4-131:

Dioxins are a by-product of biomass combustion from wildfire and prescribed fire (Gullett and Touati 2003) and can be harmful to human health (World Health Organization 2014). The American Chemistry Council (2005) and U.S. Environmental Protection Agency (2013) found that wildfires are the largest source of dioxin emissions in the U.S. These studies are discussed Section 3.6 of the Final EIS. A primary goal of the 3 Bars Project is to reduce the incidence of wildfire through use of a combination of treatment methods, including prescribed fire. Although prescribed fire treatments may lead to a short-term increase in dioxin emissions, treatments should improve the health and resiliency of vegetation and result in a long-term reduction in wildfire incidence and dioxin emissions.

Comment No. 4-163 from Western Watersheds Project:

Alt[ernative] C effects are not similar to Alt[ernative] A for Air Quality. D[raft] EIS claims at 3.5.3.4.3 are false. BLM cavalierly proposes no mitigation measures for air quality. BLM also ignores adverse impacts of wind erosion and dust deposition, the degree to which climate change will amplify risks of cheatgrass dominating treatments (especially since the D[raft] EIS fails to control livestock grazing impacts across the treated watersheds, and relies on vague promises of some future livestock actions.

Response to Comment No. 4-163:

As discussed in Final EIS Section 3.6.3.4.3, Air Quality, Environmental Consequences, Cumulative Effects, Cumulative Effects under Alternative C, non-3 Bars Project reasonably foreseeable future actions on air quality would be similar to those described under Alternative A. This is because reasonably foreseeable future actions that are not associated with the 3 Bars Project are reasonably likely to occur under all alternatives. Thus, emissions associated with these actions should be similar under all alternatives. The BLM has identified numerous Standard Operating Procedures (SOPs) in Appendix D of the Final EIS to minimize 3 Bars Project-related air emissions. Because air emissions from the 3 Bars Project are negligible and are not likely to meet or exceed the significance criteria given in Final EIS Section 3.6.3.2, no additional mitigation measures to reduce air emissions are proposed.

The BLM discusses the potential for wind erosion and dust deposition associated with treatments to contribute to air quality impacts in Final EIS Section 3.6.3.3, Air Quality, Environmental Consequences, Direct and Indirect Effects, and more specifically in Table 3-5. Although it is difficult to determine the effects of climate change on cheatgrass incidence in the 3 Bars Project area within the project timeframe, 3 Bars Project actions would help to reduce the incidence of cheatgrass within the 3 Bars Project area, and reduce the potential for wildfire occurrence in areas currently dominated by cheatgrass and in other vegetation types (e.g., decadent and diseased pinyon-juniper). Treatments would reduce long-term air quality impacts associated with degraded landscapes, as discussed in Section 3.6.3.3.2 of the Final EIS.

Comment No. 4-177 from Western Watersheds Project:

BLM must assess the amount of dust that is attributable to livestock disturbance, loss and degradation of microbiotic crusts, etc.

Response to Comment No. 4-177:

As discussed under Comment 4-163 (Air Quality – Environmental Consequences), 3 Bars Project treatments would result in dust emissions. As discussed under Final EIS Section 3.9.3.3, Soil Resources, Environmental Consequences, Sagebrush Treatments, treatments could impact biological soil crusts, although biological soil crusts are not likely to be well developed in areas dominated by non-native vegetation. It would be very difficult to determine the amount of dust attributed specifically to livestock disturbance and degradation of microbiotic crusts, in addition to wildfires, noxious weeds and other invasive non-native vegetation, and other soil-disturbing factors on the 3 Bars Project area, and this amount would vary widely from year-to-year. The BLM has proposed mitigation measures to minimize the impacts of livestock in treatment areas (see Final EIS Section 3.18.4, Livestock Grazing, Mitigation). 3 Bars Project actions should help to improve soil function and air quality in the 3 Bars Project area long-term.

D.5.2 Alternatives

Comment No. 4-24 from Western Watersheds Project:

This demonstrates the complexity of the situation, the grave risk of severe losses under the massive disturbance of the Preferred Alternative, and the need for BLM to do a Supplemental EIS that analyzes a range of greatly modified alternatives that minimize disturbance and harm – not anything like the Preferred Alternative.

Response to Comment No. 4-24:

The BLM evaluated several alternatives in the Draft and Final EIS, ranging from treating about 12,700 acres annually using manual and mechanical methods, biological controls, and fire (prescribed fire and wildland fire for resource benefit) under Alternative A, to action alternatives that use fewer methods and treat less acreage to minimize short-term impacts and disturbance to the environment (Alternatives B and C), to the No Action Alternative, under which no new treatments would be authorized. These treatment alternatives provide a reasonable range of disturbance actions that would result in short- and long-term impacts to the landscape, and these actions and impacts are evaluated in the Final EIS.

Comment No. 4-31 from Western Watersheds Project:

A very viable alternative treatment method here, that can be coupled with selective active restoration such as hand cutting, is retirement of the public lands grazing permits the mine acquired. Please provide mapping and analysis of these permits. What allotments are these? How much land area do they cover? What are the values, sensitive species, HMAs [Herd Management Areas] etc. in lands grazed under these permits? BLM should prepare a Supplemental EIS to assess a new and greatly expanded range of alternatives, including this.

Response to Comment No. 4-31:

Prior to any treatment, appropriate livestock management would be in place. If the treatment is determined to be appropriate, livestock grazing permits would be evaluated under the Rangeland Health Evaluation/Permit renewal process. The evaluation would be separate from the 3 Bars Project and would occur prior to any 3 Bars Project treatments occurring in any given area.

Comment No. 4-34 from Western Watersheds Project:

BLM has failed to assess a broad range of alternatives under NEPA [the National Environmental Policy Act].

Response to Comment No. 4-34:

See response to Comment 4-24 (Alternatives).

Comment No. 4-39 from Western Watersheds Project:

It [The BLM] has not considered a reasonable range of passive and some active restoration actions.

Response to Comment No. 4-39:

As discussed under Comment 4-24 (Alternatives), the BLM considered a reasonable range of alternatives that differed in treatment methods used and acres treated. As discussed in Final EIS Section 2.7 (Alternatives Considered but not Further Analyzed), a "passive restoration and use only treatments having minimal land disturbance" alternative was considered but not further analyzed in the Draft and Final EIS. This alternative was eliminated because it does not meet the purpose for the project as stated in Section 1.5 (Purposes for the Project). Specifically, this alternative would not control the spread of unwanted vegetation or improve the health of the vegetation communities within the 3 Bars ecosystem, and it would prohibit some human-related activities allowed under the Federal Land Policy and Management Act. The use of treatment methods that would result in minimal disturbance to the landscape were evaluated under Alternative C (Minimal Land Disturbance Alternative).

Comment No. 4-64 from Western Watersheds Project:

Why is BLM not then addressing all livestock grazing disturbance across this landscape up front, long before issuing a massive treatment EIS with a bioengineering Preferred Alternative?–instead of avoiding dealing with problem grazing areas?

Response to Comment No. 4-64:

Long- term changes in authorized livestock grazing will be conducted under the Rangeland Health Evaluation/Permit renewal process, separate from this effort and prior to treatments in any given area. Short-term grazing closures can be used post-treatment to help meet the treatment objectives. Unless related to mitigation for specific treatment proposals, evaluation of livestock grazing permits is outside the scope of this project.

Comment No. 4-83 from Western Watersheds Project:

It is critical in a restoration EIS to address and take a science-based hard look at passive as well as active restoration measures.

Response to Comment No. 4-83:

As discussed under Comment 4-39 (Alternatives), the BLM evaluated a reasonable range of treatment alternatives, including Alternative C, the Minimal Land Disturbance Alternative. Under this alternative, the BLM would treat only about 3,175 acres annually, and would only use manual and classical biological control (use of nematodes, fungi, mites, and insects) methods; use of livestock for biological control would not be allowed. The BLM would also not use mechanical methods or fire. This alternative was developed in response to the proposed "passive restoration and use only treatments having minimal land disturbance alternative," which was submitted during public scoping and is discussed in Final EIS Section 2.7, Alternatives Considered but not Further Analyzed. The direct, indirect, and cumulative effects of passive and active restoration measures are assessed under Alternative C for resource areas evaluated in the EIS.

Comment No. 4-113 from Western Watersheds Project:

BLM ignores a full and fair analysis of passive restoration. As we earlier described, BLM claims that larger acres just can't be treated by hand cutting. This is simply not the case. There are millions of people needing jobs in this country.

So instead of paying wealthy contractors for feller bunchers, crushers, tree shearers, choppers, bulldozers, etc. BLM can readily and feasibly hire crews to hand cut trees – greatly minimizing weed risk, damage to habitats, damage to sagebrush, damage to mature and old growth trees, etc.

Response to Comment No. 4-113:

As discussed under Comment 4-39 (Alternatives), the BLM evaluated a reasonable range of treatment alternatives, including Alternative C, the Minimal Land Disturbance Alternative. Under this alternative, the BLM would treat only about 3,175 acres annually, and would only use manual and classical biological control (use of nematodes, fungi, mites, and insects) methods; use of livestock for biological control would not be allowed. Potentially, an unlimited number of acres could be treated by hand cutting if treatment funding was unlimited. However, funding for 3 Bars Project treatments would be limited, and as discussed in Final EIS Section 3.25.3.3, Socioeconomics, Environmental Consequences, Direct and Indirect Effects, the costs per acre of treatment would be greater under Alternative C than under Alternatives A and B. This reflects, in part, the higher expenditures associated with manual and classical biological control treatments, which generally cost 3 to 5 times or more per acre to implement than do fire and mechanical treatments (also see Table 3-73; Estimated Treatment Costs per Acre). However, as noted by the commenter, mechanical and fire treatments can have greater short-term impacts than manual and classical biological control treatments. As noted in Section 2.2, Summary of Major Changes between the Draft and Final EIS, the BLM has made modifications to proposed treatments based on public input. These include using manual treatments to remove most, if not all, pinyon-juniper in riparian and aspen treatment units; Phase I pinyon-juniper in pinyon-juniper treatment units; and Phase I and II, and often Phase III pinyon-juniper in sagebrush treatment units. The BLM also would not use chaining to treat vegetation.

Comment No. 4-134 from Western Watersheds Project:

Why is it so imperative to treat 1,000 acres in Pete Hanson Creek, for example, under one alternative and 200 acres under another? WHY should two alternatives – A, and B, almost always entail the same battery of roller choppers, feller bunchers tree shearers, bull hogs, seeding, chaining mowing and activity fuel dispersal (biomass utilization, chipping, pile burn, broadcast burn and leave onsite).

Response to Comment No. 4-134:

As discussed under Comment 4-39 (Alternatives), the BLM evaluated a reasonable range of treatment alternatives. Under Alternative A, the BLM would be able to use manual and mechanical methods, biological control, and fire (prescribed fire and wildland fire for resource benefit), while under Alternative B the BLM would use the same methods, except fire. Fire and mechanical treatments would not be allowed under Alternative C. Because mechanical methods could be used under Alternatives A and B, the effects of mechanical treatments are discussed for these two alternatives. As noted under Comment 4-113 (Alternatives), manual and classical biological control treatments cost 3 to 5 times or more per acre to implement than do fire and mechanical treatments. Assuming a similar amount of funding for treatment projects under each alternative, the amount of acreage treated under Alternative C would be about one-fourth the acreage treated under Alternative A. About one-half of the acreage that would be treated using fire under Alternative A would not be treated under Alternative B.

Comment No. 4-135 from Western Watersheds Project:

The only difference is acres in pre-selected land areas. These concerns apply to all Units in Table 2-3 and the EIS. BLM is merely going through the NEPA motions of shuffling some things around in order to try to pass muster on NEPA. It has not selected a reasonable range of alternatives in this fragile, arid, weed-prone landscape.

Response to Comment No. 4-135:

As discussed in Final EIS Section 2.1, Alternatives, Introduction, four alternatives are evaluated in the EIS—the All Treatment Methods Alternative (Alternative A; Preferred Alternative); the No Fire Use Alternative (Alternative B); the Minimal Land Disturbance Alternative (Alternative C); and the No Action Alternative (Alternative D; Continue Current Management). Alternative actions are those that could be taken to feasibly attain the BLM's objectives for improving the health of, and reducing risks to, the 3 Bars ecosystem. The alternatives differ primarily in the types of treatment methods allowed and the amount of acreage that can reasonably be treated over the life of the project. For the Final EIS, the BLM has removed Tables 2-1 to 2-4 that were found in the Draft EIS, and replaced them with text descriptions of the types of activities that would be conducted for each treatment unit, including estimated acres treated and methods used. About half of the acres treated under Alternative A would involve the use of fire; this acreage would not be treated under Alternative B. The BLM estimated that only about one-fourth as many acres would be treated under Alternative C as compared to Alternative A.

Comment No. 4-149 from Western Watersheds Project:

BLM arbitrarily rejected the passive restoration alternative elements combined with hand cutting. Yet, BLM claims that this EIS was to address livestock grazing as well. Significantly reducing and/or removing livestock disturbance from watersheds so that weed risk can be minimized and recovery of native understories and microbiotic crusts can occur is reasonable passive restoration - especially when some permits are held by the mine that is poised to drain the aquifer further.

Response to Comment No. 4-149:

See response to Comment 4-39 (Alternatives).

Comment No. 4-154 from Western Watersheds Project:

BLM also makes reasonable alternatives sound like extremes – by suggesting a passive restoration alternative would be a complete ban on logging, grazing, etc. BLM has constructed an alternative it will never choose, instead of a reasonable range of passive actions (reductions in livestock, introduction of beaver, much more stringent controls on livestock use) and minimally disturbing active restoration such as hand cutting, fence removal, carefully stabilizing some headcuts with small rocks without the use of heavy equipment, etc.

Response to Comment No. 4-154:

As discussed under Comment 4-39 (Alternatives), the BLM evaluated a reasonable range of treatment alternatives, including Alternative C, Minimal Land Disturbance Alternative. As discussed in Final EIS Section 2.7 (Alternatives Considered but not Further Analyzed), a "passive restoration and use only treatments having minimal land disturbance" alternative was considered but not further analyzed in the 3 Bars Project EIS. This alternative was

eliminated because it did not meet the purpose for the project, as described in Final EIS Section 1.5 (Purposes for the Project), and because it would not control the spread of unwanted vegetation or improve the health of the 3 Bars ecosystem. Additionally, it would prohibit some human-related activities allowed under the Federal Land Policy and Management Act.

The text in Final EIS Section 2.7 (Alternatives Considered but not further Analyzed) has been revised to state that "… passive restoration and use only treatments having minimal land disturbance alternative. Under this alternative, the BLM could reduce or eliminate human-related activities, an important objective of passive restoration, and use only treatments having minimal land disturbance, to reduce the effects of activities on the landscape that contribute to resource impacts, such as grazing, timber harvest, and mining." As discussed in the *Final Scoping Report 3 Bars Ecosystem and Landscape Restoration Project* (AECOM 2010), several scoping comments from the public suggested that the BLM eliminate grazing and remove livestock from areas without significant components of cheatgrass and other weeds (see Table 3 of Scoping Report and Table 5-1 in Final EIS Chapter 1, Proposed Action and Purpose and Need).

The use of treatment methods that would result in minimal disturbance to the landscape are being evaluated under Alternative C (Minimal Land Disturbance Alternative). Under Alternative C, fire and mechanical treatment methods, and use of livestock for biological control, would not be allowed. The BLM would rely mostly on manual methods, such as hand cutting, for vegetation removal. Riparian restoration treatments would involve the use of manual methods such as hand placement of rocks; heavy equipment would not be used to stabilize headcuts or other stream restoration activities. Fencing would only be used on a temporary basis to protect treatment areas from livestock, wild horses, and other wild ungulates. As noted in Final EIS Section 3.17.3.4, Wild Horses, Environmental Consequences, Cumulative Effects, fence removal is a long-term goal to help manage wild horses. In addition, under all alternatives, the BLM would implement livestock grazing management to ensure treatment success (also see Mitigation in Final EIS Section 3.18.4, Livestock Grazing, Mitigation).

Comment No. 4-229 from Western Watersheds Project:

Alternative C would not restore fire as an integral part of the ecosystem, reduce the risk of a large-scale wildfire, or reduce extreme, very high, and high wildfire risks to moderate risk or less. Only about 500 to 1,000 acres would be treated annually to reduce hazardous fuels, and the BLM estimates that the FRCC would be reduced on only about 3,750 to 7,500 acres over the next 10 to 15 years, fewer acres than under Alternatives A and B. Where is the scientific basis for discounting this? It would minimize flammable weeds. It would maximize retaining snow and rain on-site - resulting in a shorter fire season. We have often seen BLM claim any tree cutting reduces fire. This is yet another an illustration of the bias of the EIS.

Response to Comment No. 4-229:

There are two parts to this answer. First, no use of fire for resource benefit would be authorized under Alternative C and thus the BLM would suppress all wildfires that occur, and not allow any wildfires to play a natural role in the ecosystem. Second, fewer acres treated equates to fewer acres that can be moved to a better (lower) Fire Regime Condition Class (FRCC) through management actions. This would result in conditions that are less favorable to the 3 Bars ecosystem than allowing wildfires to play a natural role in the ecosystem in the future.

Comment No. 4-238 from Western Watersheds Project:

BLM constantly unfairly tries to downplay the benefits of Alternative C, and appears to have purposefully excluded a series of passive restoration actions and some active restoration from Alt[ernative] C. For example, eradicating the forage kochia and crested wheatgrass, and planting sagebrush and native grasses should be part of Alt [ernative] C.

Response to Comment No. 4-238

As discussed under Comment 4-135 (Alternatives), and Final EIS Chapter 2.3 (Description of the Action Alternatives), the alternatives differ primarily in the types of treatment methods allowed and the amount of acreage that can reasonably be treated over the life of the project. Proposed treatment units could be treated under any of the action alternatives, including Alternative C, Minimal Land Disturbance Alternative; only the methods used and acres treated vary among action alternatives. Thus, the BLM could remove forage kochia and crested wheatgrass and plant sagebrush and native grasses, as long as only manual and classical biological control methods are used, for treatments under Alternative C.

D.5.3 Assessment Methodology

D.5.3.1 Assessment Methodology – Baseline Studies

Comment No. 4-77 from Western Watersheds Project:

Improve woodland, rangeland, and riparian health, productivity, and functionality. Then where is the baseline data on to what degree is livestock grazing impairing these values? Mining? Geothermal activity?

Response to Comment No. 4-77:

The *Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a) and *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), were prepared to show rangeland conditions on the 3 Bars Project area based on field studies. Based on these reports, and discussion of rangeland conditions that is provided in Final EIS Section 3.12.2.3 (Native and Non-invasive Vegetation Resources, Allotment Vegetation and Monitoring Studies), and Figure 3-29 (Current Rangeland Conditions) was prepared to show current rangeland conditions. As discussed under Cumulative Effects for each resource section in the EIS, numerous factors, including livestock management, wild horse use, noxious weeds and other invasive non-native vegetation, mining and other land uses, and wildfire have contributed to current rangeland conditions.

Comment No. 4-97 from Western Watersheds Project:

BLM fails to provide necessary site-specific information on wild horse and wildlife use of this landscape so that the differential impacts of the massive habitat loss and disturbance to be imposed can be understood.

Response to Comment No. 4-97:

Wildlife use of the 3 Bars Project area is discussed in Final EIS Section 3.16.2, Wildlife Resources, Affected Environment. Wild Horse use of the 3 Bars Project area is discussed in Final EIS Section 3.17.2, Wild Horses, Affected Environment.

Comment No. 4-148 from Western Watersheds Project:

BLM fails to adequately describe the present situation. It cannot rely on the ENLC [Eastern Nevada Landscape Coalition] information, or NRCS [Natural Resources Conservation Service] Ecosites [Ecological Site Descriptions] and state and transition and FRCC and other models that are based on inaccurate much too abbreviated disturbance intervals and other inaccurate assumptions.

Response to Comment No. 4-148:

The BLM has collected a substantial amount of information regarding species occurrence, rangeland health, and other resource conditions on the 3 Bars Project area. Much of this information is provided in the *Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a). This document describes the conditions of most resources discussed in the EIS, rangeland health, and areas in need of treatment. A draft copy of this document was provided to the public during public scoping. Many of the resources found on the 3 Bars Project area were surveyed for the Mount Hope Project EIS. The results of these studies are provided in the Mount Hope Project Final EIS, which is available at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/mount_hope_project0.html. In addition, several studies were conducted for the 3 Bars Project EIS, including vegetation and rangeland health studies. These are discussed in Section 1.3, Background, and in Section 3.12, Native and Non-invasive Vegetation Resources, of the 3 Bars Project Final EIS. Numerous assessments of plant and animal sensitive species were conducted for the Mount Hope Mine Project EIS. These are discussed under the Affected Environment section of Sections 3.15 (Fish and other Aquatic Resources) and 3.16 (Wildlife Resources) for the 3 Bars Project Final EIS. Thus, the BLM relied on multiple sources of information to describe the baseline conditions on the 3 Bars Project area, and relied upon studies where data were accurately collected and without bias. Except for air quality analysis, the BLM did not conduct modeling to assess baseline conditions and treatment effects for the 3 Bars Project EIS. The BLM did rely upon modeling conducted by other resource agencies to describe historic, current, and reasonably foreseeable future conditions. Although no model is perfect, modeling used in support of the 3 Bars Project was based on scientifically peer reviewed studies, assumptions, and analyses, and were judged to be reflective of past, present, and future conditions based on the current state-of-the-science.

Comment No. 4-160 from Western Watersheds Project:

Preparation of a Supplemental EIS that is based on systematically collected baseline data that takes into account the full habitat needs of a broad range of sensitive species.

Response to Comment No. 4-160:

See response to Comment 4-148 (Assessment Methodology - Baseline Studies).

Comment No. 4-169 from Western Watersheds Project:

[The BLM] has not conducted the necessary site-specific analysis to understand sensitive species occurrence and threats across this landscape, vulnerability of lands to loss of intermittent and perennial flows from individual and combined disturbance effects, etc.

Response to Comment No. 4-169:

See response to Comment 4-148 (Assessment Methodology – Baseline Studies). Extensive analysis and modeling of water surface and groundwater flows were done for the Mount Hope Project EIS, and were used during preparation of the 3 Bars Project EIS, as discussed in Final EIS Section 3.10, Water Resources. The results of these studies are provided in the Mount Hope Project Final EIS, which is available at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/mount_hope_project0.html.

Comment No. 4-192 from Western Watersheds Project:

BLM simply cannot rely on the [17-States] PER report – as no NEPA at all was ever conducted on the [17- States] PER.

Response to Comment No. 4-192:

The 3 Bars Project EIS tiers to the *Record of Decision Vegetation Treatments on BLM Lands in 13 Western States* (13-States EIS), *Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (*17-States PEIS), and *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report* (17-States PER; USDOI BLM 1991, 2007a, b), as discussed in Final EIS Section 1.9, Documents that Influence the Scope of the EIS. The 17-States PEIS addressed the cumulative effects from all treatment methods, and the 13-States EIS and 17-States PER addressed the BLM's use of non-herbicide vegetation treatment methods, including the use of prescribed fire and manual, mechanical, and biological control methods, on BLM-administered lands in the western U.S., including Nevada. Where appropriate, information in these documents that is relevant to analysis of the current proposal is cited and incorporated by reference.

The 17-States PER discloses the general impacts on the environment of using non-herbicide treatment methods, including fire use, and mechanical, manual and biological control methods, to treat hazardous fuels, invasive species, and other unwanted or competing vegetation. Non-herbicide treatment methods have been analyzed in earlier national, state, and local EISs, and because of this dynamic continuum of treatment, revegetation, monitoring, and maintenance, the BLM did not anticipate there would be any different or significant impacts identified beyond what has been analyzed in previous EISs that would require analysis in the 17-States PER under the NEPA. The 17-States PER is linked to the 17-States PEIS in the cumulative impacts analysis of the PEIS, where all methods of treatment, including the use of herbicides, are assessed.

The 17-States PER provides useful information on the effects on non-herbicide vegetation treatments used by the BLM in the western U.S., including Nevada. The information in the 17-States PER was primarily taken from peer-reviewed scientific literature and agency documents. In addition to using information from the 17-States PER, the

BLM used other peer-reviewed scientific literature and agency documents to prepare the 3 Bars Project EIS. About 500 additional documents were used to develop the 3 Bars Project Final EIS, as provided in Chapter 5, References.

D.5.3.2 Assessment Methodology – Definitions

Comment No. 4-165 from Western Watersheds Project:

It is unclear how long-termed is defined.

Response to Comment No. 4-165:

For many resources, short- and long-term are defined under Environmental Consequences, Significance Criteria. Unless stated otherwise, long-term is generally 5 years or more, or the time needed for the beneficial effects of treatments to manifest themselves.

D.5.3.3 Assessment Methodology – General

Comment No. 4-78 from Western Watersheds Project:

What was all baseline information used to identify Potential Natural Vegetation Communities across the project area. Was this based on NRCS [Natural Resources Conservation Service] Ecosites [Ecological Site Descriptions]? How did you vet the NRCS Ecosites? Do the NRCS Ecosites contain any PJ [pinyon-juniper] across the Three [3] Bars Project area? If so, where? Where are all persistent pinyon-juniper sites, as defined by Foresters? Please provide us with a map of these areas? Please provide the vegetation communities that were used as the ideals in the D[raft] EIS mapping - such as Map 1 that identifies all kinds of problems - especially in the areas where junipers are supposed to be growing - rugged mountainous terrain. What were the Ecosites/ideal communities/models used in the ENLC [Eastern Nevada Landscape Coalition] and other Veg[etation] info[rmation] in the EIS? Did these claim that junipers were not supposed to be present anywhere?

Response to Comment No. 4-78:

We are not clear what "Map 1" you are referring to, as there was no "Map 1" in the Draft EIS. However, it appears you may be referring to a "Map 1" that was used during the public scoping meetings that identified areas in need of change. The map of current vegetation types given in the Draft EIS (Figure 3-26; Current Vegetation Communities) was based on pinyon-juniper (AECOM 2011a) and cheatgrass (AECOM 2011b) field studies conducted for the 3 Bars Project, and U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (2012) vegetation mapping. The map of potential vegetation (Figure 3-26; Major Vegetation Communities in the 3 Bars Project Area based on Ecological Site Data) was based on mapping done by the USDA Natural Resources Conservation Service (2012) and based on Ecological Site Descriptions developed for the 3 Bars Project area, as discussed in Section 3.12.2.2, Native and Non-invasive Vegetation Resources, Vegetation Communities, of the Final EIS. We did not "vet" the data and methodology used by the USDA Natural Resources Conservation Service (2012), as we relied upon agency scientists to do this. More information on how the USDA Natural Resources Conservation Service developed the Ecological Site Descriptions can be found at URL: https://esis.sc.egov.usda.gov/. Another good source of information is Chapter 3 in the *BLM Technical Reference 1734-7, Ecological Site Inventory* (Habich 2001).

As shown on Table 3-22 (Current and Expected Vegetation Types within the 3 Bars Project Area), pinyon-juniper comprises about 25 percent of the vegetation on the 3 Bars Project area; other vegetation types mapped during the study are also shown on this table and on Figures 3-25 and 3-26. The locations of pinyon-juniper by phase classes are shown on Figure 3-27 (Pinyon-juniper Phase Classes), including old-growth stands. These older stands and most Phase III stands tend to be found in more remote, rugged areas of the 3 Bars Project area. As discussed in Section 3.12.2.3, Native Vegetation and Non-invasive Vegetation Resources, Allotment Vegetation and Monitoring Studies, of the Final EIS, Eastern Nevada Landscape Coalition collected rangeland health data by evaluating rangeland conditions at Key Management Areas throughout the 3 Bars Project area. They measured rangeland health based on plant production, desired dominant species, and Potential Natural Community for grass, forb, and shrub species. A Potential Natural Community is defined as the biotic community that would become established on an ecological site if all successional sequences were completed without interference by people under the present environmental conditions (Habich 2001). Potential Natural Community production is based on the Ecological Site Description for the site. Eastern Nevada Landscape Coalition only recorded grass, forb, and shrub species to evaluate production, dominant species, and Potential Natural Community, and thus did not provide any "claims" as to the occurrence of pinyon-juniper on the 3 Bars Project area. The results of the Eastern Nevada Landscape Coalition rangeland health assessment are provided in the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), which can be reviewed at the BLM Battle Mountain District Office. As shown on Figure 3-27, however, pinyon-juniper is common on the 3 Bars Project area.

Comment No. 4-90 from Western Watersheds Project:

Where are the baseline assessments of pygmy rabbit, loggerhead shrike, sage sparrow, pinyon jay, ferruginous hawk, etc.? We cannot find them.

Response to Comment No. 4-90:

Baseline wildlife assessments were conducted for the Mount Hope Project and used for the 3 Bars Project EIS. This information and supporting references can be found on the Mount Hope Project website at URL: http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/battle_mountain_field/blm_information/nepa/mount_hope_project/mount_hope_feis.Par.83818.File.dat/Vol%202%20-%203.23.pdf. General surveys of the 3 Bars Project area have been conducted by the BLM, Nevada Department of Wildlife, Nevada Natural Heritage Program, and others and are referenced in Final EIS Section 3.16, Wildlife Resources.

D.5.3.4 Assessment Methodology – Mapping

Comment No. 4-108 from Western Watersheds Project:

All of the D[raft] EIS soils, veg[etation] and other mapping is much too general to use at the site-specific scale. In fact, important rare and sensitive species like pygmy rabbit rely on deep soil sites which are often small inclusions in larger expanses of shallow soils. These inclusions support taller sage[brush] that is critical for loggerhead shrike, sage thrasher, gray flycatcher.

Response to Comment No. 4-108:

The development of the 3 Bars Project EIS adheres to the intent of the Council on Environmental Quality regulations by following guiding principles and policies as outlined in the BLM NEPA Handbook and 40 Code of Federal Regulations 1500-1502. For the 3 Bars Project EIS, these included: 1) clarity of expression, logical thought processes, and rational explanations will be considered more important than the length or format in the discussion of impacts; 2) descriptions of the affected environment will be no longer than is necessary to understand the impacts of the alternatives; 3) the length of the EIS will be kept to a minimum by incorporating materials by reference; and 4) the EIS will be concise, clear, and to the point, and supported by evidence that the agencies have made the necessary environmental analyses. Mapping was provided in the 3 Bars Project EIS that provided the public with an overview of resource conditions on the 3 Bars Project area, but were not so detailed (and would require many pages of maps) that the public would have difficulty understanding resource conditions and issues needed to compare the impacts and benefits of the alternatives. Since maps were developed based on field studies, aerial photographic interpretation, and other sources of data, and analyzed using Geographic Information System (GIS), more detailed mapping can be prepared by the BLM for treatment units before conducting treatments to better identify wildlife special status species and other resources of concern at the site-specific level.

D.5.3.5 Assessment Methodology – Risk Assessments

Comment No. 4-7 from Western Watersheds Project:

In this process, BLM must also conduct comprehensive Risk Assessments, not only of the chemicals and treatment methods to be applied, but also fully and fairly take NEPA's required "hard look" at risks of all kinds - to air quality, dust transport and depletion linked to early snowmelt and climate change, a broad body of climate change effects, soils, native vegetation, sensitive species, WSA [Wilderness Study Area] impairment, HMA impacts, migratory birds, water quality and quantity, viability of sensitive species populations and quality and quantity of habitat.

Response to Comment No. 4-7:

The Environmental Consequences section for each resource discussed in the 3 Bars Project EIS provides a "hard look" at the adverse and beneficial effects of proposed 3 Bars Project treatments. A subsection entitled "adverse effects" is provided under each treatment type (riparian, aspen, pinyon-juniper, and sagebrush) that discusses the risks associated with treatments in units for that treatment type. The 3 Bars Project does not include the use of herbicides. However, the BLM can use up to 18 herbicides on the 3 Bars Project area based on authorization given in the *Environmental Assessment Integrated Weed Management Plan Battle Mountain District Nevada Mt. Lewis Field Office and Tonopah Field Office* (USDOI BLM 2009b) and *Record of Decision Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (17-States PEIS ROD; USDOI BLM 2007a). Ecological and human health risk assessments were conducted in support of the 17-States PEIS and can be reviewed at URL: http://www.blm.gov/wo/st/en/prog/more/veg_eis.html.

D.5.3.6 Assessment Methodology – Significance Criteria

Comment No. 4-186 from Western Watersheds Project:

BLM's significance criteria are inadequate, and it is unclear how they were derived. BLM does not conduct adequate analysis to address them.

Response to Comment No. 4-186:

As stated in 40 Code of Federal Regulations 1508.27:

Significantly as used in NEPA requires considerations of both context and intensity: (a) *Context.* This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant. (b) *Intensity.* This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity: 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. 2) The degree to which the proposed action affects public health or safety. 3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. 4) The degree to which the effects on the quality of the human environment are likely to be highly controversial. 5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks. 6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. 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. 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. 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. 10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Using this guidance from the Council on Environmental Quality, and guidance provided in BLM *National Environmental Policy Handbook H-1790-1* (USDOI BLM 2008:70-74), significance criteria were developed for each resource area based on BLM and other agency regulatory standards; review of significance criteria used for the Mount Hope Project EIS and other BLM and other agency EISs and Environmental Assessments conducted for projects that were similar to the 3 Bars Project; and discussions among the BLM 3 Bars Project Interdisciplinary Team (BLM ID Team). Draft significance criteria were developed, and then underwent several reviews by the BLM ID Team to ensure that the criteria would critically evaluate the significance of proposed actions based on context and intensity. These criteria are presented in Chapter 3 for each resource area under Environmental Consequences, Significance Criteria. An analysis of the significance of the project-related effects are discussed under Environmental Consequences for the alternatives, and an effects determination is given in the subsection entitled "Significance of the Effects under the Alternatives," for each resource area.

D.5.4 Cumulative Effects

D.5.4.1 Cumulative Effects – Assessment Methodology

Comment No. 4-157 from Western Watersheds Project:

Figure 3-6 does not show mining or other claims. It merely shows mining districts. Where is a map showing all energy or other rights-of-way, as well? Where is an overlay of the project polygons on the mapping that is provided? Please assess the full foreseeable mining development in this region.

Response to Comment No. 4-157:

3 Bars Project Final EIS Figure 3-6 (Cumulative Impacts from Mining Operations and Oil and Gas Production) shows mining districts, mining operations, oil and gas production facilities, and geothermal lease areas. Final EIS Figure 3-5 (Cumulative Impacts from Utilities and Infrastructure) shows utilities and infrastructure, including rights-of-way. Initially, treatment areas (polygons) were overlaid onto Final EIS Figures 3-1 to 3-7, but they were very difficult to see within the context of the larger cumulative effects study area, thus it was decided that Final EIS Figures 3-1 to 3-7 should not show treatment units. Since mining claims are not necessarily indicative of reasonably foreseeable future mining activity, they were not included on Figure 3-6. The effects of past, present, and reasonably foreseeable future mining activity are discussed under Cumulative Effects for each resource section evaluated in the EIS.

Comment No. 4-158 from Western Watersheds Project:

[The] CESA [Cumulative Effects Study Area] is much too small for all mapping and cumulative effects analysis for all elements of the environment, and must include large areas mined/undergoing mining development to the north, east, south in particular, aquifer drawdown effects of mining, irrigation etc. across the underlying shallow and deeper ground water aquifers. How over-allocated are these already? How is that already impacting/likely to impact ground and surface waters? How much water would the Mount Hope mine use? Where would it come from? How about the plethora of gold mines all surrounding this landscape? New mining actions like the Pan mine, ever-expanding Barrick and other operations all over the place?

Response to Comment No. 4-158:

The CESA varies by resource as shown on Figure 3-1 (Cumulative Effects Study Area) of the Final EIS. The rationale used to develop the CESA is discussed under each resource description. For geology and minerals, the CESA is the 3 Bars Project area, although Figure 3-6 (Cumulative Impacts from Mining Operations and Oil and Gas Production) shows mining, geothermal, and oil and gas leases and operations within the largest CESA (cultural resources CESA) as well as leases and operations outside of the CESA. The CESA for cumulative effects to water resources is the Hydrologic Unit Code 10 watersheds wholly or partially within the project area. The cumulative effects of mining and other land uses on 3 Bars Project resources, including surface and groundwater, wildlife, wild horses, land use, etc., are discussed under cumulative effects for each resource. Most of the mine projects shown on Figure 3-6 are no longer active, or are too far away from the 3 Bars Project area to have an influence on 3 Bars Project resources. The cumulative effects of the Mount Hope Project and other non-3 Bars Project activities on resources are discussed in detail in the cumulative effects sections for each resource. More specific information on the Mount Hope Project, including surface water and groundwater use, is available in the Mount Hope Project Final EIS.

D.5.4.2 Cumulative Effects – General

Comment No. 4-13 from Western Watersheds Project:

What populations [of special status wildlife species] were previously supported? What will now survive, and will they be viable? How will expanding mine development and a[l]l the human footprint associated with that further eat into and threaten these sensitive species habitats? How will mine development and the increased human footprint in the landscape stress or affect the wild horse herds and their use of the HMAs? Even though the current mine proposed is not [in] the HMAs, there will be a greatly increased human presence in the landscape.

Response to Comment No. 4-13:

3 Bars Project Final EIS Section 3.16.2, Wildlife, Affected Environment, discusses special status wildlife and other wildlife species historically and/or currently found on/near the 3 Bars Project area. Section 3.16.3, Wildlife, Environmental Consequences, also discusses how 3 Bars Project treatments, and reasonably foreseeable future actions within the CESA, could impact wildlife. Section 3.16.3 discusses how 3 Bars Project treatments would affect wildlife, including their health, behavior, and habitat use, and the potential adverse and beneficial effects to wildlife populations from treatment actions. By following SOPs provided in Appendix C (Standard Operating Procedures) of the Final EIS, adverse effects to special status wildlife would be insignificant and short-term, while there would be long-term benefits. As discussed under Cumulative Effects in Final EIS Sections 3.16.3.4, Wildlife Resources, Environmental Consequences, Cumulative Effects, and 3.17.3, Wild Horses, Environmental Consequences, Cumulative Effects, the Mount Hope Project would adversely affect pygmy rabbits and other special status wildlife, and could have adverse effects on these animals and mitigation was provided to address impacts to both species. Other land uses near the 3 Bars Project area could also affect special status wildlife and wild horses. The effects are discussed under Cumulative Effects in Sections 3.16.3 and 3.17.3 of the 3 Bars Project Final EIS, and in the Mount Hope Project Final EIS. The potential impacts to wild horses from development of the Mount Hope Project were analyzed in the Mount Hope Project Final EIS, as well as in Section 3.17.3 of the 3 Bars Project Final EIS (Wild Horses, Environmental Consequences, Cumulative Effects).

Comment No. 4-17 from Western Watersheds Project:

What is the intensity of the current conflicts of livestock, mining etc. with the HMAs, the TNEB [thriving natural ecological balance] in the HMAs, etc.

Response to Comment No. 4-17:

The effects of the proposed 3 Bars Project, and past, present, and reasonably foreseeable future actions within the cumulative effects study area, to wild horses, and HMAs and their thriving natural ecological balance, are discussed in Section 3.17.3, Wild Horses, Environmental Consequences, of the Final EIS. As discussed in the Mount Hope Project EIS, a perimeter fence around the mine site would exclude wild horses from about 13,998 acres of designated HMAs, potentially increasing pressure on forage and water resources for wild horses that are outside the perimeter fence. Livestock congregation and concentrated use near streams, springs, and wetlands have contributed to the loss of riparian habitat and forage, and impacts to stream channels and their ability to function properly and provide abundant and high quality water for wild horses. The BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact wild horse forage, and if needed, would determine if changes in the current terms and conditions of the grazing permit would be required to maintain the long-term success of the proposed treatments.

Comment No. 4-48 from Western Watersheds Project:

BLM plans to focus on ripping apart the best remaining communities – dealing a double blow to sage-grouse and other sensitive species. First, BLM will allow serious degradation to continue indefinitely – and with lands on a downward trajectory, plus the large-scale mining geothermal, powerline and other impacts. The combined adverse effects of the battery of treatment disturbance and continued livestock grazing of degraded lands is (as well as all the treated lands, too) are highly likely to doom sage-grouse, pygmy rabbit, pinyon jay and other sensitive species persistence and population viability in the Three [3] Bars Ecosystem.

Response to Comment No. 4-48:

Based on analysis in the EIS, 3 Bars Project treatments would lead to short-term impacts to resources on the project area, including soil, water, and vegetation. The BLM, however, would focus treatments on habitats, such as streams, decadent and diseased pinyon-juniper, and areas with noxious weeds and other invasive non-native vegetation, and not areas where the habitat is functioning and at or near its Potential Natural Community. In addition, the BLM would use SOPs to minimize impacts to treatment areas. As discussed in Chapter 1 of the EIS (Proposed Action and Purpose and Need), the BLM would reduce the downward trend in landscape health by focusing treatments in areas where the ecosystem has characteristics that suggest its health can be substantially improved through land restoration activities. As noted for Comment 4-17 (Cumulative Effects-General), the BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact wild horse forage, and if needed, would determine if changes in the current terms and conditions of the grazing permit would be required to maintain the long-term success of the proposed treatments. Long-term, 3 Bars Project treatments should slow the degradation of, or improve, habitat for special status and other wildlife species and provide conditions that lead to healthy populations.

Comment No. 4-89 from Western Watersheds Project:

BLM has failed to adequately evaluate land uses (grazing, fire suppression, mining) – as we described in Scoping and throughout these D[raft] EIS comments. Moreover, many other issues were raised – like transmission lines, roading, and addressing the direct, indirect and cumulative adverse impacts of infrastructure and development, and the adverse impacts of these in the region are glossed over. BLM ignores livestock facility and forage and other vegetation treatments adverse impacts and degree and severity of degradation.

Response to Comment No. 4-89:

Grazing, fire suppression, mining, transmission lines, and roads are all described in Final EIS Section 3.3.2.3.3 and their impacts are cumulatively evaluated in each of the individual resource sections in Final EIS Chapter 3.

Comment No. 4-91 from Western Watersheds Project:

By failing to take a hard look at the adverse impacts of livestock grazing, livestock facilities, often linked road networks, the colossal footprint of large gold, molybdenum and other mines, the adverse impacts of a battery of livestock facilities, etc. – BLM avoids addressing causes of degradation and cumulative impacts and threats. Instead, the D[raft] EIS flails around scapegoating native trees that provide crucial habitat for many sensitive species, for wild

horses, for big game, and that are also crucial for watershed protection in this grazing-depleted and mining-depleted landscape (historical, ongoing mining).

Response to Comment No. 4-91:

The effects of livestock management, roads, mining activities, and other land uses on 3 Bars Project area resources on and near the 3 Bars Project area are discussed under Cumulative Effects for each resource section in the Final EIS. As discussed in Final EIS Sections 3.10 (Water Resources), 3.11 (Wetlands, Floodplains, and Riparian Zones), 3.12 (Native and Non-invasive Vegetation Resources), 3.15 (Fish and other Aquatic Resources), 3.16 (Wildlife Resources), and 3.17 (Wild Horses), the BLM would remove decadent and diseased pinyon-juniper, remove pinyon-juniper that is encroaching into sagebrush, aspen, and riparian habitats, and thin dense stands of pinyon-juniper to reduce hazardous fuels. As discussed under Environmental Consequences in these resource sections, removal of pinyon-juniper would adversely affect short-term habitat use for wildlife, including some special status species, and wild horses, but would lead to long-term benefits for these animals. By not conducting treatments, the health of some pinyon-juniper stands would continue to deteriorate, wildfire risk in some stands would remain high, and trees would encroach into sagebrush and other habitats that are critical to greater sage-grouse and pygmy rabbit, and provide forage and fawning habitat for mule deer and wild horses. As noted for Comment 4-17 (Cumulative Effects-General), the BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact wild horse forage, and if needed, would determine if changes in the current terms and conditions of the grazing permit would be required to maintain the long-term success of the proposed treatments.

Comment No. 4-98 from Western Watersheds Project:

How will grazing degradation, grazing disturbance, mining disturbance, geothermal or other energy development and explo[ration] activities impact wildlife use of the landscape and the viability of populations, wild horse use and herd viability, wildfire habitats and populations, recreational uses and enjoyment, etc.?

Response to Comment No. 4-98:

The effects of livestock management, roads, mining activities, and other land uses on resources on and near the 3 Bars Project area are discussed under Cumulative Effects for each resource section in the EIS. Please refer to Final EIS Sections 3.14 (Wildland Fire and Fire Management), 3.16 (Wildlife Resources), 3.17 (Wild Horses), and 3.21 (Recreation) for information specific to resources of concern to the commenter.

Comment No. 4-104 from Western Watersheds Project:

We are greatly concerned that this EIS package of bioengineering projects is aimed at enabling BLM to more speedily ok more mining, geothermal and other development by having an already packaged scheme to spend mitigation dollars. So lands will be bared in treatments – easy mining explo[ration] will occur and/or the sensitive species of concern will have been wiped out by the treatment and continued grazing schemes. So down the road, neither the woody vegetation or the rare species will be any impediment at all to massive mining destruction across the Three [3] Bars landscape.

Response to Comment No. 4-104:

See response to Comment 4-91 (Cumulative Effects – General). The proposed 3 Bars Project is designed to restore lands that have been impacted by past land uses. Although the BLM may use mitigation funds generated by reasonably foreseeable future mining and other development within the 3 Bars Project area to fund some 3 Bars Project work, the bulk of the funding for 3 Bars Project work would come from the U.S. Treasury. Each reasonably foreseeable future mining or energy project proposed for the 3 Bars Project area would undergo NEPA analysis to determine the adverse and beneficial effects of the proposed action, and if mitigation is needed to offset adverse effects. The BLM would welcome opportunities to use mitigation funds to offset adverse effects from development while enhancing 3 Bars Project resources, but would not use the potential for mitigation funding for 3 Bars Project treatments to drive decisions related to future mining, energy, or other development on the 3 Bars Project area. As discussed in the 3 Bars Project Final EIS in Appendix C, the BLM will conduct surveys for sensitive species and other resources, as needed, prior to conducting 3 Bars Project or other land-disturbing activities on the 3 Bars Project area.

D.5.5 Fish and other Aquatic Resources

D.5.5.1 Fish and other Aquatic Resources – Affected Environment

Comment No. 4-240 from Western Watersheds Project:

We understand that the U.S. Fish and Wildlife Service (USFWS) has said that the LCT [Lahontan cutthroat trout] here, since they were moved in from other drainages, are not as important as LCT elsewhere. Is that the case?

Response to Comment No. 4-240:

Lahontan cutthroat trout are found on the 3 Bars Project area in Birch Creek, Pete Hanson Creek, and Willow Creek. Although LCT were stocked Pete Hanson Creek by NDOW in 1983, the origin of the Birch Creek and Willow Creek LCT is unknown. The fish in these streams are pure LCT, are a federally listed threatened species, and are afforded protection under the Endangered Species Act. Thus, LCT found on the 3 Bars Project area are afforded the same protections as LCT elsewhere in Nevada and California. The BLM prepared a *Biological Assessment for the 3 Bars Ecosystem and Landscape Restoration Project* (USDOI BLM 2014) that discusses the population status and habitat for LCT on the 3 Bars Project area, origin of fish found in 3 Bars Project streams, and potential effects to LCT from 3 Bars treatment actions. The BLM would consult with the USFWS before conducting treatments in or along streams with known or potential habitat for LCT. As discussed in Section 3.15.2.3.2, Fish and other Aquatic Resources, Lahontan Cutthroat Trout, genetic analyses have determined that pure strains (i.e., fish with unmixed lineage over many generations) of Lahontan cutthroat trout are found in Pete Hanson Creek. Recent genetic analysis on the Birch Creek Lahontan cutthroat trout has shown a small degree of hybridization with rainbow trout. Of the 30 fish sampled, 8 had rainbow trout alleles at one locus that were the result of an historic hybridization event. Results for the genetic analysis on the Willow Creek population are pending. Pete Hanson Creek was stocked with Lahontan cutthroat trout from Shoshone and Santa Fe Creeks (Elliott 2013).

Comment No. 4-242 from Western Watersheds Project:

To what degree are Vinini and Henderson creeks currently connected (map 3-39)?

Response to Comment No. 4-242:

As shown on Final EIS Map 3-38 (Lahontan Cutthroat Trout Habitat), Vinini Creek and Henderson Creek join near State Highway 278 and are perennial streams where they meet. Also see Figure 3-22, Streams, Lakes, Ponds, and Wetlands, which shows perennial and intermittent streams.

D.5.5.2 Fish and other Aquatic Resources – Assessment Methodology

Comment No. 4-243 from Western Watersheds Project:

Have springsnail and native amphibian surveys been systematically conducted across the Three [3] Bars landscape? If so, when and where?

Response to Comment No. 4-243:

Springsnail (*Pyrogulopsis* spp.) surveys were not conducted for the 3 Bars Project EIS, but were conducted for the Mount Hope Project EIS. As discussed in Section 3.23.2.1.2 of the Mount Hope Project Final EIS (URL: http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/battle_mountain_field/blm_information/nepa/mount_hope_project/mount_hope_feis.Par.83818.File.dat/Vol%202%20-%203.23.pdf), a presence/absence survey for springsnails was conducted on the Mount Hope Project Area on July 9, 2007. The survey was conducted in the middle of summer when perennial springs were flowing and intermittent springs would be at low flow. A subsequent presence or absence springsnail survey was conducted between September 27 and October 31, 2007. Streams in the larger regional area, including streams near the 10-foot water drawdown contour, were surveyed. Although no springsnails were present within the Mount Hope Mine Project area or the predicted 10-foot water drawdown contour surveyed, springsnails were noted in locations near the predicted drawdown boundary (to the northwest of the northern boundary and to the southeast of the southern mine project boundary; see Figure 3-37, Snail Observations, in 3 Bars Project EIS). No systematic surveys for amphibians were conducted for the Mount Hope Project or 3 Bars Project.

D.5.5.3 Fish and other Aquatic Resources – Environmental Consequences

Comment No. 4-32 from Western Watersheds Project:

In this context, no reasonable scientist would propose anything remotely resembling the Preferred Alternative – for example –killing all PJ [pinyon-juniper] within 200 feet of streams. The water is likely to reach lethal temperatures for aquatic biota as all shade is removed, and deforestation of the lands near the stream – which in grazed arid lands are typically the most highly degraded - will result in significantly decreased watershed stability and erosion, as well.

Response to Comment No. 4-32:

As discussed in Final EIS Appendix C, Standard Operating Procedures, Section C.2.7, Riparian Management, the BLM would remove vegetation incrementally over several years to minimize stream temperature effects. As discussed in Final EIS Section C.2.9, Pinyon-juniper Management, most treatments of pinyon-juniper would occur predominately in Phase I and Phase II pinyon-juniper stands. Treatments within Phase III pinyon-juniper stands would be used to disrupt the continuity of fuels and reduce the risk of catastrophic wildfire, as well as improve forest health. In addition, the BLM may leave downed trees and mulch in areas with large-scale pinyon-juniper removal to prevent sediment from entering nearby waterways. Thus, treatments would not lead to deforestation, significantly

decreased watershed stability and erosion, or lethal temperatures for aquatic biota. Additional information on the effects of treatments on fish and other aquatic resources can be found in Final EIS Section 3.15, Fish and other Aquatic Resources.

Comment No. 4-118 from Western Watersheds Project:

Lahontan cutthroat trout or other rare species eggs will be choked with sediment spilling from the treated, grazed slopes and bioengineered, clearcut artificial stream[s]. BLM cannot conduct ESA [Endangered Species Act] consultation with USFWS based on the self-serving and inaccurate analysis of the EIS. A[n] SEIS [Supplemental EIS] that honestly addresses the serious risks and uncertainties with this proposal must be prepared as the basis for consultation.

Response to Comment No. 4-118:

See response to Comment 4-32 (Fish and Other Aquatic Resources - Environmental Consequences). Final EIS Section 3.15.3, Fish and Other Aquatic Organisms, Environmental Consequences, discusses the potential for erosion and stream sedimentation associated with proposed treatments to impact habitat used by Lahontan cutthroat trout. Section 5 of the *Biological Assessment 3 Bars Ecosystem and Landscape Restoration Project* also discusses the effects of treatments on habitat use by Lahontan cutthroat trout within the 3 Bars Project area (USDOI BLM 2014). Section C.2.4 (Erosion Control) of Appendix C (Standard Operating Procedures) of the 3 Bars Project Final EIS discusses the SOPs the BLM would use to minimize erosion and stream sedimentation to ensure that effects to Lahontan cutthroat trout from 3 Bars Project treatments would be minimal, while Section C.3.2.2, Fish, notes that no in-stream treatments would be allowed in waters occupied by Lahontan cutthroat trout during January 1 and July 15 to help protect spawning fish and their eggs and young. As noted in Section C.3.2.1, Special Status Species, the BLM consulted with the USFWS and NDOW during development of the 3 Bars Project EIS and Biological Assessment, and would consult with these agencies before conducting any work that could adversely impact Lahontan cutthroat trout.

Comment No. 4-241 from Western Watersheds Project:

Yet what are the actual concrete watershed-level actions that will result in habitat - other than removal of livestock from the watersheds – not just new barbed wire strips? What pastures cab [can] be closed to better protect watersheds?

Response to Comment No. 4-241:

As discussed in Final EIS Section 2.3, Description of the Action Alternatives, actions would be taken under all action alternatives to improve wetland, riparian zone, and floodplain habitat for fish and other aquatic resources. These include stream restoration, vegetation plantings, and removal of pinyon-juniper where it encroaches into riparian habitat. Temporary fencing would be used to protect treatment areas from livestock, wild horse, and other wild ungulate use until treatment areas are revegetated. As noted for Comment 4-17 (Cumulative Effects - General), the BLM would continue ongoing management reviews to determine if livestock grazing management is resulting in utilization levels that are moderate to severe and adversely impact wild horse forage, and if needed, would determine if changes in the current terms and conditions of the grazing permit would be required to maintain the long-term success of the proposed treatments.

Comment No. 4-244 from Western Watersheds Project:

Riparian vegetation is an important habitat component for aquatic species, as plants provide overhanging cover, temperature control via shading, bank stability, a food source from insects on the vegetation, and nutrient input to the stream from loss of leaves and branches. Then why is BLM killing all the PJ [pinyon-juniper] within 200 ft [feet] of the streams?

Response to Comment No. 4-244:

As noted in Final EIS Section 3.15.3.3.1, Fish and other Aquatic Resources, Direct and Indirect Effects Common to All Action Alternatives, following the text cited above, "beneficial effects would result from riparian restoration actions that would improve riparian community health and resiliency. These include stream channel restoration and removal of pinyon-juniper from the riparian zone. Replacing invasive plant species with native vegetation can improve food availability to insectivorous fish species, as native plants typically support a more diverse native insect community. The removal of noxious weeds and other invasive non-native vegetation and restoration of the streamside vegetation to include native plant species would be beneficial to the stream morphology and the ecological requirements for aquatic species long-term." As noted in Final EIS Section 3.11.3.3.2, Wetlands, Floodplains, and Riparian Zones, Direct and Indirect Effects under Alternative A, pinyon and juniper are not riparian species', and are not as effective as native vegetation in stabilizing soil. Also see response to Comment 4-32 (Fish and other Aquatic Resources-Environmental Consequences).

D.5.6 Glossary

Comment No. 4-42 from Western Watersheds Project:

The D[raft] EIS needs to be drastically revised. First and foremost BLM needs to carefully define restoration.

Response to Comment No. 4-42:

As defined in Chapter 6 (Glossary) of the 3 Bars Project Final EIS, restoration is the implementation of a set of actions that promotes plant community diversity and structure and that allows plant communities to be more resilient to disturbance over the long-term.

Comment No. 4-52 from Western Watersheds Project:

Where did the new silly term "densification" come from? How was the so-called "densification" on all sites determined?

Response to Comment No. 4-52:

As given in Chapter 6 (Glossary) of the 3 Bars Project Final EIS, densification, as it applies to the 3 Bars Project, is an increase in the density of pinyon-juniper within woodland stands due to fire exclusion and livestock grazing. As shown in Table 1-2 (Restoration Goals and Objectives) of the EIS, dense stands of pinyon-juniper occur where stand density exceeds 1,200 stems per acre or 80 trees per acre (Miller et al. 2008, USDOI BLM 2009a). The term densification has been used in several publications that discuss pinyon-juniper densities in the western U.S. Miller et al. (2008), among others, provide an informative discussion of age structure and expansion of pinyon-juniper woodlands in the western U.S.

Comment No. 4-56 from Western Watersheds Project:

How has BLM defined key species?

Response to Comment No. 4-56:

Key species are forage species whose use serves an indicator to the degree of use of associated species, or those species which must, because of their importance, be considered in a management program. A more detailed discussion of key species and inventory methods is in the following document—Cooperative Extension Service, USDA Forest Service, Natural Resource Conservation Service Technology Institute, and USDOI BLM. 1999. Utilization Studies and Residual Measurements. Bureau of Land Management National Applied Resource Sciences Center, Denver, Colorado, Page 4 and Chapter 4. We have added this term to Chapter 6 (Glossary) in the 3 Bars Project Final EIS.

D.5.7 Livestock Grazing

D.5.7.1 Livestock Grazing – Affected Environment

Comment No. 4-70 from Western Watersheds Project:

What systematic methods were used in monitoring? How closely did livestock monitoring actually track livestock use periods?

Response to Comment No. 4-70:

Eastern Nevada Landscape Coalition documented existing ecosystem conditions on 532,000 acres within the 3 Bars Project area and compared them to desired conditions (*3 Bars Ecosystem and Landscape Restoration Project Rangeland Health Report* [Eastern Nevada Landscape Coalition and AECOM 2012]). Monitoring data collected included production, nested frequency, soil stability, gap intercept, line-point intercept and use pattern mapping. The monitoring data collected were used to determine rangeland health.

Comment No. 4-99 from Western Watersheds Project:

What has livestock actual use been over the past two decades? During the past decade? This is critical information, because the current damage being caused by livestock is due to the actual use stocking levels. Further, has BLM ever verified the accuracy of actual use reports by ranchers? If so, when and where? Also, has there been non-compliance in this landscape? If so, when and where? What sensitive species habitats and populations, wild horse bands, recreational uses, watersheds and streams, springs and seeps have been impacted? Aren't some of the recent drought closure decisions Battle Mountain is issuing a result of permittees failing to abide by agreements the ranchers violated that were to limit use during drought? Example: Bates Mountain area/Dry Creek? In a landscape with a history of non-compliance, BLM's ability to live up to promises to control livestock use after treatments/bioengineering is highly uncertain. And this just further illustrates the hubris of this bioengineering scheme. How can BLM possibly hope to flawlessy bioengineer a wild landscape, when it cannot get the livestock operations under control yet?

Response to Comment No. 4-99

Use data are available in the *Final 3 Bars Ecosystem and Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012) and are available from the BLM Mount Lewis Field Office upon request. Impacts from the proposed action and cumulative impacts to sensitive species habitats, wild horses, recreational uses, watersheds and streams, springs and seeps can found in those respective sections in the Final EIS.

Comment No. 4-137 from Western Watersheds Project:

Despite this EIS having been billed as addressing livestock grazing, the comparison of Alternatives Table fails to provide any information at all on current actual use, current active/allowable use current standards of use, current seasons of use, current degree and severity of livestock degradation, or really any meaningful information at all on livestock grazing.

Response to Comment No. 4-137:

The Final EIS includes the season of use, livestock type, and stocking rate for treatment areas (see Section 3.18.2, Livestock Grazing, Affected Environment). Areas identified for treatment that do not have proper grazing management would require modification to permitted use prior to treatment implementation. Proper grazing management includes the correct season of use, stocking rate and duration of grazing. If proper management cannot be achieved, the project will not be approved for implementation.

Comment No. 4-138 from Western Watersheds Project:

Table 3-49 lacks actual use information by pasture and allotment, and lacks breakdown of the grazing schedules by pasture, or any overlay of areas with HMAs, sage-grouse seasonal habitats, etc.

Response to Comment No. 4-138:

Final EIS Figure 3-44 shows use pattern mapping throughout the 3 Bars Project area and identifies areas of moderate to severe utilization. This map identifies areas that have either distribution or stocking rate issues. Herd Management Area (Section 3.18.2; Livestock Grazing, Affected Environment) and wildlife habitats (3.16.2; Wildlife Resources, Affected Environment) are covered under their respective sections in the Final EIS. Season of use for allotments is also provided in Table 3-49 of the Final EIS.

Comment No. 4-139 from Western Watersheds Project:

Are the "AUs" [Animal Units] based on a 1000 pound cow or an 800 pound cow? Or cows with 500 lb. calves?

Response to Comment No. 4-139:

Based on the National Range and Pasture Handbook (USDA Natural Resources Conservation. 2003. Grazing Lands Technology Institute. Chapter 6. Washington, D.C. Available at URL: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084), an AU is generally one mature cow of approximately 1,000 pounds and a calf as old as 6 months, or their equivalent. An animal unit month (AUM) is the amount of forage required by an animal unit for 1 month. Animal unit equivalents vary somewhat according to kind and size of animals.

States can establish their own AU guides on the basis of locally available data relative to forage requirements. The handbook provides AU equivalents for other livestock and large wildlife. We have revised the definition of AU in the glossary to incorporate this information.

Comment No. 4-140 from Western Watersheds Project:

Why is it not being retired as mitigation, and why isn't this considered in an alternative action? There are nearly 100 pastures. How can many these fences be removed and lands combined to reduce fencing, and fencing removed to help sage-grouse, enhance free roaming wild horses, etc.? Where are fences a concern on what seasonal ranges?

Response to Comment No. 4-140:

Public lands are administered by the BLM for multiple use. Retirement of grazing permits/allotments is not identified in the Shoshone-Eureka Resource Management Plan (USDOI BLM 1987). Range improvements and facilities are analyzed during the evaluation process. If range improvements are identified as a health risk for wild horses, wildlife, or other species, they would be addressed on a case-by-case basis.

D.5.7.2 Livestock Grazing – Cumulative Effects

Comment No. 9-2 from K. Gregg:

One example of BLM's omission of a major cause of public land destruction that is not sufficiently proposed is the removal/reduction of private livestock on public land. The D[raft] EIS professes to restore lands to their natural condition by introducing fire and mechanical manipulation and chemical application to the ecosystem, but the proposal does not address the fact that livestock grazing is a major and continuing cause of altered fire cycles, understory loss, soil compaction, pinyon-juniper expansion, riparian destruction or that burned and grazed juniper sites on BLM lands are being invaded by non-native grasses.

Response to Comment No. 9-2:

See response to Comment 4-140 (Livestock Grazing – Affected Environment).

D.5.7.3 Livestock Grazing – Environmental Consequences

Comment No. 4-3 from Western Watersheds Project:

BLM fails to take a hard look at the severe ecological damage and irreversible weed invasions, water loss, and loss of sensitive species habitats and populations that will result from continued livestock grazing being imposed across all of these areas over the next couple of decades. This will be amplified by the adverse impacts of climate change. See Belsky and Gelbard 2000, Beschta et al. 2012, Reisner Dissertation, Reisner et al. 2013, Briske et al. 2013.

Response to Comment No. 4-3:

The BLM has reviewed the documents cited by the commenter that evaluate the effects of livestock grazing on rangelands and how livestock managers and other resource users may have to modify their management practices in response to global climate change. These could include reductions in numbers of livestock grazed on an area, seasonal restrictions on livestock use of an area, and studies that evaluate livestock impacts on resources in response to global

climate change. A summary of several of these studies is included in Final EIS Section 3.5.2.2 (Meteorology and Climate Change, Climate Change) of the 3 Bars Project EIS. As discussed in Final EIS Section 3.18.3.4, Cumulative Effects, Livestock Grazing, about 6 percent of the 3 Bars Project area is experiencing moderate to severe forage utilization due to livestock, wild horses, and other wild ungulates. In response to the concerns addressed by the commenter, the BLM has targeted about a third of 3 Bars Project restoration treatment acreage in areas with moderate to severe forage utilization, as discussed in Section 3.18 (Livestock Grazing). The BLM would implement mitigation measures (see Final EIS Section 3.18.4, Livestock Grazing, Mitigation) and SOPs (Appendix C, Section C.2.2, Livestock), to manage livestock and ensure that treatments are successful. In addition, and as suggested by Beschta et al. (2013) and other studies, the BLM would conduct monitoring to evaluate rangeland conditions prior to and after treatments to ensure treatment success.

Comment No. 4-10 from Western Watersheds Project:

D[raft] EIS at ES-3 claims the need for the EIS is to address the "long recognized" resource conflicts in the Three [3] Bars area. There is no certainty that the grazing changes will be made. Grazing decisions may be appealed, and appeals upheld.

Response to Comment No. 4-10:

Livestock management would be examined prior to implementation as outlined in Section 3.18.4 (Livestock Grazing, Mitigation) of the Final EIS.

Comment No. 4-11 from Western Watersheds Project:

BLM fails to conduct the necessary capability, suitability, and sustainability analysis to determine if it is necessary to remove livestock disturbance conflicts from at least some significant and stressed habitat areas of the landscape. No treatment would be conducted without appropriate livestock management in place prior to that treatment.

Response to Comment No. 4-11:

See response to Comment 4-10 (Livestock Grazing – Environmental Consequences).

Comment No. 4-23 from Western Watersheds Project:

Will continuing to graze severely depleted lands as well as lands at high risk of flammable cheatgrass invasion render any supposed benefits of "improvement" from massive treatment intervention moot?

Response to Comment No. 4-23:

As discussed in Section 1.8 of the 3 Bars Project Final EIS, Scope of the Analysis and Decisions to be Made, "Human-related activities and natural processes have inherent risks and threats to the health of the land, which can lead to the decline of plant communities and ecosystems. Although this EIS refers to activities consistent with the authorities under the Federal Land Policy and Management Act and other statutes that may contribute, in some cases, to short-term land and resource impacts, its focus is on proactive treatments to maintain and restore ecosystem health in the long-term. The focus of the EIS is not to restrict, limit, or eliminate Federal Land Policy and Management Act-authorized activities as a means to restore ecosystem health. These types of management actions are defined and considered under land use planning regulations (43 Code of Federal Regulations [CFR] § 1610) and are outside the scope of this EIS." Thus, the BLM will continue to allow grazing on the 3 Bars Project area. However, the BLM

would implement mitigation measures (see Final EIS Section 3.18.4, Livestock Grazing, Mitigation) and SOPs (Appendix C, Section C.2.2, Livestock), to manage livestock and ensure that treatments are successful. These could include livestock grazing closures, shifts in livestock season of use, and limits on livestock utilization rates to ensure the long-term success of treatments. This may result in changes to the current terms and conditions of the grazing permit. In addition, and as suggested by Beschta et al. (2013) and other studies, the BLM would conduct monitoring to evaluate rangeland conditions prior to and after treatments to ensure treatment success.

Comment No. 4-35 from Western Watersheds Project:

BLM has failed to identify large blocks of lands where continued livestock grazing disturbance conflicts with passive restoration, and with active restoration as well.

Response to Comment No. 4-35:

Figure 3-44 of the Final EIS identifies areas where there is "Moderate to Severe Range Use."

Comment No. 4-36 from Western Watersheds Project:

The EIS lacks necessary solid baseline data, and a hard look at magnitude of historical and ongoing livestock degradation.

Response to Comment No. 4-36:

Use data are available in the *Final 3 Bars Ecosystem and Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), and are also available from the BLM Mount Lewis Field Office upon request.

Comment No. 4-46 from Western Watersheds Project:

D[raft] EIS at 3-7: "*Open range livestock operations are expected to continue … short-term (typically 2 to 4 year) temporary suspensions of AUMs would be expected in response to prescribed fires and the temporary loss of forage …"*. This time period is greatly inadequate to recover the understories, microbiotic crusts, hiding cover, shrubs to promote site stability, shade the ground surface, slow snowmelt, block wind, and overall site recovery. etc. It also represents a view of these lands that pervades the EIS – that "forage" is what really matters, and everything else is expendable.

Response to Comment No. 4-46:

Final EIS Appendix C, Section C.2.2.1 (Temporary Livestock Grazing Closures), addresses temporary grazing closures.

Comment No. 4-47 from Western Watersheds Project:

This shows that BLM has not prepared the necessary up-front grazing analyses with full public involvement that would allow it to understand where these areas are. Where is a map showing the highly degraded areas that BLM plans to avoid like the plague? How was this determined? Why is BLM not planning to issue Full Force and Effect decisions to address the chronic grazing abuse that is occurring, and try to heal the lands before tearing them to

pieces? Why is there a large "dis-connect" between action on grazing (which promotes flammable exotic species and altered fire cycles, and causes habitat degradation and loss) and any "treatments"?

Response to Comment No. 4-47:

Figure 3-44 of the Final EIS identifies areas where there is "Moderate to Severe Range Use."

Comment No. 4-57 from Western Watersheds Project:

What role has livestock grazing disturbance had in this: *Sagebrush monocultures are present.* Sagebrush "monocultures" are naturally occurring vegetation communities – and there is often considerable structural diversity and age class diversity as well as well-developed microbiotic crusts present. What will the effects of removing livestock grazing for decades be in turning this around? What is preferable?` The EIS also states: Some streams, springs, and meadows are functioning at less than their proper condition. Where are these, and what role has livestock grazing had in this?

Response to Comment No. 4-57:

See response to Comment 4-46 (Livestock Grazing – Environmental Consequences). Also see the *Final 3 Bars Ecosystem and Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012). Also see Final EIS Figure 3-24, Proper Functioning Condition Rating, for the location of streams and riparian zones that have been surveyed for Proper Functioning Condition.

Comment No. 4-59 from Western Watersheds Project:

What will BLM actually do about livestock grazing as a cause of deterioration? How will you ensure the lands will heal prior to massive bioengineering disturbance?

Response to Comment No. 4-59:

See response to Comment 4-10 (Livestock Grazing – Environmental Consequences).

Comment No. 4-60 from Western Watersheds Project:

What will BLM do about livestock grazing as a cause of deterioration?

Response to Comment No. 4-60:

See response to Comment 4-23 (Livestock Grazing - Environmental Consequences).

Comment No. 4-73 from Western Watersheds Project:

Why does BLM consistently obsess over livestock forage grass, and not degradation of microbiotic crusts, or simplification of sagebrush structural complexity due to livestock that renders areas less suitable for many sagebrush species like pygmy rabbit, and for migratory birds and sage-grouse that require complex overhead shrub cover to hide nests? Or livestock degradation of understories and microbiotic crusts - which promotes increased tree densities?

Response to Comment No. 4-73:

As noted in 3 Bars Project Final EIS Section 1.3.6, Proposed Action and Purpose and Need, Livestock, and from studies cited in the *Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a), and *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), key perennial grass species are scarce and production is below the potential for the natural community over portions of the 3 Bars Project area. Thus, livestock would benefit from treatments that improve perennial species, including forage grasses, as would wild horses, other wild ungulates, and wildlife. However, the overall goal of the 3 Bars Project is to develop the 3 Bars ecosystem into a sustainable, healthy, and resilient landscape for the benefit of a variety of resources, including special status species, such as greater sage-grouse, pygmy rabbit, and several species of migratory birds. As discussed in Chapter 2 (Alternatives) and Section 3.16 (Affected Environment and Environmental Consequences, Wildlife Resources) of the Final EIS, treatments are designed to improve riparian, aspen, pinyon-juniper, and sagebrush habitats on the 3 Bars ecosystem by providing conditions that favor species that currently use the ecosystem. These include treatments to enhance sagebrush cover and promote grass and forb understory to benefit general and special status wildlife, including greater sage-grouse, Brewer's sparrow, sage thrasher, pygmy rabbit, mule deer, and pronghorn antelope. Although sagebrush cover is important for these species, they also require forbs and grasses associated with sagebrush habitat for their life needs.

See response to Comment 4-23 (Livestock Grazing - Environmental Consequences), for the scope of analysis regarding livestock management on the 3 Bars ecosystem.

Comment No. 4-96 from Western Watersheds Project:

BLM wrongly cut out consideration of a new AML [Appropriate Management Level], and addressing the serious adverse ecological footprint of the livestock facility network – not only on wild horses, but also on a broad range of important and sensitive species and other uses of the public lands.

Response to Comment No. 4-96:

The AML for wild horses is established through the rangeland health evaluation process.

Comment No. 4-144 from Western Watersheds Project:

Also, BLM constantly makes highly uncertain statements like "the season of use may be shifted". Thus, there is no way at all of knowing the outcome of effectiveness of the livestock grazing schemes to be imposed on this landscape. BLM fails to provide any pastures or allotments as reference areas where grazing is removed so the actual impacts of livestock vs. wildlife vs. [wild] horses can be understood. It fails to provide any significant periods of rest to jump start recovery.

Response to Comment No. 4-144:

See response to Comment 4-10 (Livestock Grazing – Environmental Consequences).

D.5.8 Meteorology and Climate Change

D.5.8.1 Meteorology and Climate Change – Cumulative Effects

Comment No. 4-95 from Western Watersheds Project:

It [3 Bars Project EIS] greatly fails to address significant impacts of drought in adding to current stresses on the landscape. It fails to assess the adverse impacts of inflicting large-scale treatment disturbances on a perennially drought-stricken landscape.

Response to Comment No. 4-95:

Section 3.5, Meteorology and Climate Change, of the 3 Bars Project Final EIS discusses the potential effects of global climate change in the Southwest U.S., and notes that some scientists predict an increase in average temperature and decrease in average precipitation in the region due to global climate change. Important goals of the 3 Bars Project are to improve the health and functionality of the landscape (Final EIS Section 1.1; Introduction), and to improve stream and wetland functionality (Final EIS Section 1.3.2; Wetland and Riparian Areas and Water Quality and Quantity). Riparian zones were one of four treatment areas targeted for treatment under the proposed 3 Bars Project and numerous projects were identified by the BLM in the EIS (see Chapter 2, Alternatives) to improve stream water flows and functionality to benefit plants and animals living in a drought environment. Under pinyon-juniper treatments, the BLM has identified several projects to thin and/or remove pinyon-juniper to potentially increase water flows in streams and improve water infiltration. The adverse and beneficial effects of these treatments are discussed under Environmental Consequences in many of the resource sections in the Final EIS.

D.5.8.2 Meteorology and Climate Change – Environmental Consequences

Comment No. 4-155 from Western Watersheds Project:

BLM's rejection of a full and fair analysis of the adverse effects of climate change on the project and livestock grazing that would continue in the disturbed lands must be corrected in a[n] SEIS [Supplemental EIS]. The contractor uses the standard rejection language that ignores Beschta et al. 2012, BLM's own Pellant 2007 Congressional Testimony, Dellasala Testimony, Chambers et al. 2009, as well as USFWS's WBP [Warranted but Precluded] Finding for GSG [greater sage-grouse], Knick and Connelly 2009/2011 *Studies in Avian Biology*, etc.

Response to Comment No. 4-155:

See response to Comments 4-3 (Livestock Grazing – Environmental Consequences) and 4-95 (Meteorology and Climate Change – Cumulative Effects). The BLM is not clear what rejection language is provided by the BLM in the EIS, and is therefore unable to respond further. A summary of several of these studies is included in Final EIS Section 3.5.2.2 (Meteorology and Climate Change, Climate Change) and 3.5.3.3 (Meteorology and Climate Change, Cumulative Effects) of the 3 Bars Project Final EIS.

Comment No. 4-161 from Western Watersheds Project:

BLM does not seriously assess these concerns, and instead glosses over them and presents information maximally supporting its outdated view and incorrect fire and disturbance intervals, that ignore the historical vegetation

communities, natural plant succession, and the needs of the sensitive species for structurally complex mature and old growth woody shrubs and trees, as well as the critical role of microbiotic crusts in land health.

Response to Comment No. 4-161:

We have discussed the issues identified by the commenter in Final EIS Sections 3.5.2 (Affected Environment) and 3.5.3 (Environmental Consequences) for Meteorology and Climate Change in the southwestern U.S., including the 3 Bars Project ecosystem, and discussed the risks to the ecosystem from climate change in qualitative terms. The role of microbotic crusts, historic and current vegetation conditions, wildfire intervals, and wildlife habitat, and their relationship to land health, are discussed in Chapter 3, Affected Environment and Environmental Consequences, in Sections 3.9 (Soil Resources), 3.12 (Native and Non-invasive Vegetation Resources), 3.13 (Noxious Weeds and other Invasive Non-native Vegetation), 3.14 (Wildland Fire and Fire Management), and 3.16 (Wildlife Resources) of the Final EIS. The information presented in the 3 Bars Project EIS is based on a multitude of studies, as discussed in response to Comment 4-148 (Assessment Methodology – Baseline Studies).

Comment No. 4-162 from Western Watersheds Project:

BLM includes generic paragraphs about GHG [greenhouse gases], but ignores the loss of the sequestered carbon, and loss of the ability to sequester large amounts of carbon, especially if weeds choke the landscape. Then, BLM makes unsubstantiated assumptions that: "*significant adverse effects will not occur*". This claim is based on minimal consideration of GHG only, and while ignoring the loss of sequestered carbon, the strong likelihood of weed invasions, added and cumulative impacts from losses due to grazing, mining, and other stresses on the lands, vegetation, waters, sensitive species.

Response to Comment No. 4-162:

See responses to Comments 4-95 (Meteorology and Climate Change – Cumulative Effects) and 4-121 (Air Quality – Environmental Consequences).

D.5.9 Mitigation and Monitoring

Comment No. 4-100 from Western Watersheds Project:

How has BLM monitoring separated out relative impacts to soils, crusts, vegetation, watersheds, riparian areas, etc. of wild horse use vs. cattle/sheep impacts? Where are all monitoring sites? When and how fairly were they established? Please provide all monitoring data for the past decade. Has BLM conducted compliance checks to make sure livestock were not grazing when not authorized in these areas?

Response to Comment No. 4-100:

As discussed in Final EIS Section 1.3, Background, numerous factors have contributed toward the current conditions of the 3 Bars Project landscape, including livestock management, wild horses, wildfire, and noxious weed establishment and spread. The BLM monitors rangeland health through use of rangeland health assessments and conducts regular monitoring to verify grazing permit compliance for all current permits. Seventy Key Management Areas (KMAs) were evaluated for the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada

Landscape Coalition and AECOM 2012) prepared for the 3 Bars Project EIS. See response to Comment 4-170 (Soil Resources - Assessment Methodology) for more information on KMAs, how they were established on the landscape, and their use during the study. The BLM establishes monitoring sites on wildfire and other restoration sites. Discussion of the results of some of these monitoring studies is given in Final EIS Section 3.12.3, Native and Non-invasive Vegetation Resources, Environmental Consequences, Direct and Indirect Effects, Pinyon-juniper Treatments; also see references to monitoring studies in Chapter 5, Reference, under USDOI BLM. These studies can be requested from the BLM Battle Mountain District Office. Additional information on monitoring can be found in Final EIS Section 2.5.5, Monitoring, and in Appendix C, Standard Operating Procedures.

Comment No. 4-123 from Western Watersheds Project:

The BLM proposed monitoring methods and limited periods are greatly inadequate.

Response to Comment No. 4-123:

Monitoring methods and periods given Section 2.5.5 (Monitoring), in Chapter 3 (Affected Environment and Environmental Consequences) for affected resources, and in Appendix C (Standard Operating Procedures) of the Final EIS, were developed by the BLM based on the past experience, discussions with resource agencies, and scientific literature. As discussed in Final EIS Section 3.18.4, Mitigation, for Livestock Grazing, the BLM would follow an adaptive management approach that involves the use of monitoring prior to, during, and after treatments to make sure that treatments are designed to meet treatment goals, and to ensure treatment success. As new information become available, the BLM would revise monitoring methods and periods if these changes improve future treatment success.

Comment No. 4-124 from Western Watersheds Project:

The D[raft]EIS is lacking certainty about effectiveness in monitoring and adequate mitigation for this massive cumulative disturbance across this landscape.

Response to Comment No. 4-124:

Monitoring measures and guidance are provided in Section 2.5.5, Monitoring, of the 3 Bars Project Final EIS. Standard Operating Procedures used to increase treatment success and to minimize environmental impacts are discussed in Appendix C of the Final EIS. The BLM conducts ongoing monitoring studies of past restoration treatments on the 3 Bars Project area and nearby, and uses information gained from these studies to improve treatment success on future projects; several of these monitoring studies are discussed in the Final EIS, primarily in Section 3.12 (Native and Non-invasive Vegetation) and 3.13 (Wildland Fire and Fire Management). Although there is no guarantee that a treatment will be 100 percent successful, or that there will be no impacts from a treatment, by following monitoring measures and guidance, Standard Operating Procedures, and lessons learned from past projects, treatment success is greatly improved.

D.5.10 Native and Non-invasive Vegetation Resources

D.5.10.1 Native and Non-invasive Vegetation Resources – Affected Environment

Comment No. 4-67 from Western Watersheds Project:

What is all the underlying information used in compiling Map 1? BLM lumps many different factors together, and colors in areas to massively disturb and promote weeds in, and greatly alter, fragment and destroy PJ communities and sagebrush communities, as well. We note the underlying contours show that BLM in particular targets naturally occurring PJ communities in steep, rugged mountainous terrain at higher elevations –which is precisely where PJ is the naturally occurring native vegetation community across the region. Is this derived in some part from the Scoping Mapping? If so, that showed there should be no PJ present in the landscape – at all – which is incorrect and false.

Response to Comment No. 4-67:

See response to Comment 4-78 (Assessment Methodology - General). The Map 1 presented during scoping was developed by integrating maps prepared for the *Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a) that showed degraded conditions for numerous resources found on the 3 Bars Project area. Resource conditions were developed based on field studies, aerial photography, GIS, and other methods, and maps were used to preliminarily identify potential treatment areas for review by the public during scoping. Based on this information, and discussions with other agencies, the BLM Interdisciplinary Team identified specific treatment areas through an iterative process, as discussed in Final EIS Section 2.3 (Description of the Action Alternatives). As discussed under Comment 4-78, pinyon-juniper is found on about 25 percent of the study area; older Phase III pinyon-juniper stands comprise about 19 percent of pinyon-juniper woodlands (see Final EIS Section 3.12.2.2.9; Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodland). About 20 percent of pinyon-juniper treatments would be in Phase III stands, primarily to remove dead and unhealthy trees and to thin trees to improve forest health and pine nut production and reduce hazardous fuels and risk of wildfire. Although some pinyon-juniper trees may be removed from steep, rugged terrain, these areas would typically be avoided for treatments due to access difficulty, risk of a prescribed fire leaving the treatment area, risks to paleontological resources found in rock outcrops, and potential to inadvertently kill or harm old-growth pinyon-juniper and limber pine.

Comment No. 4-68 from Western Watersheds Project:

So, is the Scoping mapping part of the basis for the D[raft]EIS? What vegetation community baseline information was used in developing Map 1, and all the findings of deficiencies lumped in various categories?

Response to Comment No. 4-68:

See response to Comment 4-78 (Assessment Methodology - General).

Comment No. 4-146 from Western Watersheds Project:

The livestock cumulative effects analysis claims that the health studies have shown that early to mid-seral vegetation dominates the allotments. What does this mean? How was this determined? The sage[brush] communities are not

early seral. How is "seral" defined by AECOM/ENLC [Eastern Nevada Landscape Coalition]? Is this referring to the areas that burned in fires? Won't the treatments make there be many more acres in early-mid seral, not fewer?

Response to Comment No. 4-146:

It means that early- to mid-seral vegetation dominates the allotments. Seral refers to the stages that plant communities go through during succession. Developmental stages have characteristic structure and plant species composition. In a forest, for example, early seral forest refers to seedling or sapling growth stages; mid-seral refers to pole or medium saw timber growth stages; and mature or late seral forest refers to mature and old-growth stages as defined in the glossary. Treatments may increase acres that are early-seral stage.

Comment No. 4-197 from Western Watersheds Project:

Table 3-22 [of the EIS] shows that there is actually less sage[brush] and less PJ [pinyon-juniper] than is expected based on the soil surveys.[Page] 3-152 [of the Draft EIS] shows how out of whack the excess "grasslands" are –

Response to Comment No. 4-197:

Table 3-22 (Current and Expected Vegetation Types within the 3 Bars Project Area) of the 3 Bars Project EIS indicates that there may be less pinyon-juniper and sagebrush on the 3 Bars Project area than is expected based on USDA Natural Resources Conservation Service (2012) assessments. However, as noted in Final EIS Section 3.12.2.2.9, Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodland, and Table 3-22, existing acreage of pinyon-juniper does not include about 118,000 acres of Phase I pinyon-juniper stands. Although most Phase I pinyon-juniper stands consist of trees scattered within other vegetation types, they are indicative of areas where pinyon-juniper is encroaching into other vegetation types and, over time, could be the dominant vegetation in those areas and would result in pinyon-juniper occupying more area than is expected within the 3 Bars Project area.

Recent large fires have resulted in the conversion of sagebrush habitat to grassland comprised of native, fire-induced, and man-made grass cover, as referenced in Table 3-22. As discussed in Final EIS Section 2.3.1.4, Sagebrush Treatment Units, over 60 percent of sagebrush treatment acreage would be to convert grassland habitat back to sagebrush habitat in areas where sagebrush historically occurred.

Comment No. 4-198 from Western Watersheds Project:

This shows there are too many grasslands already – yet the projects will make more grasslands! So why in the world, once it realized this – why didn't BLM stop right there and focus on restoring 47,000 acres of grassland to native shrubs and trees???

Response to Comment No. 4-198:

See response to Comment 4-197 (Native and Non-invasive Vegetation Resources – Affected Environment).

Comment No. 4-204 from Western Watersheds Project:

What is included in the understory production figures – wood? What is the "understory production" of crusts supposed to be? It is clear this 20 to 35 percent figure for juniper is drawn out of thin air.

Response to Comment No. 4-204:

It is not clear what the commenter is referring to, although it appears to be related to Table 3-30, Ecological Sites for Pinyon-juniper Community, which indicates that the average canopy cover for pinyon-juniper is about 20 to 35 percent based on the USDA Natural Resources Conservation Service Rangeland Ecological Site Description for Potential Native Vegetation (also called Potential Natural Community). Understory production is for grasses, forbs, and shrubs within 4.5 feet of the ground surface, and includes species listed in Table 3-30 (Ecological Sites for Pinyon-juniper Community). This information is based on Ecological Site Descriptions developed by the USDA Natural Resources Conservation Service (2012) for the 3 Bars Project area, as discussed in Section 3.12.2.2, Native and Non-invasive Vegetation Resources, Vegetation Communities, of the Final EIS. More information on how the USDA Natural Resources Conservation Service developed the Ecological Site Descriptions can be found at: https://esis.sc.egov.usda.gov/. Another good source of information is Chapter 3 in the *BLM Technical Reference 1734-7, Ecological Site Inventory* (Habich 2001).

Comment No. 4-217 from Western Watersheds Project:

What was the climax vegetation community that the early middle and late successional status (used by ENLC [Eastern Nevada Landscape Coalition] and shown in Map Figure 3-29.

Response to Comment No. 4-217:

As discussed in Final EIS Section 3.12.2.3, Native and Non-invasive Vegetation Resources, Allotment Vegetation and Monitoring Studies, the successional status shown on Figure 3-29 of the Draft EIS (Current Rangeland Conditions) is based on the relationship between vegetation found on the area in comparison to the Potential Natural Community. As discussed in Section 2.1.1 of the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), "a potential natural community (PNC) is defined as the biotic community that would become established on an ecological site if all successional sequences were completed without interference by people under the present environmental conditions (Habich 2001). PNC production is based on the Ecological Site Description for the site." See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment) and Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, on how Ecological Site Descriptions were developed for the 3 Bars Project area and used in the vegetation analysis for the 3 Bars Project EIS.

D.5.10.2 Native and Non-invasive Vegetation Resources – Affected Environment - Pinyon-juniper

Comment No. 4-19 from Western Watersheds Project:

Where are forest areas producing pine nut seeds for pinyon jays?

Response to Comment No. 4-19:

Pinyon pine produce pine nuts where the trees occur, based upon natural cycles, and not for specific animals.

Comment No. 4-21 from Western Watersheds Project:

Where have trees been treated, removed, cut, chained, burned, etc. in the past for all periods for which records have been kept?

Response to Comment No. 4-21:

The BLM has implemented projects that have removed trees for the Red Hills and Sulphur Springs fuels projects, and Roberts Mountain Bootstraps project. Personal use and commercial use fuel wood removal also occurs within the project area.

Comment No. 4-25 from Western Watersheds Project:

We have repeatedly asked BLM to consult its own historical survey records in order to understand the naturally occurring native vegetation across the Battle Mountain District and central Nevada. When were the original General Land Office surveys conducted for this region? Which areas had early survey records? What does cross-walking the info[rmation] on occurrence of pinyon-juniper vegetation (and also water in drainages/springs) show about the elevations and other conditions where pinyon-juniper is the naturally occurring historical plant community?

What role does livestock grazing and climate change play in this? What role has past BLM treatment played in this?

Response to Comment No. 4-25:

The original General Land Office surveys were conducted from the mid-1800s to the early 1900s. The goals and objectives of this project can be found in Chapter 2 of the EIS, but do not include achieving any "historic" distribution.

Comment No. 4-58 from Western Watersheds Project:

Other key vegetation concerns identified in the AECC included the expansion of the pinyon-juniper plant community onto adjacent range sites and encroachment into the interspaces within woodland sites. Where specifically is there expansion, and how has BLM determined this is expansion and not re-occupation and/or natural succession?

Response to Comment No. 4-58:

See response to Comment 4-78 (Assessment Methodology - General) on how pinyon-juniper communities were mapped on the 3 Bars Project area. As shown on Figure 3-27, Pinyon-juniper Phase Classes, and discussed in Section 3.12.2.2.9, Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodlands, of the Final EIS, Phase I and II areas are areas where pinyon-juniper woodland expansion is occurring. The BLM determined that areas of potential expansion are areas where pinyon-juniper woodlands have not historically been present, based on the Ecological Site Descriptions and soil surveys for those areas.

Comment No. 4-76 from Western Watersheds Project:

Where are all historic Pinyon-juniper communities, and how did you identify them? What is a "proper ecological state", and how was it defined, descried, and what scientific studies and site-specific information is this based on?

Response to Comment No. 4-76:

See response to Comment 4-78 (Assessment Methodology – General). As discussed in the *3 Bars Ecosystem and Landscape Restoration Project Pinyon-juniper Assessment* (AECOM 2011a), field surveys of the project area were conducted during November 2009 and February 2010 to identify and map the occurrence of pinyon-juniper stands by phase class, and to identify old growth pinyon-juniper. Surveyors used visual observations of tree characteristics to

help determine tree age in the field based on information provided in Romme et al. (2007). At locations where trees exhibited old-growth characteristics, surveyors verified tree age by extracting tree cores and cross-dating the rings. Only pinyon pines were selected for age analysis, since junipers are generally very difficult to cross-date.

Comment No. 4-79 from Western Watersheds Project:

BLM proposes to remove all Phase I and Phase II Pinyon-juniper – this is disastrous. Why in the world would you propose this? Many areas of Phase I and Phase II PJ [pinyon-juniper] are actually trees re-occupying sites in which they naturally occur. Like sites where BLM purposefully destroyed them in the past. How were all Phase I and Phase II sites identified? Was ENLC [Eastern Nevada Landscape Coalition] involved in this? How were trees aged? Was there evidence of old burned wood, or stumps on the ground? What did Historical survey and mining era records show?

Response to Comment No. 4-79:

See response to Comment 4-76 (Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-juniper) regarding studies used to identify and age pinyon-junipers within the 3 Bars Project area. Eastern Nevada Landscape Coalition was not involved in pinyon-juniper mapping. Final EIS Section 3.12.2.6, Native and Non-invasive Vegetation Resources, Historic Use of Pinyon-juniper Woodlands, discusses the historic use of pinyon-juniper woodlands within and near the 3 Bars Project area. Only about a sixth to a third of the area with pinyon-junipers would be treated during the life of the proposed 3 Bars Project under Alternative A. Of this area, about 80 percent consists of Phase I and Phase II pinyon-juniper. For many projects, only a portion of trees would be removed (thinned).

Comment No. 4-80 from Western Watersheds Project:

BLM claims it plans to keep old growth trees greater than 150 years in Phase I and Phase II elimination zones. Where are all such trees? How were they inventoried and identified? Doesn't the presence of the old growth trees show you that they are the naturally occurring native vegetation communities on these sites, or at a minimum – a very important component of the native vegetation community and biodiversity?

Response to Comment No. 4-80:

See response to Comment 4-76 (Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-juniper). Old-growth pinyon-juniper stands are shown on Final EIS Figure 3-27, Pinyon-juniper Phase Classes. Because of their importance to wildlife, wild horses, Native Americans, general public, and other users, pinyon-junipers are an important component of the native vegetation community and contribute to the biodiversity on the 3 Bars Project area; they are one of four treatment groups evaluated in the EIS. As noted for the purposes of the project in Final EIS Section 1.5 (Purposes of the Project), proposed BLM treatments include efforts to manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands and to manage pinyon-juniper and other woodlands stands to benefit wildlife, and Native Americans that use these trees for medicinal purposes.

Comment No. 4-82 from Western Watersheds Project:

BLM must assess where the significant impacts of continued grazing disturbance are: Retarding passive restoration and failing to allow native understories and microbiotic crusts to recover, and/or conflicts with the recovery of treated lands and also with the needs of sensitive species. A recent Ninth Circuit decision specifically said that at the Project

level, BLM needed to consider livestock allocations. In order to address the livestock grazing conflicts with restoration, biodiversity, HMAs, etc. and the degree to which continued livestock grazing will promote hazardous flammable fuels, this EIS is the appropriate and proper place to do so.

Response to Comment No. 4-82:

Impacts to resources from the proposed actions and cumulative impacts, including from livestock grazing, can be found in Chapter 3 for each resource in the Environmental Consequences sections.

Comment No. 4-202 from Western Watersheds Project:

The D[raft] EIS states that PJ [pinyon-juniper] now covers (only) approx[imately] 25% of the project area. (Phase II and III). The Ecological [Site] description finds trees should be present on 27 % of the area. So why the need for massive expensive treatments?

Response to Comment No. 4-202:

See response to Comment 4-197 (Native and Non-invasive Vegetation Resources – Affected Environment).

Comment No. 4-205 from Western Watersheds Project:

BLM repeatedly cites Romme 2007, ignoring the series of Romme et al. 2009 papers that undermine the long-held myths perpetuated by Miller (who has always been dramatically wrong about sage-brush) and Tausch who does not concern himself with understanding the impacts of historical mining deforestation in the Great Basin but yet has always drawn sweeping conclusions about PJ [pinyon-juniper] communities.

Response to Comment No. 4-205:

The BLM included the Romme et al. (2007) article entitled *Historical and Modern Disturbance Regimes, Stand Structures, and Landscape Dynamics in Pinon-Juniper Vegetation of the Western United States* in Draft EIS Section 3.12.2.2.9, Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodland. This article was referenced in the discussion of pinyon-juniper phase classes. For the Final EIS, the BLM has included information from the article, which was published in 2009 in the journal Rangeland Ecology and Management, on the mechanisms of infill and expansion, and other papers that discuss pinyon-juniper infill and expansion, in Section 3.12.2.2.9, Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodland.

Comment No. 4-206 from Western Watersheds Project:

Generally, areas of potential expansion are areas in which pinyon-juniper woodlands have not historically been …What does this mean? Is BLM treating areas where the trees are not yet present?

Response to Comment No. 4-206:

As discussed in Section 3.12.2.2.9 (Native and Non-invasive Vegetation Resource, Pinyon-juniper) of the Final EIS (and on page 3-177 of the Draft EIS), where this statement is referenced, generally, areas of potential expansion are areas in which pinyon-juniper woodlands have not historically been present, such as sagebrush and riparian habitat. Pinyon-juniper have begun to encroach into these areas (Phase I), and the BLM proposes to use manual and other methods to remove a portion of pinyon-juniper currently found in these areas before they have the opportunity to

dominate the area and lead to the loss of vegetation that is, and historically has been, the dominant vegetation on the treatment area.

Comment No. 4-207 from Western Watersheds Project:

How do you end up delineating the area into Juniper Phases if there are not trees? Is this done to justify spending more money on million dollar EISs?

Response to Comment No. 4-207:

Only areas with pinyon-juniper were mapped on Final EIS Figure 3-27, Pinyon-juniper Phase Classes. In Phase I areas and to a lesser extent in Phase II areas, however, pinyon-juniper are generally scattered and do not cover most or all of the area. Areas that did not include pinyon-juniper were mapped as other vegetation types, as shown on Figures 3-25 (Current Vegetation Communities) and 3-26 (Major Vegetation Communities in the 3 Bars Project Area based on Ecological Site Data).

D.5.10.3 Native and Non-invasive Vegetation Resources – Affected Environment - Sagebrush

Comment No. 4-50 from Western Watersheds Project:

Try figuring out just how little sage[brush] the Ecosites [Ecological Site Descriptions] claim should be present - not enough to hide a sagebrush vole, let alone a pygmy rabbit. A Supplemental EIS must be prepared t[o] examine this factor alone.

Response to Comment No. 4-50:

As discussed in Section 3.12.2.2, Affected Environment, Vegetation Communities, and shown on Figures 3-25 (Current Vegetation Communities) and 3-26 (Major Vegetation Communities in the 3 Bars Project Area based on Ecological Site Data) of the Final EIS, there are approximately 430,709 acres of sagebrush on the 3 Bars Project area, comprised of big sagebrush, low sagebrush, and black sagebrush. Sagebrush comprises about 57 percent of the 3 Bars Project area. Based on studies conducted by the USDA Natural Resources Conservation Service (2012), approximately 460,144 acres of sagebrush are expected on the area, with about half of the difference associated with the black sagebrush community. As discussed in Final EIS Section 2.3 1.4, Sagebrush Treatments, the BLM proposes to treat approximately 31,300 acres to enhance sagebrush habitat; much of this acreage would include treatments to reseed or replant sagebrush in areas that are degraded, but historically contained sagebrush habitat.

Comment No. 4-53 from Western Watersheds Project:

BLM and the false Ecosites [Ecological Site Descriptions] ignore the recent work by Bukowski and Baker and others that show naturally dense sagebrush was historically commonplace across the Great Basin. They ignore the work by Romme et al., Lanner and Frazier 2012, and the classic work on Nevada's PJ [pinyon-juniper] communities – Dr. Ron Lanner's *The Pinyon Pine.*

Response to Comment No. 4-53:

See response to Comment 4-205, Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-juniper. The BLM included information on historical fire regimes in sagebrush landscapes from the Bukowski and

Baker (2013) paper in Final EIS Section 3.12.2.2.2, Native and Non-invasive Vegetation Resources, Big Sagebrush. As discussed in Final EIS Section 3.2, Summary of Major Changes between the Draft and Final EIS, the BLM is no longer proposing to thin sagebrush within the 3 Bars Project area.

Comment No. 4-203 from Western Watersheds Project:

What is the basis for the 20 to 35 percent canopy cover claims for mixed Wyoming big sage[brush], juniper sites "assumed to be representative"? What specific reference sites and other information are all these percentages based on?

Response to Comment No. 4-203:

See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment).

D.5.10.4 Native and Non-invasive Vegetation Resources – Assessment Methodology – Baseline Studies

Comment No. 4-26 from Western Watersheds Project:

BLM has not conducted the systematic baseline species, resource and habitat use inventories necessary to understand how severe the impacts will be, and if there is enough population or habitat or perennial water flow to absorb the habitat destruction and bioengineering bulldozing blows the projects will unleash. This is all necessary to understand the sustainability of the resources affected and/or threatened by the project. These are ALL the resources and values of the public lands BLM discusses in EIS These inventories must be conducted across the entire project area and surrounding lands. BLM cannot rely on the severely flawed AECOM ENLC [Eastern Nevada Landscape Coalition] vegetation info[rmation] in this at all - which finds nearly all lands unhealthy, and where almost the only way an areas would be considered healthy would be to destroy all the woody vegetation structure that the sensitive sage[brush] and PJ [pinyon-juniper] species rely upon, and that serves to protect watersheds.

Response to Comment No. 4-26:

As discussed in response to Comments 4-78 (Assessment Methodology - General) and 4-148 (Assessment Methodology – Baseline Studies), the BLM, other agencies, and contractors have conducted numerous studies of the natural resources found on the 3 Bars Project area. These included studies for the Mount Hope Mine Project and 3 Bars Project. The *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012) describes the methods and results of a study to evaluate rangeland health on the 3 Bars Project area. The BLM has also conducted studies of rangeland health on those areas within the 3 Bars Project area that were not evaluated by Eastern Nevada Landscape Coalition. Rangeland health is defined as "the degree to which the integrity of the soil, vegetation, water, and air, as well as the ecological processes of the rangeland ecosystem are balanced and sustained." Integrity in this circumstance is defined as "maintenance of the functional attributes characteristic of a locale, including normal variability" (University of Nevada Cooperative Extension et al. 2006).

The rangeland health assessments followed established protocols developed by the BLM and other federal and state agencies, as described in Section 2 of the *Landscape Restoration Project Rangeland Health Report.* The rangeland health assessment conducted by Eastern Nevada Landscape Coalition was not designed to identify the cause(s) of resource problems, or suggests treatments to restore degraded resources, but to identify areas that are degraded or are

at risk of degradation. The information derived from the report will be used by the BLM to determine rangeland health and to facilitate corrective actions to improve rangeland health.

Comment No. 4-49 from Western Watersheds Project:

We stress that the interested public was not informed of these assessments, even though they greatly impact the fate of grazing allotments and HMAs.

Response to Comment No. 4-49:

The *Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a) was provided to the public at the time of public scoping (early 2010). This document referenced several field studies that were needed in support of the 3 Bars Project EIS. Field studies associated with the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012) were just beginning at the time of public scoping, and were not completed until about a year after scoping concluded; it took another year to prepare the report. Several other field studies conducted for the 3 Bars Project, including pinyon-juniper (AECOM 2011a) and cheatgrass (AECOM 2011b) studies, were not completed until 2012. Please contact the BLM Mount Lewis Field Office if you would like to review these documents.

Comment No. 4-196 from Western Watersheds Project:

It is entirely inadequate to merely rely on Mount Hope rare plant studies –as they were conducted over only one small part of this very large and significant land area.

Response to Comment No. 4-196:

The BLM relied on several sources for information on rare plants as discussed in Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, of the Final EIS, including the Mount Hope Mine Project EIS, Nevada Natural Heritage Program and Nevada Native Plant Society databases and resources, and observations from BLM and other state and federal agency scientists, including the USFWS. As discussed in Final EIS Appendix C, Section C.3.2.2, Special Status Species, "before any vegetation treatment or ground disturbance occurs, BLM policy requires that the Mount Lewis Field Office survey the treatment site for species listed or proposed for listing, and for special status species. This must be done by a qualified biologist and/or botanist who consults the state and local databases and visits the site during the appropriate season." By consulting previous studies and conducting pre-treatment surveys, potential risks to rare plants should be avoided or minimized.

Comment No. 4-223 from Western Watersheds Project:

BLM states that: *No focused special status plant surveys have been conducted in support of this project.* Well, if BLM truly was interested in native vegetation, protection of biodiversity, etc. it would have systematically conducted special status plant surveys across the project area.

Response to Comment No. 4-223:

See response to Comment 4-196 (Native and Non-invasive Vegetation Resources – Assessment Methodology – Baseline Studies).

D.5.10.5 Native and Non-invasive Vegetation Resources – Assessment Methodology–- Key Management Areas

Comment No. 4-141 from Western Watersheds Project:

We are concerned that BLM arbitrarily cherry-picked 70 new key areas (or was it AECOM/ENLC [Eastern Nevada Landscape Coalition]?), but does not appear to have involved the public in this. We are concerned that there appears no rationale for why the particular allotments were selected.

Response to Comment No. 4-141:

Rangeland health studies included assessments of the ecological status and erosion potential at 70 Key Management Areas (KMAs) found within the 3-Bars ecosystem. KMAs are indicators that are able to reflect what is happening on a larger area because of on the ground management actions. The KMAs were established by the BLM based on the following criteria: area selected representative of a larger area of interest (i.e. wildlife habitat or livestock grazing); area is located within a single ecological site and plant community; area contains key species; and the area is capable of, and likely to show, a response to management actions, this response should be indicative of the response that is occurring on larger scale. Nearly all of the proposed treatment areas are found within areas evaluated with KMAs.

D.5.10.6 Native and Non-invasive Vegetation Resources – Assessment Methodology – Modeling

Comment No. 4-27 from Western Watersheds Project:

So just how does this current D[raft]EIS mapping and info[rmation] differ from Scoping info? Wasn't that the basic information that was used (at least in part) in developing the treatments? The agency, still bound at the hip with the livestock industry, continues to rely on flawed livestock forage-biased NRCS [Natural Resources Conservation Service] Ecosite [Ecological Site Descriptions] and Soil Survey models, and severely flawed FRCC [Fire Regime Condition Class] and other schemes. These models claim, essentially, that pinyon-juniper should not occur across vast areas of this landscape - including right here in the very elevation and precipitation range where plant ecologists have long recognized they naturally occur. This is also the same elevation and precipitation range where General Land Office Records from the original land surveys conducted across Nevada show that pinyon-juniper was historically the naturally occurring natural climax vegetation type.

Response to Comment No. 4-27:

See response to Comment 4-78 (Assessment Methodology - General) regarding mapping done for public scoping and Ecological Site Inventories conducted by the USDA Natural Resources Conservation Service. As shown on Figure 3-27, Pinyon-juniper Phase Classes, and discussed in Final EIS Section 3.12.2.2.9, Native and Non-invasive Vegetation Resources, Pinyon-juniper Woodlands, pinyon-juniper is found on about 209,176 acres in Phases II and III, and another 118,000 in Phase I, or about 43 percent of the 3 Bars Project area (although trees are more widely scattered in areas with Phase I and II areas). Thus, pinyon-juniper has been mapped on over 40 percent of the 3 Bars Project area. Phase III areas are those with dense stands of pinyon-juniper, including climax communities, and comprise about 19 percent of all pinyon-juniper acreage. Section 3.12.2.6, Native and Non-invasive Vegetation Resources, Historic Use of Pinyon-juniper Woodlands, of the Final EIS discusses the historic use of pinyon-juniper woodlands within the 3 Bars Project area.

Comment No. 4-28 from Western Watersheds Project:

And, where the trees do occur, and where there is any mature or old growth sage[brush] (i.e. sensitive species habitat), the models claim the sage[brush] and trees are 'unhealthy" "decadent", and only killing a lot of it to foster forage grasses can result in a "healthy" (based on the flawed models) landscape.

Response to Comment No. 4-28:

See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment) and Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, on how Ecological Site Descriptions were developed for the 3 Bars Project area and used in the vegetation analysis for the EIS. These descriptions are used to determine the Potential Natural Community, as shown in Table 3-30 (Ecological Sites for Pinyon-juniper Community) of the EIS for pinyon-juniper. They do not provide information on the health of the pinyon-juniper community. The health of pinyon-juniper stands in proposed 3 Bars Project treatment areas was determined by on-the-ground assessments conducted by the BLM. As discussed under response to Comment 4-80 (Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-Juniper), proposed BLM treatments include efforts to manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands and to manage pinyon-juniper and other woodlands stands to benefit wildlife, and Native Americans that use these trees for medicinal purposes (see Final EIS Section 1.5, Purposes for the Project). These include treatments to improve production of forage to benefit wildlife and wild horses.

Comment No. 4-29 from Western Watersheds Project:

This flawed reasoning must be set aside by BLM. You can't save this landscape by the equivalent of waging war on it and killing off the woody vegetation as the "enemy". The NRCS [Natural Resources Conservation Service] Ecosites [Ecological Site Descriptions] are modeled, not based on reality. In Nevada, many of the recent soil surveys were done based on only the vegetation that was currently growing on the sites, with no effort to examine the site history, historical natural vegetation, (like wood stumps, burned wood, etc.) etc. They were also conducted long after BLM's massive "treatment" wave that started in the 1950s, which was preceded of course by massive mining era deforestation (see Dr. Ron Lanner's book The Pinyon Pine), and chronic promiscuous burning by sheepherders and others in the late 1800s and early 1900s. They are based on incorrect assumptions about the natural woody vegetation occurrence, woody vegetation density, and incorrect claims about fire return intervals as well. They are also strikingly biased towards grass (vs. sage[brush] and trees and critical microbiotic crusts). They rely upon inaccurate fire disturbance and historical range of variability information.

Response to Comment No. 4-29:

See response to Comment 4-78 (Assessment Methodology - General) regarding mapping done for public scoping and Ecological Site Inventories conducted by the USDA Natural Resources Conservation Service. See response to Comment 4-76 (Native and Non-invasive Vegetation Resources – Affected Environment –Pinyon-juniper) for a discussion of field studies to assess pinyon-juniper found on the 3 Bars Project area. Section 3.12.2.6, Native and Non-invasive Vegetation Resources, Historic Use of Pinyon-juniper Woodlands, of the Final EIS discusses the historic use of pinyon-juniper woodlands within the 3 Bars Project area. The BLM has no intention to remove all of the woody vegetation on the 3 Bars Project area. As discussed under response to Comment 4-80 (Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-Juniper), proposed BLM treatments include efforts to manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands and to manage

pinyon-juniper and other woodlands stands to benefit wildlife, and Native Americans that use these trees for medicinal purposes (see Final EIS Section 1.5, Purposes for the Project). Removal of pinyon-juniper would primarily occur in Phase I stands where trees are encroaching into other vegetation communities, such as riparian and sagebrush. Treatments in Phase II and III stands would primarily focus on removing decadent and diseased trees to reduce hazardous fuels and to improve woodland health, as discussed in Final EIS Sections 2.3.1.3, Alternatives, Pinyon-juniper Treatments, and 3.12.3, Native and Non-invasive Vegetation Resources, Environmental Consequences.

D.5.10.7 Native and Non-invasive Vegetation Resources – Assessment Methodology – Pinyon-juniper

Comment No. 4-214 from Western Watersheds Project:

How has BLM determined areas of potential expansion?

Response to Comment No. 4-214:

See response to Comment 4-79 (Native and Non-invasive Vegetation Resources – Affected Environment –Pinyon-Juniper) for a discussion of field studies to assess pinyon-juniper found on the 3 Bars Project area. More detailed information is found in Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, and in the *3 Bars Ecosystem and Landscape Restoration Project Pinyon-juniper Assessment* (AECOM 2011a).

D.5.10.8 Native and Non-invasive Vegetation Resources – Assessment Methodology – Rangeland Health

Comment No. 4-142 from Western Watersheds Project:

Honestly and accurately conduct valid rangeland health assessments. These are not properly selected sites or properly conducted assessments under the FRH [Fundamentals of Rangeland Handbook].

Response to Comment No. 4-142:

See response to Comment s4-26 and 4-78 (Assessment Methodology - General).

Comment No. 4-199 from Western Watersheds Project:

Yet BLM's AECOM/ENLC [Eastern Nevada Landscape Coalition] reporting is developed to maximize disturbance, and this greatly biases the EIS alternatives against passive restoration.

Response to Comment No. 4-199:

See response to Comment 4-26 (Native and Non-invasive Vegetation Resources - Assessment Methodology – Baseline Studies). The rangeland health assessments conducted by Eastern Nevada Landscape Coalition and the BLM, were not designed to identify the cause(s) of resource problems, or suggest treatments to restore degraded resources, but to identify areas that are degraded or are at risk of degradation. The information derived from these assessments is being used by the BLM to determine rangeland health and to facilitate corrective actions to improve rangeland health. As discussed in Chapter 2 of the EIS, alternatives were developed to respond to the purposes and

needs for the 3 Bars Project, as discussed in Chapter 1. Alternatives differ by methods used and acres treated, and include Alternative C, the Minimal Land Disturbance Alternative, which only involves the use of manual and classical biological control methods, which would have cause little disturbance to the land. All action alternatives, however, would seek to improve rangeland health.

Comment No. 4-215 from Western Watersheds Project:

How were the KMAs in the so-called range health assessment that ENLC [Eastern Nevada Landscape Coalition] was involved in, selected? Are these the BLM "trend" sites – if so, those are specifically selected for measuring cow utilization, are often not representative at all of rugged or rough areas, or areas that actually receive a significant amount of livestock use. They provide no valid basis for conducting a systematic rangeland health assessment.

Response to Comment No. 4-215:

See response to Comment 4-141 (Native and Non-invasive Vegetation Resources – Assessment Methodology–- Key Management Areas).

Comment No. 4-216 from Western Watersheds Project:

Why did ENLC [Eastern Nevada Landscape Coalition] conduct rangeland health studies in December? Forbs would be all dried up and scarcely noticeable. This, of course, would bias the outcome of the "health" assessment to come out more unhealthy, and thus in need of treatment. How severe were the sites grazed? Was there snow?

Response to Comment No. 4-216:

Data collection for the rangeland health assessment was conducted by Eastern Nevada Landscape Coalition during fall 2009, including 1 week in December, and spring and summer 2010. Utilization data were collected during fall 2009.

BLM protocol does not require measuring the utilization of forbs for rangelands, but does require measuring the utilization of perennial grasses and shrubs. Thus, the condition of forbs during late fall 2009 was not a factor in determining utilization.

Eastern Nevada Landscape Coalition did not collect field data if snow impeded the viewing of plants. Snow was scarce during fall 2009, and where it occurred it was patchy and primarily under shrubs. Eastern Nevada Landscape Coalition normally does not collect utilization data under shrub canopies because cattle typically graze in the interspaces. Figure 3-44 (Range Use and Treatment Areas) in the 3 Bars Project EIS shows areas with moderate to severe range use.

Comment No. 4-218 from Western Watersheds Project:

Production is a measurement of the above-ground weight of the sampled vegetation. Desired dominance ??? refers to the species types that should be present on an ecological site given its stage of succession ???[Succession to WHAT climax community?]. The Potential Natural Community is a measurement of composition, not to be confused with production. A site could be experiencing high production, but have low Potential Natural Community, if it is only producing a single grass, forb, or shrub … species. Where do diverse and intact microbiotic crusts fit into this??? BLM has developed false models that allow it find nearly all lands in the Great Basin unhealthy - due to the vegetation and not current chronic livestock grazing disturbance - and thus in need of very expensive treatment.

Response to Comment No. 4-218:

See response to Comment 4-141 (Native and Non-invasive Vegetation Resources – Assessment Methodology–- Key Management Areas) for a discussion of how rangeland health assessments were conducted by Eastern Nevada Landscape Coalition and the BLM. Measurements of biological soil crusts were not part of the assessment.

D.5.10.9 Native and Non-invasive Vegetation Resources – Assessment Methodology – Sagebrush

Comment No. 4-30 from Western Watersheds Project:

Miller and Rose claimed astonishingly short sagebrush disturbance intervals, despite a large body of evidence available even at the time that this was wrong. Given the preponderance of evidence that these researchers whose slanted work forms the basis of Ecosites [Ecological Site Descriptions] and models that BLM and its contractors use, but who are so often wrong, BLM must issue a Supplemental D[raft]EIS that actually takes a careful and hard look at the historical record that refutes Miller, Perryman and others.

Response to Comment No. 4-30:

It is not clear what Miller and Rose study is being referred to by the commenter. See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment) and Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, on how Ecological Site Descriptions were developed for the 3 Bars Project area and used in the vegetation analysis for the EIS. See response to Comment 4-26 (Native and Non-invasive Vegetation Resources - Assessment Methodology – Baseline Studies) regarding how rangeland health assessments conducted by Eastern Nevada Landscape Coalition and the BLM were used to identify areas that are degraded or are at risk of degradation based on the Potential Natural Community. Studies conducted by Miller and others (see Chapter 5, References) were used to determine how to assess the status and condition of pinyon-juniper communities, but not to determine the Ecological Site Description or Potential Natural Community. The BLM is aware of the fire return intervals for sagebrush, as discussed in Final EIS Section 3.14, Wildland Fire and Management, and would take this into consideration before conducting treatments in sagebrush. Also see response to Comment 4-53 (Native and Non-invasive Vegetation Resources – Affected Environment – Sagebrush) regarding information on historical fire regimes in sagebrush landscapes from the Bukowski and Baker (2013) paper that is included in Final EIS Section 3.12.2.2.2, Native and Non-invasive Vegetation Resources, Big Sagebrush. As discussed in Final EIS Section 2.2, Alternatives, Summary of Major Changes between the Draft and Final EIS, the BLM is no longer proposing to thin sagebrush within the 3 Bars Project area.

D.5.10.10 Native and Non-invasive Vegetation Resources – Cumulative Effects

Comment No. 4-61 from Western Watersheds Project:

… decrease in pine nut production and tree vigor. What role has drought had in this, or impacts of livestock compacting soils and otherwise influencing ecological processes? How has BLM determined what causal factors may be pine nut production changes; decrease in the occurrence and health of traditional, edible, and medicinal plants used by Native Americans; What role has livestock grazing had in this decrease?

Response to Comment No. 4-61:

A number of factors, including drought and livestock grazing, could contribute to a decline in woodland species and health and pine nut production and vigor as discussed in Final EIS Section 3.5.2.2 (Climate Change), and the Cumulative Effects sections for Native and Non-invasive Vegetation Resources (Section 3.12.3.4) and Native American Traditional/Cultural Values, Practices, and Resources (Section 3.24.3.4). The reduction of pine nut production is of concern to the BLM. In recognition of the importance of pine nut production to Native Americans and other users, as discussed under response to Comment 4-80 (Native and Non-invasive Vegetation Resources – Affected Environment – Pinyon-Juniper), proposed BLM treatments include efforts to manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands and to manage pinyon-juniper and other woodlands stands to benefit wildlife, and Native Americans that use these trees for medicinal purposes (also see Final EIS Section 1.5, Purposes of the Project).

Comment No. 4-62 from Western Watersheds Project:

... decline in woodland species and health.

Response to Comment No. 4-62:

See response to Comment 4-61 (Native and Non-invasive Vegetation Resources - Cumulative Effects).

D.5.10.11 Native and Non-invasive Vegetation Resources – Environmental Consequences

Comment No. 4-45 from Western Watersheds Project:

"Mosaic" treatment is also the perfect recipe for maximizing rapid-fire cheatgrass and other invasive species spread across the landscape. Instead of doing what BLM used to do – essentially level a square section of land – the very harmful mosaic scheme will maximize acreage of native vegetation exposed to increased weed risk will be spread out over much larger areas – thus making weed risk exponentially greater and exponentially harder to deal with.

Response to Comment No. 4-45:

Based on public comments on the Draft EIS, the BLM no longer plans to burn or thin sagebrush.. Although seeding and planting treatments could result in the short-term establishment and spread of cheatgrass, as discussed in Final EIS Section 3.12.3 under Sagebrush Treatments, the BLM would use methods and SOPs to minimize this risk. In riparian and sagebrush areas, the BLM plans to use plantings and seedings of native vegetation, and in a few areas with non-native grasses, to restore areas degraded by cheatgrass as discussed in Final EIS Sections 3.12.3.6 and 3.16.3.6, Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity, to the benefit of vegetation and wildlife.

Comment No. 4-51 from Western Watersheds Project:

Natural succession is natural succession, it is not "encroachment". In order to understand succession, BLM must first determine the natural historical vegetation community on the site. The use of the Nevada NRCS [Natural Resources Conservation Service] Ecosites [Ecological Site Descriptions] and ENLC's [Eastern Nevada Landscape Coalition] models will not enable the BLM to do this.

Response to Comment No. 4-51:

We agree that "natural succession is natural succession." As discussed in Final EIS Section 1.6, Need for the Project, the 3 Bars ecosystem has long been recognized as an area in resource conflict due to the many and often competing uses occurring within the ecosystem. Some of these uses include mineral exploration and development, livestock grazing, woodland product harvest, recreation, and wilderness activities. In addition to competing land uses, other factors affecting land uses and health in the ecosystem result from the effects of past grazing practices, changes to the natural fire regime, establishment and spread of noxious weeds and other invasive non-native species, and expansion and densification of pinyon-juniper woodlands. Collectively, these have caused substantial changes in the native vegetation community and loss of important ecosystem components, and have altered natural succession. Based on these changes, the BLM has determined that there is a need to improve rangeland health in some areas and to provide a sustainable habitat for wildlife.

As discussed in response to Comment 4-217, Native and Non-invasive Vegetation Resources – Affected Environment, the successional status shown in Figure 3-28 (Current Rangeland Conditions) is based on the relationship between vegetation found on the area in comparison to the Potential Natural Community. As discussed in Section 2.1.1 of the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012), "a potential natural community is defined as the biotic community that would become established on an ecological site if all successional sequences (i.e., natural succession) were completed without interference by people under the present environmental conditions (Habich 2001). Potential natural community production is based on the Ecological Site Description for the site." See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment) and Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, on how Ecological Site Descriptions were developed for the 3 Bars Project area and used in the vegetation analysis for the EIS.

Comment No. 4-159 from Western Watersheds Project:

The ENLC [Eastern Nevada Landscape Coalition] AECOM info relies on Ecosite descriptions that claim that minimal sage[brush] canopy cover is an ideal state.

Response to Comment No. 4-159:

See response to Comment 4-204 (Native and Non-invasive Vegetation Resources – Affected Environment) and Final EIS Section 3.12.2.1, Native and Non-invasive Vegetation Resources, Study Methods and Analysis Area, on how Ecological Site Descriptions were developed for the 3 Bars Project area and used in the vegetation analysis for the EIS. The *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012) did not make claims regarding the ideal amount of sagebrush that should occur on the landscape. Based on the Potential Natural Community descriptions for sagebrush given in Final EIS Tables 3-24 and 3-25, the Potential Natural Community is comprised grasses, forbs, and shrubs, without about a 10 to 50 percent cover of shrubs, including sagebrush, and generally with more than a 30 percent cover of shrubs.

Comment No. 4-178 from Western Watersheds Project:

BLM ignores literature that shows prescribed fire kills native grasses. See Bunting paper on Idaho fescue, USFS [U.S. Department of Agriculture Forest Service] Fire Effects database describing fire impacts on native grasses.

Response to Comment No. 4-178:

The BLM agrees that prescribed fire kills non-target native grasses. However, as discussed in Final EIS Section 3.12.3.3, Native and Non-invasive Vegetation Resources, Environmental Consequences, Direct and Indirect Effects, fire can also enhance native plant (re)establishment in areas where noxious weeds and other invasive, non-native vegetation, or pinyon-juniper, dominate a site and exclude native grasses and other desirable vegetation. The BLM would limit burning in sagebrush units to the West Simpson Park unit, which is dominated by cheatgrass and other non-native vegetation; no burning would be conducted in areas dominated by sagebrush.

D.5.10.12 Native and Non-invasive Vegetation Resources – Environmental Consequences - Aspen

Comment No. 4-75 from Western Watersheds Project:

So why is BLM not focusing on removing livestock browse pressure and pressure to sensitive watersheds, and/or applying mandatory measurable use standards that sharply limit aspen browse? These must be conservative standards of 5 to 10% or less of readily accessible aspen suckers can show any browsing impacts.

Response to Comment No. 4-75:

See response to Comment 4-10 (Livestock Grazing – Environmental Consequences).

D.5.10.13 Native and Non-invasive Vegetation Resources – Environmental Consequences – Pinyon-juniper

Comment No. 4-94 from Western Watersheds Project:

The D[raft]EIS Preferred Alt.[ernative] will thin (or completely wipe out) reforesting persistent woodland sites (Phase I and II), does not protect old growth through its profligate use of fire, aggressive mechanical methods are likely to injure old growth and/or cause insect infestations due to attraction of pinyon insects to pitch in tree wounds. Wood chips attract insects as well. Thus, tree mortality will ultimately be much greater than the just the trees killed outright in the treatments.

Response to Comment No. 4-94:

Pinyon-juniper phase classes and old-growth stands were mapped for the 3 Bars Project EIS (Figure 3-27t, Pinyon-juniper Phase Classes). The BLM has no plans to conduct fire treatments in old-growth areas, while manual and mechanical methods would be favored in areas where the BLM would like to avoid harming old-growth pinyon-juniper, because the BLM would have greater control over the area treated using these methods. Felled or downed trees could be chipped for use as mulch, and this mulch could attract insects. However, its value in retaining moisture, reducing erosion, and preventing establishment of noxious weeds and other invasive non-native vegetation likely outweighs the risk of insect infestation of nearby pinyon-juniper stands. One of the 3 Bars Project goals is manage pinyon-juniper woodlands to promote healthy, diverse stands, by thinning pinyon-juniper and removing diseased and decadent trees. By promoting pinyon-juniper health, the BLM should discourage insect infestations that can harm or kill remaining and future pinyon-juniper trees by making trees more resistant to insect infestation.

Comment No. 4-209 from Western Watersheds Project:

Decreased tree vigor and pine nut production. How much impact is drought having on this? Or livestock soil compaction?

Response to Comment No. 4-209:

See response to Comments 4-61 ((Native and Non-invasive Vegetation Resources - Cumulative Effects).

Comment No. 4-225 from Western Watersheds Project:

The BLM plans to conduct most burns on Phase II or Phase III sites to initiate stand replacement and to avoid impacts to shrubby vegetation including sagebrush. These sites generally have a depleted understory … Doesn't even Miller say not to burn these sites??? WHAT does all this self-serving circular reasoning nonsense mean?

Response to Comment No. 4-225:

Prescribed fire, manual, and mechanical treatments would be used to manage pinyon-juniper. As discussed in 3 Bars Project Final EIS Section 12.3.3 under Native and Non-invasive Vegetation, Environmental Consequences, Pinyon-juniper Treatments, "prescribed fire treatments can produce desirable results on sites with woodlands in Phases I and II particularly when there is an abundance of perennial natives in the understory (Tausch et al. 2009). The BLM plans to conduct most burns on Phase II or Phase III sites to initiate stand replacement and to avoid impacts to shrubby vegetation including sagebrush. These sites generally have a depleted understory, thus 1) fire may be difficult to carry through the stand as a result of limited ground and ladder fuels, 2) treatment may be more costly due to the need for higher inputs, and 3) site response may be less predictable and has a lower potential for success (for example, more annuals versus perennials may establish as a response to fire compared to treating sites that are in earlier stages of woodland succession). Where tree dominance is high and woodlands are contiguous, crown fires can rapidly cover large areas. When pinyon pines dominate, their bark can easily carry fire into the crown. When weeds, such as cheatgrass, are present on the site, risk of failure is increased, especially if the site is warm and dry, or where soils are shallow or fine-textured. Hydrophobicity can be a problem directly beneath the tree canopy resulting in limited seedling establishment and increased soil erosion (Tausch et al. 2009). Thus, to limit these risks, the BLM may also use mechanical treatments to increase native herbaceous vegetation prior to burning and improve the potential for successful prescribed fire treatments."

As noted on page 3-216 of the Draft EIS, several studies do suggest that dense stands of Phase II and III Class pinyon-juniper stands cannot be managed effectively by fire alone. Manual and mechanical treatments without the use of fire, however, generally do not provide long-term control if pinyon-juniper remains nearby. As noted in Section 2.2, Summary of Major Changes between the Draft and Final EIS, the BLM has made modifications to proposed treatments based on public input. These include using manual treatments to remove most, if not all, pinyon-juniper in riparian and aspen treatment units; Phase I pinyon-juniper in pinyon-juniper treatment units; and Phase I and II, and often Phase III pinyon-juniper in sagebrush treatment units.

D.5.11 Noxious Weeds and other Invasive Non-native Vegetation

D.5.11.1 Noxious Weeds and other Invasive Non-native Vegetation – Affected Environment

Comment No. 4-227 from Western Watersheds Project:

Figure 3-33 [of the Draft EIS] shows no cheatgrass, and no cheatgrass potential. Where is the mapping, and what assumptions were used? Who did it? Was ENLC [Eastern Nevada Landscape Coalition] involved?

Response to Comment No. 4-227:

As shown by the blue polygons on Final EIS Figure 3-32, Cheatgrass and other Weeds, cheatgrass is found at numerous locations throughout the 3 Bars Project area. Areas within the "Large Fire Perimeter" shown on Figure 3-33, Fire History and Occurrence, are areas with cheatgrass potential, along with roads and other rights-of-way. A *3 Bars Ecosystem and Landscape Restoration Project Cheatgrass Assessment* was prepared for the 3 Bars Project EIS that summarized the results from an assessment of the occurrence and distribution of cheatgrass and other noxious weeds and invasive non-native vegetation on the 3 Bars ecosystem (AECOM 2011b). This assessment was conducted by AECOM but also included records of cheatgrass occurrence found during rangeland health studies conducted by Eastern Nevada Landscape Coalition for the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and AECOM 2012).

Comment No. 4-228 from Western Watersheds Project:

How in the world could BLM do an EIS and not even know where cheatgrass is located in the project area? BLM must conduct a Supplemental EIS based on this shortcoming alone.

Response to Comment No. 4-228:

See response to Comment 4-227 (Noxious Weeds and other Invasive Non-native Vegetation – Affected Environment). As discussed in Appendix C, Standard Operating Procedures, all treatment units would be inventoried for cheatgrass and treated, if necessary, prior to project implementation in a unit.

D.5.11.2 Noxious Weeds and other Invasive Non-native Vegetation – Environmental Consequences

Comment No. 4-9 from Western Watersheds Project:

How much will cheatgrass increase in 10 years with and without the projects? In 20 years? How much herbicide will be used, and what kinds, and where – under the various alternatives? What non-target vegetation or habitats will be impaired?

Response to Comment No. 4-9:

It would be extremely difficult to predict cheatgrass acreage on the 3 Bars Project area in 10, 20, or more years with or without the project. Numerous reasonably foreseeable, and unforeseeable, factors would contribute the establishment and spread, or removal, of cheatgrass on the 3 Bars Project landscape, based on the discussion in Final

EIS Section 3.13.3.4, Cumulative Effects, Noxious Weeds and other Invasive Non-Native Vegetation. It is anticipated, however, that cheatgrass acreage on the 3 Bars Project area would decrease long-term, assuming adequate funding is available to conduct treatments proposed under Alternative A.

Only manual, mechanical, and biological control methods, and fire use (prescribed fire and wildland fire for resource benefit) are evaluated in the 3 Bars Project EIS. As discussed in Final EIS Section 3.3.2.3.3, Past, Present, and Reasonably Foreseeable Future Actions, the BLM can use herbicides to control local occurrences of noxious weeds and other invasive non-native vegetation as authorized by the *Environmental Assessment Integrated Weed Management Plan Battle Mountain District Nevada Mt. Lewis Field Office and Tonopah Field Office* (USDOI BLM 2009b). The BLM can also use herbicides on areas burned by wildfires under Burned Area Emergency Stabilization and Rehabilitation authorizations.

The BLM is authorized to use the 18 herbicide active ingredients authorized in the 17-States PEIS. Pesticide Use Proposals have been developed by the Battle Mountain District BLM for 11 herbicides—2,4-D, clopyralid, chlorsulfuron, dicamba, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr. In 2011, only five herbicide active ingredients were used on the 3 Bars Project area—2,4-D, glyphosate, imazapyr, metsulfuron methyl, and picloram. It is likely that the BLM would also use imazapic to treat cheatgrass in the future.

Comment No. 4-132 from Western Watersheds Project:

BLM will spawn massive cheatgrass infestation by conducting this. Ely BLM treatments have already proven that this is the case.

Response to Comment No. 4-132:

See response to Comment 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences). As discussed in Final EIS Section 3.12.3.3, Native and Non-invasive Vegetation Resources, Environmental Consequences, for Pinyon-juniper Treatments, the BLM has been successful in restoring treated areas and controlling the establishment and spread of cheatgrass on the 3 Bars Project area, especially during years with adequate moisture after seeding or planting. To ensure vegetation success, the BLM would follow SOPs identified in Appendix C of the 3 Bars Project Final EIS, including prohibiting livestock access to the area through grazing closure decisions that are effective upon issuance. The BLM may also use temporary fencing, including electric fencing, which has been used effectively at wildfire restoration sites to improve revegetation success by excluding livestock, wild horses, and other wild ungulates. The BLM may also conduct follow-up treatments, including use of herbicides (see *Integrated Weed Management Plan Battle Mountain District Nevada Mt. Lewis Field Office and Tonopah Field Office* [USDOI BLM 2009b]) or mechanical treatments to control new infestations of noxious weeds and other invasive non-native vegetation in treated areas.

Comment No. 4-193 from Western Watersheds Project:

D[raft] EIS 3-140 purposefully ignores the role of livestock grazing in promoting cheatgrass and cheatgrass invasion.

Response to Comment No. 4-193:

Numerous factors have contributed to landscape degradation on the 3 Bars Project area, as discussed in Chapter 1, and in the Cumulative Effects discussions found under Environmental Consequences for each of the resource areas

evaluated in the EIS. As noted in these sections, and throughout the Final EIS, livestock grazing has been one of several factors contributing to historic landscape degradation, including the spread of cheatgrass.

Comment No. 4-237 from Western Watersheds Project:

How will you eradicate the forage kochia weed that was purposefully seeded? With herbicides? How long were these areas rested from grazing following the fire? How will you eradicate the hazardous cheatgrass fuel?

Response to Comment No. 4-237:

Please refer to Final EIS Chapter 2, Section 2.5.3.3, Biological Control Treatments, and Appendix C, Section C.2.2.1, Temporary Livestock Grazing Closures.

D.5.12 Proposed Action and Purpose and Need

D.5.12.1 Proposed Action and Purpose and Need – Decisions to be Made

Comment No. 4-103 from Western Watersheds Project:

BLM must commit to preparing an EA [Environmental Assessment] and/or EIS for all projects tiered to this loose and highly uncertain massive landscape denuding scheme.

Response to Comment No. 4-103:

As discussed in Section 1.8 of the Final EIS, Scope of Analysis and Decisions to be Made, the EIS analyzes the effects of using a variety of treatments to improve ecosystem health on the 3 Bars ecosystem. Decisions expected to be made through this EIS process include:

- Determine which areas within the 3 Bars ecosystem would be treated.
- Determine which treatment methods would be used to accomplish management objectives.
- Determine which management actions would be taken to facilitate restoration of public lands.
- Identify criteria to guide future restoration activities within the 3 Bars ecosystem.

At least 30 days after the U.S. Environmental Protection Agency (USEPA) publishes the Notice of Availability of the final EIS, the BLM decision-maker will prepare a Record of Decision (ROD). The decision may be to select one of the alternatives in its entirety, or to combine features from several alternatives that fall within the range of alternatives analyzed in this EIS. The ROD will address significant impacts, alternatives, mitigation measures, and relevant economic and technical considerations.

No additional EISs or EAs would be prepared for treatments and treatment areas evaluated in the Final EIS and allowed under the ROD; however, additional projects outside the analysis of this EIS would require additional NEPA.

D.5.12.2 Proposed Action and Purpose and Need – Documents that Influence the Scope of the EIS

Comment No. 4-224 from Western Watersheds Project:

BLM cannot rely on the [17- States] PER, because it did not undergo NEPA, and is based on flawed and woefully outdated science. The ESA consultation was not over the [17- States] PER, but the herbicides, and that too is old and outdated. See Beck and Mitchell 2012, Jones et al. 2013, etc. Full and complete new consultation must occur here.

Response to Comment No. 4-224:

See response to Comment 4-192 (Assessment Methodology – Baseline Studies) regarding use of the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report* (17-States PER; USDOI BLM 2007b) to prepare the 3 Bars Project EIS. The BLM also prepared a *Final Biological Assessment for Vegetation Treatments on Bureau of Land Management Lands in 17 Western States* that included a discussion of the effects of herbicide and non-herbicide treatments on federally listed and proposed species, and their critical habitats. Information on the effects of non-herbicide methods was required by the USFWS and National Marine Fisheries Service as part of Endangered Species Act consultation to help the Services better understand the cumulative effects of all BLM treatment methods on federally listed and proposed species, and their critical habitats. The BLM has prepared a *Biological Assessment for the 3 Bars Ecosystem and Landscape Restoration Project* (USDOI BLM 2014) that will be used for Endangered Species Act consultation with the USFWS for the 3 Bars Project. The BLM has included additional information on the use of mechanical treatments on pinyon-juniper ecosystems in Final EIS Section 3.12.3.3, Native and Non-invasive Vegetation Resources, Environmental Consequences, Direct and Indirect Effects, as discussed in the Jones et al. (2012). As discussed in Section 2.2, Alternatives, Summary of Major Changes between the Draft and Final EIS, the BLM no longer proposes to conduct treatments to thin sagebrush.

D.5.12.3 Proposed Action and Purpose and Need – Public Involvement - Development of the Alternatives

Comment No. 4-105 from Western Watersheds Project:

BLM cut the public out from identification of treatments, and this process.

Response to Comment No. 4-105:

The public was encouraged to provide input on treatment alternatives, methods, and areas during the public scoping process, as discussed in Section 1.13 of the Final EIS, Public Involvement and Analysis of Issues, and at public scoping meetings. A summary of issues brought up by the public during scoping is available in Table 1-5 in Final EIS Chapter 1 (Proposed Action and Purpose and Need), and the *Final Scoping Report 3 Bars Ecosystem and Landscape Restoration* Project (AECOM 2010), which is available at URL: https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=37403.

Comment No. 4-133 from Western Watersheds Project:

BLM did not engage the public in site selection, has not considered a reasonable range of alternatives, and has turned a blind eye to the immense irreparable damage that will be done to habitats and populations of sensitive species, wild horses, big game, and other uses of the public lands.

Response to Comment No. 4-133:

See response to Comment 4-105 (Proposed Action and Purpose and Need – Public Involvement – Development of the Alternatives).

D.5.12.4 Proposed Action and Purpose and Need – General

Comment No. 4-81 from Western Watersheds Project:

What in the world does this mean? *The focus of the EIS is not to restrict, limit, or eliminate Federal Land Policy and Management Act-authorized activities as a means to restore ecosystem health. These types of management actions are defined and considered under land use planning regulations (43 Code of Federal Regulations [CFR] § 1610) and are outside the scope of this EIS.* Does this mean that BLM will not act in any way to remove cattle and sheep from even a single acre of treated land – no matter if the public has invested millions of dollars in treatment, and no matter if the grazing 5 or 10 years down the line will cause a proliferation of cheatgrass. This is typically what happens in sites that had little cheatgrass present before treatment. Once BLM destroys the protective woody vegetation by aggressive mechanical treatment and/or fire, cheatgrass increases over time – especially starting 5-6 years down the line. Plus – if this is indeed what this confusing statement means – does that mean the promises that livestock will be properly dealt with in the EIS false?

Response to Comment No. 4-81:

As discussed in Section 3.18.4, Livestock Grazing, Mitigation, this action would include provisions for temporary modifications to livestock grazing permits to protect the investment required to conduct the proposed treatments. Permanent or unrelated modifications to livestock grazing permits would be handled separately through the Rangeland Health Evaluation and permitting process.

D.5.12.5 Proposed Action and Purpose and Need – Public Involvement - Scoping Issues and Concerns

Comment No. 4-40 from Western Watersheds Project:

A large majority of the comments expressed serious concerns about the harms caused by aggressive vegetation-destroying treatments, impacts to wild horses, etc. These were downplayed or largely ignored in the EIS.

Response to Comment No. 4-40:

Issues and concerns raised by the public during scoping and listed in the *Final Scoping Report 3 Bars Ecosystem and Landscape Restoration* Project (AECOM 2010) are identified at the beginning of the Environmental Consequences section as relevant for each resource area evaluated in the 3 Bars Project EIS. These issues and comments guided the

analysis in the Environmental Consequences for each resource section. The 17- States PER provides useful information on the effects on non-herbicide vegetation treatments used by the BLM in the western U.S., including Nevada. The information in the [17- States] PER was primarily taken from peer-reviewed scientific literature and agency documents. In addition to using information from the [17- States] PER, the BLM used other peer-reviewed scientific literature and agency documents to prepare the 3 Bars Project EIS. About 500 additional documents were used to develop the 3 Bars Project EIS, as referenced in Chapter 5, References. These studies were used to evaluate the adverse and beneficial effects of the 3 Bars Project on resources in the 3 Bars Project area, as discussed in the Environmental Consequences section for each resource evaluated in the EIS.

We tried to provide a balanced assessment of adverse and beneficial effects from the 3 Bars Project and relied upon the public and federal, state, and local resource agency specialists to help us determine important issues and concerns to be addressed in the 3 Bars Project EIS.

Comment No. 4-41 from Western Watersheds Project:

BLM claims: *All relevant issues identified through public scoping have been analyzed in this EIS to the extent practicable*. BLM uses "to the extent practicable" to cast aside any concerns that do not fit with its biased circular reasoning that is used to justify the Proposed Alternative. This violates NEPA's hard look requirement. BLM also fails to consider a broad range of current ecological science that shows the very high and extreme risk associated with this tens of millions of dollars bio-engineering scheme.

Response to Comment No. 4-41:

See responses to 4-40 (Proposed Project and Purpose and Need – Public Involvement – Scoping Issues and Concerns) and Comment 4-87 (Proposed Action and Purpose and Need – Public Involvement – Scoping Issues and Concerns). Limitations on what analysis is not included in the 3 Bars Project Final EIS are discussed in Section 1.14, Limitations of this EIS. The BLM asserts that this document does meet the "hard look" requirement of NEPA.

Comment No. 4-87 from Western Watersheds Project:

Table 1-5 lists a very large number of concerns and issues raised in comments on this proposal. Yet, the underpinnings of the entire scheme largely ignored these comments. The D[raft] EIS ignores fully and fairly assessing scientific information in light of the comments and scientific literature that has been provided to BLM. Instead, BLM relies on the NEPA-less, outdated [17- States] PER as cover for its bioengineering scheme.

Response to Comment No. 4-87:

See response to Comments 4-105 (Proposed Action and Purpose and Need – Public Involvement – Development of the Alternatives) and 4-192 (Assessment Methodology – Baseline Studies). Issues and concerns raised by the public during scoping and listed in the *Final Scoping Report 3 Bars Ecosystem and Landscape Restoration* Project (AECOM 2010) are identified at the beginning of the Environmental Consequences section as relevant for each resource area evaluated in the 3 Bars Project EIS. These issues and comments guided the analysis in the Environmental Consequences section. The [17- States] PER provides useful information on the effects on non-herbicide vegetation treatments used by the BLM in the western U.S., including Nevada. The information in the [17- States] PER was primarily taken from peer-reviewed scientific literature and agency documents. In addition to using information from

the [17- States] PER, the BLM used other peer-reviewed scientific literature and agency documents to prepare the 3 Bars Project EIS. About 500 additional documents were used to develop the 3 Bars Project EIS, as referenced in Chapter 5, References.

Comment No. 4-102 from Western Watersheds Project:

Thus, all of the concerns listed under Environmental Comments of Table 1-5 are not adequately assessed, examined on the basis of flawed and limited outdated information, fail to take a hard look at cumulative impacts (such as treatment disturbance coupled with continue imposition of gazing disturbance, or the role of mine and irrigation aquifer drawdown on deteriorating riparian conditions and habitat loss for sage-grouse brood rearing for aquatic species, for migratory birds, and loss of recreational uses and enjoyment).

Response to Comment No. 4-102:

See response to Comments 4-87 (Proposed Action and Purpose and Need – Public Involvement – Scoping Issues and Concerns) and 4-105 (Proposed Action and Purpose and Need – Public Involvement – Development of the Alternatives). The Cumulative Effects section was included under Environmental Consequences for each resource area. The assessment of cumulative effects includes issues identified by the commenter. The BLM asserts that this document does meet the "hard look" requirement of NEPA.

D.5.12.6 Proposed Action and Purpose and Need – Relationship to Statutes, Regulations, and Policies

Comment No. 3-2 from the Nevada Department of Wildlife:

We were unable to determine how BLM would apply NRS [Nevada Revised Statute] 528.053 which sets a 200-foot buffer from stream channels for any impacting activity unless a variance is authorized by NDF [Nevada Department of Forestry], NDOW and NDWR [Nevada Department of Water Resources].

Response to Comment No. 3-2:

The BLM believes that Nevada Revised Statute 528.053 does not pertain to the BLM taking actions on federal land.

D.5.13 Recreation

Comment No. 2-1 from the National Park Service:

An erroneous statement is contained in the D[raft] EIS analysis of impacts to recreation, Section 3.21.3.3.1 [of the Draft EIS] on page 3-420, which says *"There are no recreation resources of regional and/or national importance"* within the project's Area of Potential Effect. As noted elsewhere in the D[raft] EIS, the congressionally designated Pony Express National Historic Trail is a recreation resource of national significance. A correction should be provided in the Final EIS.

Response to Comment No. 2-1:

The text has been corrected in the Final EIS in Section 3.21.3.3.1.

D.5.14 Social and Economic Values and Environmental Justice

Comment No. 4-1 from Western Watersheds Project:

How much would all of the projects and bioengineering cost if implemented? How much would it cost to try to "fix" rampant weed invasions, erosion, etc.?

Response to Comment No. 4-1:

See response to Comment 4-113 (Alternatives).

D.5.15 Soil Resources

D.5.15.1 Soil Resources – Affected Environment

Comment No. 4-109 from Western Watersheds Project:

BLM claims to map "shredder susceptibility". We are greatly concerned that the EIS lacks necessary site-specific detail and integration of slope, topography and other information essential to understand the severity of soils displacement, compaction, etc.

Response to Comment No. 4-109:

The USDA Natural Resources Conservation Service (2012) provided the information used to determine shredder susceptibility. Factors considered in determining shredder suitability are discussed in Final EIS Section 3.9.2.3.2, Shedder Susceptibility. As shown on Figure 3-20, Mechanical Treatment Suitability (Shredder), steep and moderately-steep hillslopes are moderately to poorly suited for shredder treatments. This information would be used by the BLM during pre-treatment assessments to help in determining the final treatment area.

Comment No. 4-110 from Western Watersheds Project:

Table 3-13 provides meaningless information for site-specific and even overall understanding. It is based on generalizations that fail to take into account operation of equipment when wet or muddy, slope, aspect, number of turns and slopes where turns would occur (masticators really tear up soils when turning on any significant slope area), etc. It also fails to take into account the degree and severity of denuding that will occur.

Response to Comment No. 4-110:

Table 3-13 (Soil Suitabilities for Vegetation Treatments) provides the reader with an overall view of the acreage that is susceptible to various treatment methods based on soil suitability. A visual representation of the collective risks to soil from the various treatments is shown in Figure 3-21 (Site Degradation Susceptibility). Section 3.9.3 of the Final EIS, Soil Resources, Environmental Consequences, discusses the potential effects of slope, muddy conditions, equipment operation, and other factors mentioned by the commenter. These factors would be taken into consideration by the BLM prior to initiating treatments on a site, and the BLM would follow Standard Operating Procedures (see Appendix C of the Final EIS) to minimize adverse treatment effects on the soil.

Comment No. 4-200 from Western Watersheds Project:

There is not a word, not a mention at all - of microbiotic crusts in the "plant community dynamics" section of the long series of Tables that BLM uses to set up the landscape for massive destruction and conversion to cheatgrass. It is clear that BLM is not interested in the health of native communities, restoration of ecological processes, biodiversity, and preventing weeds – as it blows off an consideration of microbiotic crusts in what it considers important related to "rangeland health".

Response to Comment No. 4-200:

The information provided under "Plant Community Dynamics" in 3 Bars Project EIS Tables 3-23 to 3-30 was taken from the USDA Natural Resources Conservation Service (2012) Ecological Site Descriptions. This agency did not include information on biological soil (microbiotic) crusts in these descriptions. The Draft EIS does discuss potential risks to biological soil (microbiotic) crusts from vegetation treatments in Final EIS Section 3.9 (Soil Resources). We have added additional information on biological soil crusts and their functions in Final EIS Section 3.9.2.2.8.

Comment No. 4-201 from Western Watersheds Project:

BLM's description of pinyon-juniper communities shows its (and AECOM/ENLC's [Eastern Nevada Landscape Coalition]) blatant disregard for microbiotic crusts:

Response to Comment No. 4-201:

See response to Comment 4-200 (Soil Resources – Affected Environment).

D.5.15.2 Soil Resources – Assessment Methodology

Comment No. 4-170 from Western Watersheds Project:

It [Draft EIS] fails to explain how determinations were made that soil productivity, quality, erosion from wind, treatment suitability, etc. were actually determined, and what models they were based on. WHAT is the current condition of the weed-preventing and watershed-stabilizing microbiotic crusts?

Response to Comment No. 4-170:

Soil survey data were obtained from the USDA Natural Resources Conservation Service soils website at URL: http://www.nrcs.usda.gov/wps/portal/nrcs/site/soils/home/. This website provides information on how soil data are collected and analyzed, and how they can be used to evaluate soil conditions and treatment suitability. See response to Comment 4-200 (Soil Resources – Affected Environment) regarding biological soil (microbiotic) crusts. As noted in Section 3.9.3 of the Final EIS, Soils, for Sagebrush Treatments, biological soil crusts are unlikely to be found in areas dominated by cheatgrass or other noxious weeds.

Comment No. 4-171 from Western Watersheds Project:

It is impossible to understand how the various damage "susceptibilities" – fire, shredder, chaining, site degradation, etc. are determined.

Response to Comment No. 4-171:

See response to Comment 4-170 (Soil Resources – Assessment Methodology).

Comment No. 4-172 from Western Watersheds Project:

The NRCS [Natural Resources Conservation Service] has also then developed flawed methods to make broad brush claims about "susceptibility" - that fail to take into account, for example, the severity of degradation of the drainage network, combined with the harshness of the treatment, and overlapping multiple treatments in the same watershed - making lands highly vulnerable to erosion, watersheds highly vulnerable to sedimentation, downcutting and permanent loss of sustainable perennial flows, etc. This is made even worse by the typical BLM rangeland health assessment avoiding any steeper slopes, seeking ideal communities on flat terrain distant from areas of more intensive livestock use.

Response to Comment No. 4-172:

See response to Comment 4-170 (Soil Resources - Assessment Methodology) regarding the methodology used to evaluate soil suitabilities for vegetation treatments. See response to Comment 4-110 (Soil Resources – Affected Environment) for other factors that can influence to suitability of treatments on slopes, muddy conditions, etc. See response to Comment 4-141 (Native and Non-invasive Vegetation Resources – Assessment Methodology–- Key Management Areas) for a discussion of how rangeland health assessments were conducted by Eastern Nevada Landscape Coalition and the BLM.

Comment No. 4-173 from Western Watersheds Project:

This NRCS [Natural Resources Conservation Service] soils modeling exercise greatly ignores wind, wind direction, unpredictable drought or lack of rain effects post-treatment, and many other factors that can result in treatments being a big failure and weed invasion promoter.

Response to Comment No. 4-173:

The USDA Natural Resources Conservation Service based soil limitations, as shown on 3 Bars Project EIS Table 3-10, Project Area Soil Limitations, and associated figures, on soil physical characteristics. The study did not consider microclimate, or effects of drought post-treatment. These factors would be considered by the BLM during pre-treatment planning. As discussed under response to Comment 4-132 (Noxious Weeds and other Invasive Non-native Vegetation – Environmental Consequences), drought or lack of rain post-treatment can reduce treatment success. Although the BLM cannot control the weather, it can conduct seeding and planting treatments during the times of the year when soil moisture should be plentiful.

Comment No. 4-174 from Western Watersheds Project:

Where is the baseline information to support the level of erosion that is actually occurring under the grazing burden (historic and chronic/current)/load, roading load, the severity of use allowed under the grazing permits, the complete and total lack of upland trampling standards, the lack of riparian trampling standards, and the overall degree and severity of desertification?

Response to Comment No. 4-174:

The BLM qualitatively assesses erosion indirectly by performing Proper Functioning Condition assessments in riparian areas (see Final EIS Section 3.11.2.5, Proper Functioning Condition Surveys) and 17 Indicators of Rangeland Health in the uplands. Both protocols require an evaluation of phenomena related to erosion and/or sediment transport.

D.5.15.3 Soil Resources – Environmental Consequences

Comment No. 4-55 from Western Watersheds Project:

BLM states: Key concerns identified in the AECC [*Final Assessment of Existing and Current Conditions for the Proposed 3 Bars Ecosystem and Landscape Restoration Project EIS* (USDOI BLM 2009a)] for range resources are that one or more key perennial grass species are absent. Why is the absence or reduction and degradation of microbiotic [biological soil] crusts not a key concern?

Response to Comment No. 4-55:

The absence or reduction and degradation of biological soil (microbiotic) crusts was not identified as a key concern in the AECC (USDOI BLM 2009a). It was identified as an issue during scoping (see Section 3.9.3.1 of the Final EIS, Soil Resources, Environmental Consequences) and the potential effects of 3 Bars Project vegetation treatments on biological soil crusts are discussed in Final EIS Section 3.9.3.

Comment No. 4-107 from Western Watersheds Project:

All of these soils suffer significant wind erosion when burned, churned up by livestock, etc. The mapping in the EA [3 Bars Project EIS] greatly downplays the risk. BLM must also assess the degree of erosion of remaining topsoil and soil nutrients that are likely to occur. Windblown dust from grazing disturbance and fire harms ecosystems far away. It amplifies the adverse impacts of climate change on early/premature snowmelt. Thus, it is likely to increase fire risk in other sites – as they become hotter, drier, more cheatgrass prone and with longer fire seasons due to windblown BLM treatment and grazing dust deposition.

Response to Comment No. 4-107:

Section 3.9, Soil Resources, of the Final EIS describes potential soil hazards associated with the 3 Bars Project, and includes several maps that show areas susceptible to soil erosion and loss of topsoil, and loss of topsoil from mechanical and fire treatments. As discussed in Section 3.9.3, Soil Resources, Environmental Consequences, the BLM would consult information in this section and maps showing soil susceptibility to erosion before conducting treatments. The BLM would limit or avoid treatments in areas susceptible to soil erosion. As discussed throughout the EIS, BLM treatments could lead to short-term increase in erosion and fire risk, but would lead to long-term reduction in erosion and fire risk due to long-term improvement in ecosystem health due to proposed treatments.

D.5.15.4 Soil Resources – Mitigation

Comment No. 4-179 from Western Watersheds Project:

D[raft]EIS at 3-93 states "Soil resources would benefit from mitigation and monitoring in Draft EIS Section 3.17.4 livestock. Then it states: No mitigation or monitoring measures are recommended specifically for soil resources.

Response to Comment No. 4-179:

Based on analysis in Final EIS Section 3.9.3, Soil Resources, Environmental Consequences, and summarized in 3.9.3.8, Significance of the Effects under the Alternatives, the BLM determined that there would be no significant impacts to soil resources and that mitigation to reduce or eliminate potential impacts was not warranted. However, the BLM has proposed livestock management mitigation measures to ensure treatment success, as discussed under Livestock Grazing in Final EIS Section 3.18.4, Mitigation. These measures would benefit soils and other resources on the 3 Bars Project area.

D.5.16 Standard Operating Procedures

Comment No. 1-1 from U.S. Environmental Protection Agency:

The F[inal] EIS [should] provide additional information on the potential interface between the stream restoration work planned for the 3 Bars Project and Section 404 of the Clean Water Act (CWA); such restoration work could result in impacts to waters of the U.S.

Response to Comment No. 1-1:

Information on stream restoration work is provided in Final EIS Chapter 2, Alternatives. This includes a more detailed discussion of treatment activities than was included in the Draft EIS. The BLM will work with federal and state agencies to ensure compliance with the Clean Water Act to ensure that impacts to streams are minimal and that treatments are in compliance with federal and state laws. We have included this information in Final EIS Appendix C, Section C.2.7, Standard Operating Procedures, Riparian Management, and in Section 3.11.1.4, Wetlands, Floodplains, and Riparian Zones, Sections 401 and 404 of the Clean Water Act.

Comment No. 1-2 from U.S. Environmental Protection Agency:

The F[inal] EIS should describe how jurisdictional waters will be identified over the life of the 3 Bars Project, and how the BLM will coordinate with the U.S. Army Corps of Engineers to ensure that any stream restoration activities comply with the permit requirements of Section 404 of the CWA [Clean Water Act].

Response to Comment No. 1-2:

See response to Comment 1-1 (Standard Operating Procedures). The BLM would delineate affected waters prior to conducting work in streams and wetlands, and would work with the U.S. Army Corps of Engineers to ensure that treatments are in compliance with federal and state regulations under Sections 401 and 404 of the Clean Water Act. We have included this information in Final EIS Appendix C, Section C.2.7, Standard Operating Procedures, Riparian Management, and in Section 3.11.1.4, Wetlands, Floodplains, and Riparian Zones, Sections 401 and 404 of the Clean Water Act.

Comment No. 1-3 from U.S. Environmental Protection Agency:

We also recommend that the BLM analyze and include a description, in the F[inal] EIS, of the potential for further reductions in air emissions, in proposed forest treatments, by lessening or eliminating pile burning of residual fuels in favor of biomass energy production.

Response to Comment No. 1-3:

As discussed in Final EIS Section 2.5.3.8, Activity Fuels Disposal, pile burning is one of several options to remove activity fuels from treatments. Other methods include leaving material on site, chipping, forest product utilization, and slash and broadcast burning. The BLM would consider all Activity Fuels Disposal alternatives during treatment and select the method that results in the fewest impacts and greatest benefits.

Comment No. 4-122 from Western Watersheds Project:

The list of SOPs is entirely inadequate and highly uncertain, including the combination that may or may not be applied. The [17- States] PER never underwent any NEPA at all. Thus, there is no valid assessment of the efficacy of the long scattershot lists of BMPs [Best Management Practices] and SOPs. Plus there is no valid assessment of the potentially massive and costly amounts of toxic herbicides that may be used.

Response to Comment No. 4-122:

As discussed in 3 Bars Project Final EIS Appendix C, Standard Operating Procedures, SOPs have been identified to reduce adverse effects to environmental resources and human health from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard agency and industry practices. The SOPs listed in these documents are not all encompassing, but give an overview of practices that should be considered when designing and implementing a vegetation treatment project on public lands. In addition to these SOPs, the Mount Lewis Field Office has identified additional SOPs that would apply to the 3 Bars Project. As noted by the commenter, some of the SOPs were derived from SOPs given in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Report* (17-States PER; USDOI BLM 2007b). As noted in the 17-States PER, non-herbicide treatment methods and SOPs have been evaluated under NEPA in earlier EISs and EAs, as discussed under response to Comment 4-192 (Assessment Methodology – Baseline Studies). The use of herbicides is not assessed in the 3 Bars Project EIS because it is not a treatment method proposed under the action alternatives. However, the BLM can use herbicides under previous authorizations. See responses to Comments 4-7 (Assessment Methodology – Risk Assessments) and 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences) for more information on herbicide use on the 3 Bars Project area.

Comment No. 4-167 from Western Watersheds Project:

There is great uncertainty in applying BMPs. They are typically decades is not centuries behind the times in applying scientific information to minimize damage and disturbance. They greatly ignore the degree and severity of degradation that exits in the landscape, and how vulnerable it actually is to weeds, erosion, etc. They ignore drought, weather extremes, etc.

Response to Comment No. 4-167:

As noted in Final EIS Section 2.5.5, Monitoring, monitoring ensures that resource management is an adaptive process that builds upon past successes and learns from past mistakes. The regulations of 43 CFR § 1610.4-9 require that BLM land use plans establish intervals and standards for monitoring and evaluating land management actions. During preparation of implementation plans for a specific project, treatment objectives, standards, and guidelines are stated in measurable terms, where feasible, so that treatment outcomes can be measured, evaluated, and used to guide future treatment actions. This approach ensures that restoration treatment processes are effective, adaptive, and based on prior experience. It also helps to ensure that project objectives are met. Numerous factors, including treatment location and methods and weather extremes, can influence treatment success. These are taken into consideration during treatment development and monitoring. Through an adaptive process, the BLM uses monitoring to establish baseline conditions, identify responses of natural, social, and cultural resources to treatments, identify treatment components that are successful and unsuccessful, and formulate new treatment methods and strategies, as needed, based on this process of adaptive management.

Comment No. 4-168 from Western Watersheds Project:

BMPs greatly fail to take into account cumulative impacts, including of multiple disturbances occurring in the same watershed.

Response to Comment No. 4-168:

In several sections of the Final EIS, including Section 3.10.3.8 for Water Resources, the BLM notes that in the areas of overlap, riparian zones and associated wetland areas may be subject to multiple project disturbances. The BLM would try to minimize multiple treatment disturbance by conducting treatments within the same general area at the about the same time. An assessment of cumulative effects has been provided for each resource area discussed in the EIS that discusses the potential effects of past, present, and reasonably foreseeable future actions that could occur within and near the 3 Bars Project area and could interact in an additive, countervailing, or synergistic effect upon the 3 Bars Project landscape. See Section 3.3.2, Cumulative Effects, for a more detailed discussion of how cumulative effects were analyzed in the 3 Bars Project Final EIS.

D.5.17 Vegetation Treatments Planning and Management

D.5.17.1 Vegetation Treatments Planning and Management – General

Comment No. 4-8 from Western Watersheds Project:

BLM must review the failures of herbicides to control weeds (especially in the face of continued chronic livestock grazing disturbance) – based on the agencies own experience with its many failed fire rehab[ilitation] efforts, and other treatments where 5 or 6 years after fire, chipping, mowing, roatbeating, etc. – cheatgrass chokes the treated areas. It must critically examine the failures of the actions never assessed under NEPA in the [17- States] PER _ i.e. all the bioengineering and treatment disturbance methods proposed under the Preferred Alternative to tear apart the landscape.

Response to Comment No. 4-8:

No herbicides would be used under the proposed 3 Bars Project. Herbicides could be used in the area for non-3 Bars Project treatments under existing authorizations. See responses to Comments 4-7 (Assessment Methodology – Risk Assessments) and 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences) for more information on herbicide use on the 3 Bars Project area.

Bioengineering and other treatments that would disturb the landscape were evaluated for their adverse and beneficial direct, indirect, and cumulative effects in the 3 Bars Project EIS, an EIS prepared in accordance with the National Environmental Policy Act. See response to Comment 4-192 (Assessment Methodology – Baseline Studies) for the role of the 17-States PER in development of the 3 Bars Project EIS.

Comment No. 4-12 from Western Watersheds Project:

How much high quality habitat will remain undisturbed by treatments? For example, BLM seeks to destroy critical blocks of pygmy rabbit, sage sparrow, sage thrasher, and Brewer's sparrow nesting habitat by mowing, chopping, crushing, seeding for livestock grass. After BLM gets done with all of these treatments, how much habitat will remain across the landscape? How fragmented will it be?

Response to Comment No. 4-12:

As discussed in Final EIS Sections 3.12.3 and 3.13.3 for Native and Non-invasive Vegetation Resources, and Noxious Weeds and other Invasive Non-native Vegetation, under Environmental Consequences, Sagebrush Treatments, the BLM proposes to conduct treatments to improve the health of native sagebrush, and use sagebrush plantings and seedings to restore degraded lands that historically had sagebrush. As discussed in Final EIS Section 2.3.1.4, Alternatives, Sagebrush Treatment Units, treatments would primarily consist of seeding and planting, and removal of pinyon-juniper. No sagebrush would be removed. Long-term, it is expected that the amount of sagebrush habitat on the 3 Bars Project area would increase from current levels.

Comment No. 4-65 from Western Watersheds Project:

Why are you then promoting aggressive weed-spreading treatments of naturally dense sagebrush and sage[brush] sites with few weeds currently present? The focus of treatments would be to control the spread of noxious weeds and invasive annual grasses found within the 3 Bars ecosystem and to encourage the establishment of native and desirable non-native species.

Response to Comment No. 4-65:

As noted by the commenter, the focus of 3 Bars Project treatments would be to control the spread of noxious weeds and other invasive non-native annual grasses found within the 3 Bars ecosystem and to encourage the establishment of native and desirable non-native species. See response to Comment 4-45 (Native and Non-invasive Vegetation Resources - Environmental Consequences) and Section 2.3.1.4 (Alternatives, Sagebrush Treatment Units) of the Final EIS, Alternatives, Sagebrush Treatments, for proposed treatments within sagebrush and actions the BLM would take to reduce the likelihood of treatments in sagebrush causing the spread of noxious weeds.

Comment No. 6-1 from J. Brown:

Site-specific preferred actions must be clearly identified and analyzed in the EIS; this must include the timeframe for any actions (time of year for actions, duration of proposed actions, etc.).

Response to Comment No. 6-1:

Site-specific treatment locations and actions are clearly defined in Section 2.3, Description of the Alternatives. Impacts to wild horses can be found in Chapter 3 (Section 3.17.3, Wild Horses, Environmental Consequences) and Standard Operating Procedures that are designed to minimize impacts to wild horses can be found in Appendix C of the Final EIS.

Comment No. 7-1 from K. DeBoer:

Response to Comment No. 7-1:

Comment No. 8-1 from M. Devlin:

Please define each preferred action, identify the exact location where it is to be carried out, and provide a time-line as to when it will commence (month, year) and how long it should take (duration).

Response to Comment No. 8-1:

See response to Comment 6-1 (Vegetation Treatments Planning and Management – General).

Comment No. 9-1 from K. Gregg:

The D[raft]EIS does not specify exactly what treatments will be used on which portions of the project and when these treatments will be used and to what extent these treatments will be used – thus the BLM is providing itself with an open-ended capability to take these actions outside of the public's knowledge.

Response to Comment No. 9-1:

See response to Comment 6-1 (Vegetation Treatments Planning and Management – General).

Comment No. 9-3 from K. Gregg:

The current Draft EIS fails to provide specific actions for specific locations; the preferred actions are ambiguous and raise serious concerns. The BLM must clearly define each preferred action, identify the specific locations and outline the time frame (time of year, duration, etc.) for each action.

Response to Comment No. 9-3:

See response to Comment 6-1 (Vegetation Treatments Planning and Management – General).

Comment No. 9-5 from K. Gregg:

Site-specific preferred actions must be clearly identified and analyzed in the EIS; this must include the timeframe for any actions (time of year for actions, duration of proposed actions, etc.).

Response to Comment No. 9-5:

See response to Comment 6-1 (Vegetation Treatments Planning and Management – General).

Comment No. 10-3 from E. Hennessy:

Exactly how would this proposal of mass destruction lead to "improvement" of the range?

Response to Comment No. 10-3:

As noted in Section 1.1, Introduction, "Resource conditions on several areas within the ecosystem, however, have deteriorated due to past land use activities, causing the BLM to target this area for restoration. Although 3 Bars ecosystem health is in decline in some areas, the ecosystem has characteristics that suggest its health can be substantially improved through land restoration activities. Given the opportunity to improve 3 Bars ecosystem health, the 3 Bars Ecosystem and Landscape Restoration Project (3 Bars Project) is being proposed by the BLM to develop the 3 Bars ecosystem into a sustainable, healthy, and resilient landscape." Section 1.5, Purposes for the Project, describes the primary objectives of the 3 Bars Project. If some or all of these objectives are met, the BLM would promote long-term improvement in the health and function of the 3 Bars ecosystem. By not undertaking the 3 Bars Project, however, it is likely that the establishment and spread of noxious weeds and other invasive, non-native vegetation, pinyon-juniper encroachment, increase in wildfire occurrence and spread, and degradation of the health of riparian, aspen, pinyon-juniper, and sagebrush habitats would lead to a substantial loss in health and function of the 3 Bars ecosystem.

Comment No. 10-4 from E. Hennessy:

The current Draft EIS fails to analyze the long-term impacts of these proposed actions which would result in loss of vital protective coverage, necessary forage, habitat access and inadequate range restoration, important details that must be seriously addressed and thoroughly examined in the revised EIS.

Response to Comment No. 10-4:

Final EIS Chapter 3, Affected Environment and Environmental Consequences, provides extensive information on baseline conditions and short- and long-term effects of proposed treatments. This information is supported by baseline

studies conducted for the 3 Bars Project and Mount Hope Project, peer-reviewed scientific studies, and supporting documents, such as the 17-States PEI, 17-States PER, and AECC.

D.5.17.2 Vegetation Treatments Planning and Management – Literature

Comment No. 4-5 from Western Watersheds Project:

A large body of recent current Literature shows the battery of aggressive very expensive BLM treatments are not effective, and will likely lead to ruin. See Beck and Mitchell 2012, Jones et al. 2103 review, for example.

Response to Comment No. 4-5:

As discussed in the Final EIS, treatments conducted by the BLM in the past on the 3 Bars and other project areas have shown varying degrees of success. The BLM records resource conditions prior to, and for several years after, conducting treatments, and uses this information to learn from past treatments and ensure greater treatment success in the future. There is also a large body of literature that has shown what the effects are of not treating noxious weeds and other non-native vegetation, reducing the risk of wildfire, slowing pinyon-juniper encroachment, and restoring riparian and aspen habitats, on the health of the landscape and natural and social resources.

D.5.17.3 Vegetation Treatments Planning and Management – Methods - Activity Fuels

Comment No. 4-84 from Western Watersheds Project:

We stress that the EIS greatly fails to assess potential deforestation, nutrient loss and export, loss of critical habitat components with biomass schemes. The EIS also specifically discusses "biochar".

Response to Comment No. 4-84:

As discussed in Final EIS Section 2.5.3.8, Activity Fuels Disposal, pinyon and juniper activity fuels larger than 3 inches in diameter could be made available for firewood, fence posts, pellets, etc. Coarse and large wood could be placed in-stream to reduce vertical incisement and shear stresses in riparian restoration projects. Additionally, activity fuel could be removed by commercial entities through contracts. The BLM anticipates that most activity fuels would be burned or left on site.

Comment No. 4-85 from Western Watersheds Project:

A[n] SEIS [Supplemental EIS] must be prepared just to address the biomass concerns alone – as the often oblique and uncertain wording of the EIS appears to be in part covering up significant potential biomass actions as the EIS plays out. Is this what the odd references to dump trucks are about? Exporting nutrients and essential small mammal habitat components form the site - to burn in an incinerator and pollute the air? Further, biomass schemes are really often just a front for getting the facility built, then it burns through the wood, then the plant becomes used for toxic waste incineration, polluting the air and harming human health.

Response to Comment No. 4-85:

See responses to Comments 4-84 and 4-112 (Vegetation Treatments Planning and Management – Methods – Activity Fuels) regarding the use of activity fuels generated by proposed 3 Bars Project treatments. The amount of activity fuel

exported for forest products use is expected to be minimal, if any. Most activity fuel would remain on site as mulch and for stream and wildlife enhancement, although some activity fuel would be burned on site to reduce the amount of hazardous fuels that could be burned by a wildfire, as discussed in Final EIS Section 3.14.3, Wildland Fire and Fire Management, Environmental Consequences, Pinyon-juniper Treatments.

Comment No. 4-111 from Western Watersheds Project:

Spewing wood chips all over the ground surface smothers native vegetation and microbiotic crusts, promotes weeds, reduces potential "forage" production, destroys habitat for ground nesting bees and other native pollinators of rare plants, simplifies logs and woody debris essential for many small mammals and decomposition processes that return nutrients to the soil, and also smothers the forbs that sage-grouse require. Plus sage-grouse chicks eat insects – and a sea of wood chips is a sterile, dead understory. Smothering the ground surface makes a uniform chip bed - with little to no diversity for the native microfauana. It also creates a layer of continuous fine fuel.

Response to Comment No. 4-111:

The BLM agrees that mastication of trees and shrubs leaves wood material on the soil surface that can impact microbiotic crusts, low growing vegetation, and insects and other wildlife and their habitats, and create continuous fine fuel. These issues were also identified by Gottfried and Overby (2011) in their review of the effects of mastication of pinyon-juniper. However, these authors and others have noted several benefits of leaving wood chips on the ground, including reducing erosion, increasing infiltration, and reducing soil temperature; these effects are summarized in Final EIS Section 3.9.3.3.2 (Soil Resources, Environmental Consequences, Direct and Indirect Effects under Alternative A). As noted by Gottfried and Overby, land managers need to implement a "balanced, thoughtful approach to determine which fuel treatment method makes the most economical and ecological sense for a given landscape." As discussed in Final EIS Section 2.5.3.2 (Alternatives, Mechanical Treatments), the BLM would mulch/shred trees on-site. Sites with suitable understory vegetation and that require little or no seeding are appropriate for mulching/shredding. The BLM would evaluate adverse and beneficial effects of available treatment methods, including mulching, when determining how to best use activity fuels generated by manual and mechanical treatments.

Comment No. 4-112 from Western Watersheds Project:

BLM even mentions dump trucks – which can only mean it is contemplating massive export of wood for biomass.

Response to Comment No. 4-112:

Dump trucks would be used to haul equipment, temporary fencing, rock, grade stabilization structures, and dirt as discussed in Final EIS Section 2.3.1.1, Alternatives, Riparian and Aspen Treatment Units. A contractor could use dump trucks to haul wood used for forest products.

Comment No. 4-130 from Western Watersheds Project:

This is a very foreseeable outcome of any biomass/biochar proposal in this landscape, and full and detailed analysis of air and water pollution and human health risks of this must be assessed. Along with the human health risks of drift of the likely massive amounts of herbicide that would end up being used in the treatment and bioengineering-desolated Three [3] Bars landscape.

Response to Comment No. 4-130:

See responses to Comments 4-84, 4-85 ((Vegetation Treatments Planning and Management – Methods – Activity Fuels), and 4-112 (Vegetation Treatments Planning and Management – Methods – Activity Fuels) regarding the use of activity fuels generated by proposed 3 Bars Project treatments. The BLM would not use herbicides for proposed 3 Bars Project treatments; see responses to Comments 4-7 (Assessment Methodology – Risk Assessments) and 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences) for more information on herbicide use on the 3 Bars Project area. As discussed under Environmental Consequences in Final EIS Sections 3.6 (Air Quality) and 3.10 (Water Resources), risks to air and water would likely be greater from wildfire than proposed prescribed fire and activity fuel disposal using fire. An important objective of the 3 Bars Project is to reduce the risk of wildfire, and the Project is expected to benefit air quality and water resources long-term by reducing the risk of wildfire and noxious weed and other invasive non-native vegetation.

D.5.17.4 Vegetation Treatments Planning and Management – Methods - Bioengineering

Comment No. 4-4 from Western Watersheds Project:

It is clear that a Supplemental EIS must be prepared (if BLM chooses any treatment action other than selective hand cutting of younger trees) to take a current, science-based look at the need for, and impacts of, a massive and massively expensive bioengineering scheme in the heart of the Great Basin Ecosystem that faces unprecedented climate change, cheatgrass/brome flammable weed invasion, and other disturbance risks. See Connelly et al. 2004, Knick and Connelly 2009.2011, USFWS WBP [Warranted but Precluded] Finding for greater sage-grouse, USD[O]I BLM Great Basin REA [Rapid Ecoregional Assessment].

Response to Comment No. 4-4:

As discussed under Comment 4-199 (Native and Non-invasive Vegetation Resources – Assessment Methodology – Rangeland Health Assessment), and in Chapter 2 of the EIS, alternatives were developed the respond to the purposes and needs for the 3 Bars Project, as discussed in Chapter 1. Alternatives differ by methods used and acres treated, and include Alternative C, the Minimal Land Disturbance Alternative, which only involves the use of manual and classical biological control methods and would cause little disturbance to the land. All action alternatives, however, would seek to improve rangeland health. No treatments would be authorized under Alternative D, the No Action Alternative. As noted in Section 2.2, Summary of Major Changes between the Draft and Final EIS, the BLM has made modifications to proposed treatments based on public input. These include using manual treatments to remove most, if not all, pinyon-juniper in riparian and aspen treatment units; Phase I pinyon-juniper in pinyon-juniper treatment units; and Phase I and II, and often Phase III pinyon-juniper in sagebrush treatment units. The BLM also would not use chaining to treat vegetation. Chapter 3 of the EIS evaluates the risks to the natural, social, and cultural environment from proposed 3 Bars Project treatments, including stream bioengineering. As discussed in Final EIS Section 1.6.1, Healthy Lands Initiative, the BLM recognizes the issues facing the Great Basin Ecosystem, including the 3 Bars Project area, and is proposing treatments on the 3 Bars Project area to help address these issues.

D.5.17.5 Vegetation Treatments Planning and Management – Methods - Fencing

Comment No. 4-129 from Western Watersheds Project:

At Denay Pond, Lone Spring, and Treasure Well, the BLM would use protective fencing, but no other treatments … Is this permanent fencing? Many of these projects are livestock projects and are wrongfully bundled in with this Three

[3] Bars bioengineering scheme. All of these projects must be subject to the OHA [Office of Hearings and Appeals] Appeals regulations.

Response to Comment No. 4-129:

As discussed in Final EIS Section 2.3.1.1, Alternatives, Riparian Treatment Units, temporary, small exclosures would be used to protect treatment areas from livestock, wild horse, and other wild ungulate use until treatments are revegetated. Treatments at Denay Pond, Lone Spring, and Treasure Well would be designed to allow these areas to restore themselves using passive methods. No bioengineering methods would be used at these sites.

Comment No. 4-145 from Western Watersheds Project:

Why does BLM need fences - it can pull livestock use back to existing fences to aid recovery, or actually enforce conservative standards of livestock use instead.

Response to Comment No. 4-145:

As stated in Final EIS Appendix C (Standard Operating Procedures) Section C.2.6, Protective Fences, existing fencing would be used as much as is practical and may entail modification of grazing permits.

Comment No. 4-187 from Western Watersheds Project:

BLM has not explained what is meant by claims "BLM will not completely block access to water sources" by livestock, horses, wildlife, etc. What does this mean? Will entire allotments or pastures be closed? Or is BLM just planning to shift, and intensify sever impacts into other sensitive erodible, weed-prone sites? Or will it have dustbowl water haul or water gap feedlot-like sites?

Response to Comment No. 4-187:

As discussed in Final EIS Section 2.3.1.1, Alternatives, Riparian Treatment Units, let-down fencing using barbed wire and posts that can be let-down easily to allow animals to pass, and electric wire fencing could be used to protect smaller areas, while barbed wire and post fencing or 2-rail steel pipe fencing would likely be used to protect larger areas from animal intrusion. Maintenance for fencing would be determine on a project-by-project basis and would be reflected in the individual cooperative agreements for each project. Final EIS Appendix C, Section C.2.6, Protective Fences, discusses Standard Operating Procedures that apply to fencing use during proposed 3 Bars Project treatments. As discussed in this section, the BLM would construct small, temporary exclusion fences around treatment boundaries. These protective fences will be on an as-needed basis to allow vegetation to establish, and to reduce the need to remove livestock from the pasture or allotment. No barbed wire or let-down fencing will be allowed within HMA boundaries, and let-down fencing will not be used where wild horses are present and may become entrapped in the fence. Where exclusionary fencing is constructed around water features, the BLM will provide access to water through the form of a water gap or impoundment.

Entire pastures or allotments may be closed in accordance with the mitigation found in Final EIS Section 3.18.4 (livestock Grazing, Mitigation). Animal Unit Months would be adjusted accordingly.

Comment No. 6-2 from J. Brown:

The proposed fencing raises serious concerns. Even temporary fencing will have a negative impact on wild horse movement. Any plans for fencing in or around any Herd Areas or Herd Management Areas must be thoroughly disclosed - including the minimum and maximum duration for each fencing proposal.

Response to Comment No. 6-2:

Specifics on protective fencing can be found in Final EIS Appendix C, Section C.2.6, Protective Fences, and SOPs that are designed to minimize impacts to wild horses can also be found in Appendix C. No permanent or barbed wire fence would be constructed within the HMAs except for small riparian or aspen enclosures that would not affect wild horse movement patterns. The need for fencing, and the duration, would be determined on a case-by-case basis after consideration of the needs for the treatment and potential for treatment success with or without fencing that excludes grazing animals.

Comment No. 8-3 from M. Devlin:

Please disclose where temporary fences will be installed within or around HAs and HMAs. Please provide a time-line as to the exclosures' commencement and duration. Also, how will you determine which fences are necessary? What are the criteria?

Response to Comment No. 8-3:

See response to Comment 6-2 (Vegetation Treatments Planning and Management – Methods – Fencing).

Comment No. 9-6 from K. Gregg:

The proposed fencing raises serious concerns. Even temporary fencing will have a negative impact on wild horse movement. Any plans for fencing in or around any Herd Areas or Herd Management Areas must be thoroughly disclosed - including the minimum and maximum duration for each fencing proposal.

Response to Comment No. 9-6:

See response to Comment 6-2 (Vegetation Treatments Planning and Management – Methods – Fencing).

Comment No. 10-2 from E. Hennessy:

Fencing of any kind - permanent or “temporary” - severely impairs wild horse movement therefore, any such proposed action to erect Temporary fencing requires in-depth analysis examining the negative impacts of each and every fencing proposal including disclosure of the projected duration of such actions. It goes without saying that any such fencing projects must not be proposed to somehow justify wild horse roundups and permanent removals in a quest to ultimately zero out more wild horses Has [Herd Areas]/HMAs.

Response to Comment No. 10-2:

See response to Comment 6-2 (Vegetation Treatments Planning and Management – Methods – Fencing).

D.5.17.6 Vegetation Treatments Planning and Management – Methods - Fire for Resource Benefit

Comment No. 4-249 from Western Watersheds Project:

This "fire for resource benefit" means BLM is planning to nurse wildfires along. So why all the hysteria about the need for treatment, when BLM proposes to just let lands burn up anyway?

Response to Comment No. 4-249:

As discussed in Final EIS Section 2.5.3.4 (Alternatives, Fire, Management of Wildland Fire for Resource Benefit), "In areas where there is no threat to human life or property, naturally ignited wildfires can be used to meet resource objectives to maintain ecosystems that are functioning within their normal fire regime or help return ecosystems to a more natural fire regime. These fires must meet specific environmental prescriptions, and be thoroughly evaluated for potential risk before being managed to benefit the resource. They are utilized only in pre-planned areas and when there are adequate fire management personnel and equipment available to achieve defined resource objectives. Natural ignitions within the project areas could be managed to achieve desired resource objectives if the environmental conditions allow for attainment of those objectives. Each wildland fire is evaluated at the time of ignition though the use of the Wildland Fire Decision Support System to determine whether the fire should be allowed to burn, or if suppression activities are required to put out the fire." Based on this information, the BLM does not propose to "just let lands burn up anyway." The BLM has only proposed to use of wildland fire for resource benefit in the Sulphur Spring Wildfire Management Area, an area where there is no threat to human life or property, and only when natural fire ignitions can be managed to meet desired resource objectives.

D.5.17.7 Vegetation Treatments Planning and Management – Methods - Herbicides

Comment No. 4-2 from Western Watersheds Project:

What toxic herbicides would this involve, and what would their effects be?

Response to Comment No. 4-2:

No herbicides would be used under the proposed 3 Bars Project. Herbicides could be used in the area for non-3 Bars Project treatments under existing authorizations. See responses to Comments 4-7 (Assessment Methodology – Risk Assessments) and 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences) for more information on herbicide use on the 3 Bars Project area.

Comment No. 4-6 from Western Watersheds Project:

This Supplemental Three [3] Bars EIS [as proposed by Western Watersheds Project] must also take a current, fresh and hard look at the use of any and all herbicides, the amount of herbicide that will be used, the specific herbicides that will be used – alone or in combination, their breakdown products and degradates, their persistence in the soils, and drift in wind, soil, or water.

Response to Comment No. 4-6:

No herbicides would be used under the proposed 3 Bars Project. Herbicides could be used in the area for non-3 Bars Project treatments under existing authorizations. See responses to Comments 4-7 (Assessment Methodology – Risk

Assessments) and 4-9 (Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences) for more information on herbicide use on the 3 Bars Project area.

D.5.17.8 Vegetation Treatments Planning and Management – Methods - Manual Treatments

Comment No. 4-106 from Western Watersheds Project:

It is not true that hand cutting has limited value over large areas. They cost the same as the use of highly destructive feller buncher chipper choppers, chaining, etc. BLM has hidden the massive cost of its bioengineeering scheme – and hand cutting is no more expensive that the rest of the immense battery of destruction. Plus it employs many more people

Response to Comment No. 4-106:

Hand cutting, along with classical biological control, are the only treatment methods allowed under Alternative C, Minimal Land Disturbance Alternative. The direct, indirect, and cumulative adverse and beneficial effects associated with treatments associated with this alternative compared to the other action alternatives are discussed under the Environmental Consequences sections for each resource area evaluated in the 3 Bars Project EIS. As shown in Table 3-73 (Estimated Treatment Costs per Acre) under Social and Economic Values and Environmental Justice, and discussed for response to Comment 4-113 (Alternatives), manual and classical biological control treatments cost 3 to 5 times or more per acre to implement than do fire and mechanical treatments per acre treated. As noted in Section 2.2, Summary of Major Changes between the Draft and Final EIS, the BLM has made modifications to proposed treatments based on public input. These include using manual treatments to remove most, if not all, pinyon-juniper in riparian and aspen treatment units; Phase I pinyon-juniper in pinyon-juniper treatment units; and Phase I and II, and often Phase III pinyon-juniper in sagebrush treatment units.

D.5.17.9 Vegetation Treatments Planning and Management – Methods - Mechanical Treatments

Comment No. 8-4 from M. Devlin:

Please reconsider whether destroying vegetation is advisable. Holistic Grazing Management consultant Alan Savory found that mechanical treatments, such as chaining, actually made matters worse.

Response to Comment No. 8-4:

Based on public comments on the Draft EIS, the BLM would not use chaining under the proposed action alternatives.

Comment No. 8-5 from M. Devlin:

Please reconsider whether using heavy machinery, such as bulldozers, to stabilize the area's streams is advisable. Won't such construction equipment create landscape-disturbances? Bulldozers are also noisy, resulting in yet more disturbances that will adversely impact the wild horses.

Response to Comment No. 8-5:

Comment noted.

D.5.17.10 Vegetation Treatments Planning and Management – Methods - Planting and Seeding

Comment No. 4-54 from Western Watersheds Project:

Why is BLM planning to destroy the Three [3] Bars landscape by planting species like crested wheatgrass or forage kochia, at the same time it is removing them?

Response to Comment No. 4-54:

As discussed in 3 Bars Project Final EIS Section 2.5.3.5, Alternatives, Seeding and Planting, seed mixes would primarily be composed of native species; however, non-native species may be used to meet restoration objectives in areas where interim measures associated with site stabilization are required (phased succession). Species selection would be based on site potential and objectives. A variety of seeding methods may be used.

Comment No. 4-66 from Western Watersheds Project:

Why are you encouraging the establishment of desirable non-native species? This reinforces that this EIS is aimed at promoting livestock forage grass – at the expense of all other values of the public lands and all other components of the Three [3] Bars sagebrush and PJ [pinyon-juniper] ecosystems and watersheds.

Response to Comment No. 4-66:

See response to Comment 4-54 (Vegetation Treatments Planning and Management – Methods – Planting and Seeding) regarding the use of native and non-native species. 3 Bars Project treatments would benefit forb and grass production for the benefit of a variety of plants and animals, not just livestock.

Comment No. 4-101 from Western Watersheds Project:

It appears since BLM refuses to use native plant species in any seedings and is promoting massive vegetation disturbance in a cheatgrass-prone landscape – it will end up with a coarse grass and weedland. First, weeds represent a loss of sustainable perennial forage for horses and livestock, and even less stability during Nevada's never-ending drought years. Second, seeding exotics just results in even worse grazing problems –as range cons stock lands based on coarse unpalatable grasses that get eaten less than native species. So native grasses, forbs, and even shrubs bear the brunt of the grazing pressures. Also, mapping shows some existing cwg [crested wheatgrass] areas already. WHY is BLM not focusing its bioengineering energy on these – and acting to restore them, and recover biodiversity including seeding sage[brush], bitterbrush, or other shrubs?

Response to Comment No. 4-101:

See response to Comment 4-54 (Vegetation Treatments Planning and Management – Methods – Planting and Seeding) regarding the use of native and non-native species.

Comment No. 4-153 from Western Watersheds Project:

BLM also arbitrarily failed to assess revegetating with only native species and local native ecotypes, in outright defiance of current best available science for Great Basin systems. This helps to demonstrate that this is at its heart a livestock forage project,

Response to Comment No. 4-153:

See response to Comment 4-54 (Vegetation Treatments Planning and Management – Methods – Planting and Seeding) regarding the use of native and non-native species. The BLM's preference is to use native species, except in some instances where non-native species, such as forage kochia and crested wheatgrass, may be better able to stabilize the site and prevent revegetation by cheatgrass until native species can establish and flourish on the treatment site.

Comment No. 4-226 from Western Watersheds Project:

What is a "replacement" species? Are we to have hybridized weedy coarse exotic and pseudo-native cow forage cultivars strewn across this supposed "restoration" landscape?

Response to Comment No. 4-226:

The commenter refers to text found on page 3-114 of the Draft EIS: "The key factors relating to the removal of a water consumptive species and increased infiltration are topographic slope, soil permeability, precipitation frequency and duration, and the water consumptive nature of the replacement species." In the context of the information provided on page 3-114, pinyon-juniper is the species being removed. As discussed in the previous paragraph on page 3-114, "removal of pinyon-juniper and replacement with a less water consumptive species is often cited as the prime example of the beneficial effect to groundwater recharge from removal of an invasive water consumptive species." In this case, native riparian species would revegetate the treatment site and result in improvement in groundwater recharge.

D.5.17.11 Vegetation Treatments Planning and Management – Methods – Riparian Treatments

Comment No. 4-117 from Western Watersheds Project:

Or alternatively but not considered, BLM could control the livestock sufficiently to allow willows to recover, and re-introduce beavers – Nature's Bioengineer! Are any beavers currently present in the project area?

Response to Comment No. 4-117:

The BLM would use several approaches to improve riparian habitat as discussed in Final EIS Section 2.5.3.7, Alternatives, Streambank Stabilization and Channel Restoration. This could include plantings of willows, and could include use of small, temporary exclosure fencing to exclude livestock, wild horses, and other wild ungulates to ensure treatment success. In addition, as discussed in Final EIS Section 3.18.4, Livestock Grazing, Mitigation, Riparian Treatments Monitoring and Mitigation Measures, the BLM would implement monitoring and mitigation measures associated with livestock management to promote riparian treatment success, including restrictions on

grazing season of use, removing livestock if herbaceous and shrubby vegetation conditions deteriorate, and using temporary fencing and water developments to manage livestock use patterns.

Comment No. 4-119 from Western Watersheds Project:

One thing might actually fix these watersheds, stabilize headcuts, store water naturally in systems, and increase sustainable perennial flows – i.e. nature's own living, breathing, chewing dam building, water-retaining engineer – the beaver.

Response to Comment No. 4-119:

Wildlife is managed by NDOW, and the BLM would be willing to work with NDOW on any reintroduction of native wildlife species.

Comment No. 4-176 from Western Watersheds Project:

BLM relied on natural recovery, and beavers, the stream could over time be brought closer to being in contact with its floodplain.

Response to Comment No. 4-176:

See response to Comment 4-119 (Vegetation Treatments Planning and Management – Methods – Riparian Treatments).

Comment No. 4-190 from Western Watersheds Project:

Removal of PJ [pinyon-juniper] may reduce, degrade, stream systems and hydrology, and result in lethal temperatures for aquatic species, algae blooms, etc. it may cause large-scale new headcutting and erosional events.

Response to Comment No. 4-190:

Potential concerns associated with the removal of pinyon-juniper and other vegetation near streams are discussed in Final EIS Section 3.11.3 (Wetlands, Floodplains, and Riparian Zones, Environmental Consequences), including the potential for short-term increases in stream temperature and channel degradation. The BLM would consult with the USFWS and NDOW to ensure that proposed treatments would not harm Lahontan cutthroat trout, as discussed in Final EIS Section 3.15.3 (Fish and other Aquatic Resources, Environmental Consequences). Long-term, treatments should help to reduce adverse alterations to channel morphology, moderate stream temperature, and increase the amount of stream habitat in Proper Functioning Condition, as discussed in Final EIS Section 3.11.3.6, Relationship between the Local Short-term Uses and Maintenance and Enhancement of Long-term Productivity, for Wetlands, Floodplains, and Riparian Zones.

Comment No. 4-191 from Western Watersheds Project:

None of the stream channels is actually big enough for a bulldozer to fit into, is it?

Response to Comment No. 4-191:

Bulldozers would primarily be used to transport and install natural (e.g., plantings, rock) and man-made (e.g., weir) structures to address streambank structural issues. Dirt work within the stream would most likely be done by a back-hoe rather than a bulldozer, as movement of dirt can be more carefully controlled using a back-hoe than bulldozer. Give that most stream channels are relatively narrow on the 3 Bars Project area, and to minimize stream channel disturbance, back-hoes would be positioned outside of the stream channel and would reach into the stream channel to manipulate soil. It is highly unlikely that bulldozers would enter stream channels. The BLM would not conduct any in-stream work within Willow Creek.

Comment No. 4-194 from Western Watersheds Project:

the BLM would maintain vegetated buffers between the treatment area and wetlands … How would you propose doing that when you are planning to destroy the only vegetation that has been able to survive the scorched earth grazing BLM has been imposing on these lands all of these years – i.e. the PJ [pinyon-juniper] in steep, rugged terrain?

Response to Comment No. 4-194:

See response to Comment 4-32 (Fish and other Aquatic Resources - Environmental Consequences) and 4-191 (Vegetation Treatments Planning and Management – Methods – Riparian Treatments) regarding treatments near streams and wetlands. The BLM would remove vegetation incrementally over several years if loss of shade near streams and other waterbodies is of concern to minimize stream temperature effects.

Comment No. 4-245 from Western Watersheds Project:

BLM claims it will replant its bulldozed, devegetated, cut banks – how long will it take for willows to recover to the height of junipers?

Response to Comment No. 4-245:

It could take up to ten years for planted willows to mature. The larger concern to the BLM is the type of vegetation found within riparian treatment areas. As noted in Final EIS Section 3.11.3.3, Wetland, Floodplains, and Riparian Zones, Direct and Indirect Effects, pinyon and juniper are not riparian species, and are not as effective as native vegetation in stabilizing soil. Under pinyon-juniper treatments, the BLM has identified several projects to thin and/or remove pinyon-juniper to potentially increase water flows in streams and improve water infiltration.

D.5.17.12 Vegetation Treatments Planning and Management – Roads

Comment No. 4-86 from Western Watersheds Project:

We stress that BLM never addresses very likely road upgrades associated with all parts of this project. Small two tracks will be smoothed out into roads, Trees will be cleared and sage[brush] crushed and destroyed - opening up wildlife habitats.

Response to Comment No. 4-86:

As noted in Final EIS Appendix C, Section C.2.1, Project Specific Standard Operating Procedures, General, under Item 5, "No new roads will be constructed." Two-tracks are not proposed to be maintained or upgraded to ensure compliance with the Shoshone-Eureka RMP, which requires that any improved roads be designated through a travel management plan.

Comment No. 4-166 from Western Watersheds Project:

BLM fails to address the potential road upgrades and improvements that would occur as its fleet of dump trucks, crushers, choppers, pile burning scorching the soils, chainers, fire vehicles, etc. are unleashed on the landscape and sensitive watersheds.

Response to Comment No. 4-166:

See response to Comment 4-86 (Vegetation Treatments Planning and Management – Roads).

D.5.17.13 Vegetation Treatments Planning and Management – Treatment Costs

Comment No. 4-37 from Western Watersheds Project:

BLM has not adequately revealed how extraordinarily expensive the Preferred Alt.[ernative] actions are, and how much all linked and connected actions, including massive seeding, herbiciding, etc. as weeds invade would be.

Response to Comment No. 4-37:

As shown in Table 3-73 (Estimated Treatment Costs per Acre) in Final EIS Section 3.25.3, Social and Economic Values and Environmental Justice, Environmental Consequences, and discussed in response to Comment 4-113 (Alternatives), treatment costs vary by method, with manual and classical biological control treatments costing 3 to 5 times or more to implement per acre treated than do fire and mechanical treatments. Since the BLM would have the opportunity to use all proposed treatment methods under Alternative A (Preferred Alternative), it could use lower cost per acre treatments, and treat more acres for a fixed cost, than under Alternatives B and C. The effects of connected actions are discussed under Environmental Consequences for direct, indirect, and cumulative effects for each resource evaluated in the 3 Bars Project EIS.

Comment No. 4-38 from Western Watersheds Project:

It has also not quantified the scenic, cultural, natural historic, wildlife and wild horse viewing, water sustainability loss and other treatment-related costs and losses values.

Response to Comment No. 4-38:

See response to Comment 4-37 (Vegetation Treatments Planning and Management – Treatment Costs) on the cost of treatments. As discussed in Final EIS Section 1.14, Limitations of this EIS, it was not possible for the BLM to quantify some impacts due to limited or unavailable information. Values referenced by the commenter vary by individual depending upon the individual's interest in the resource area and value the individual places upon the

resource. As discussed in the 3 Bars Project EIS under Environmental Consequences, and in particular under "Relationship between the Local Short-term Use and Maintenance and Enhancement of Long-term Productivity," the BLM anticipates that there will be short-term losses of resource values from treatments, but that resource values would improve long-term from current conditions.

D.5.17.14 Vegetation Treatments Planning and Management – Treatment Areas - Riparian

Comment No. 4-125 from Western Watersheds Project:

BLM claims it will undertake 3,885 acres of riparian treatment. How many actual riparian acres are currently present? How many were historically present? How much of this area is has wet soils at present? How will this be altered by the project? How many miles of perennial flows? Where? Please provide detailed mapping? How has 2013 drought affected this? What types of springs are providing flows? Are they dependent on snowmelt?

Response to Comment No. 4-125:

The BLM proposes to conduct treatments on about 3,885 acres adjacent to streams, ponds, and springs. There are approximately 96 miles of permanent stream that provide riparian habitat and wet soils year-round, and 2,335 miles of intermittent/ephemeral stream that also provide some riparian habitat and wet soils during a portion of the year, on the 3 Bars Project area. The BLM would restore about 31 miles of perennial streams, 17 miles of intermittent streams, and 40 springs. There are also about 2,363 acres of wetlands on the 3 Bars Project area that have wet soils during all or part of the year. The location of streams, lakes, ponds, wetlands, and springs are shown on Final EIS Figure 3-23 (Streams, Lakes, Ponds, and Wetlands) and summarized in Table 3-15 (Perennial and Intermittent/Ephemeral Streams on the Project Area), under Water Resources. Final EIS Section 3.10.2.3.3, Water Resources, Springs, discusses the status of springs on the 3 Bars Project area; EIS Table 3-18 (Flow Measurements at Springs) provides flow measurements for several springs. Most springs are in mountainous portions of the project area, and would thus benefit from snowmelt during the spring. The Environmental Consequences sections of Final EIS Sections 3.10, Water Resources, and 3.11, Wetlands, Floodplains, and Riparian Zones, discuss the effects of proposed treatments on riparian resources in the Riparian Treatments subsections. The term "historically" was not defined by the commenter, but riparian acreage has likely changed little during the past several decades. Drought conditions would affect the duration and amount of flow in streams and springs. 3 Bars Project Final EIS Section 3.5.2.2, Climate Change, discusses predicted effects to precipitation and water flows.

D.5.17.15 Vegetation Treatments Planning and Management – Treatment Areas - Sagebrush

Comment No. 3-1 from the Nevada Department of Wildlife:

It was our recommendation that within mid and lower elevation sagebrush communities treatment test plots be conducted (several hundred acres or less) in an effort to ensure that we can effect positive change in these drier sites. We recommended that these tests be conducted prior to identified large scale treatments. At present, knowledge concerning the reestablishment of native herbaceous species within a sagebrush over story is not well known. It is thought that before BLM initiates treatment in these vegetation communities on a large scale that we should have a good idea that the treatment applied will be successful.

Response to Comment No. 3-1:

Treatments in sagebrush would be limited to removing pinyon-juniper and seeding with native species. The BLM is willing to work with NDOW on the design and implementation of these proposed projects.

D.5.18 Water Resources

D.5.18.1 Water Resources – Affected Environment

Comment No. 4-151 from Western Watersheds Project:

BLM has not provided necessary detailed and site-specific information not only on the ones [springs] the EIS would attack, it has also not provided detailed site-specific information on the ones it would leave alone. Mapping of their location, assessment of their conditions, flows over the course of the year, predicted effects of mine and climate change, etc. - in the Three [3] Bars landscape have not been conducted. All of this information is necessary to assess the relative scarcity of undeveloped or unaltered springs – and understand the full context and intensity of the loss that would if BLM's bulldozing dries up springs, or spring-fed segments of streams.

Response to Comment No. 4-151:

The location of streams, lakes, ponds, wetlands, and springs are shown on Final EIS Figure 3-22 (Streams, Lakes, Ponds, and Wetlands) and summarized in EIS Table 3-15 (Perennial and Intermittent/Ephemeral Streams on the Project Area). Final EIS Section 3.10.2.3.3, Water Resources, Springs, discusses the status of springs on the 3 Bars Project area; EIS Table 3-18 (Flow Measurements at Springs) provides flow measurements for several springs. Most springs are in mountainous portions of the project area, and would thus benefit from snowmelt during the spring. The locations of 12 springs that would be treated by the BLM are shown on Final EIS Figure 2-1, Riparian Treatment Areas; the remaining 322 springs shown on Final EIS Figure 3-22 would not be treated.

Comment No. 4-152 from Western Watersheds Project:

Despite the endless EIS tables listing various habitat treatment destruction all over the place, even the most minimal and basic information on the streams and springs is lacking. For example, what is the volume of perennial water flow in all stream, spring, springbrook areas over all months of the year? How has it been altered by grazing, past treatments, roads, water developments for livestock, etc. Were there water inventories done here in the 1970s-1990s? If so, what was found? How do past flow rates for any periods that data is available compare to current flow rates? How much climate change adversely impact perennial flows? How long is the current perennial wetted segment/segments of the stream spring system? How has this changed over time?

Response to Comment No. 4-152:

Information on water resources is provided in Final EIS Sections 3.10, Water Resources, and 3.11, Wetlands, Floodplains, and Riparian Zones, including information on flows. Additional discussion of flows and water quality of streams on much of the 3 Bars Project area is provided in the Mount Hope Project EIS (available at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/mount_hope_project0.html.) and for streams with Lahontan cutthroat trout in the *Biological Assessment for the 3 Bars Ecosystem and Landscape Restoration Project* (USDOI BLM 2014). As discussed under Environmental Consequences, Cumulative Effects, Final EIS Sections 3.10 (Water Resources) and 3.11 (Wetlands, Floodplains, and Riparian Zones), livestock

management, roads, water developments, pinyon-juniper encroachment, noxious weeds, wildfire, and other factors have altered surface water flows and contributed to the need to restore several streams and springs on the 3 Bars Project area. Information on seasonal flow rates for several streams is given in EIS Tables 3-16 (Flow Summary from U.S. Geological Survey Monitoring Stations) and 3-17 (Site-specific Stream Investigations); more detailed information is provided in the Mount Hope Project EIS. The BLM does not have data on historic flows for streams and springs, other than for data presented in the EIS. Final EIS Section 3.10.2.5, Water Resources, Groundwater Resources, provides historical information on groundwater resources on the 3 Bars Project area. Drought conditions would affect the duration and amount of flow in streams and springs. Final EIS Section 3.5.2.2, Climate Change, discusses predicted effects to precipitation and water flows due to climate change.

Comment No. 4-183 from Western Watersheds Project:

Table 3-15 shows how very little perennial stream flow exists. When and how was the info collected that this is based on?

Response to Comment No. 4-183:

Data provided in Table 3-15 ((Perennial and Intermittent/Ephemeral Streams on the Project Area) were based on several sources—JBR (2009), Montgomery and Associates (2010), and U.S. Geological Survey (2012a). Studies in support of the Mount Hope Project were conducted during 2007 and 2010 by JBR and Montgomery and Associates, while U.S. Geological Survey monitoring was done during 2010 to 2012, as shown in Final EIS Table 3-16 (Flow Summary from U.S. Geological Survey Monitoring Stations). Other historic information on water flows in the 3 Bars Project area is given in Final EIS Section 3.10.2.3.2, Streams and Creek Flows by Basin.

D.5.18.2 Water Resources – Assessment Methodology

Comment No. 4-185 from Western Watersheds Project:

How has BLM determined the effects of deforestation on rapid water loss and site drying, including in hotter, harsher, windier drier sites where water will simply be lost to the wind?

Response to Comment No. 4-185:

The effects of thinning and removal of pinyon-juniper and noxious weeds and other invasive non-native vegetation on water resources are discussed in Final EIS Section 3.10, Water Resources. Short-term, there could be an increase in runoff and erosion due to vegetation removal, although studies have also shown an improvement in infiltration short-term due to removal of pinyon-juniper in Phase II and III woodlands. Long-term, treatments should improve hydrologic function, stream flows, water infiltration, groundwater recharge, and water quality while reducing erosion.

D.5.18.3 Water Resources – Cumulative Effects

Comment No. 4-156 from Western Watersheds Project:

BLM must also fully assess the impacts of geothermal activity or other energy activity that may use fracking. Does mining use a process akin to fracking, as well? It appears to us that the massive bioengineering scheme – which is certain to further deplete, destroy and diminishing perennial surface waters will also serve as "cover" for the masking the large-scale adverse impacts of all the declines that are underway (and/or highly foreseeable) in the aquifer – from

mining aquifer drawdown, continued irrigation of marginal crops using ground water pumping, and from foreseeable fracking-like activity associated with geothermal development.

Response to Comment No. 4-156:

The cumulative effects from past, present, and reasonably foreseeable future actions for water resources are discussed in Final EIS Section 3.10.3.4, Water Resources, Cumulative Effects. Waste rock and ore are removed by blasting during mining. Fracking could be used for geothermal development projects on or near the 3 Bars Project area. Although there could short-term loss of soil and deterioration of water quality due to proposed stream treatments, these treatments, including bioengineering treatments, would restore stream functionality and improve water flows and quality long-term (see Final EIS Sections 2.3.1.3.7, Streambank Stabilization and Channel Restoration, and 3.10.3.3, Water Resources, Direct and Indirect Effects).

Comment No. 4-181 from Western Watersheds Project:

[Page] 3-107 [of the Draft EIS] admits the Kobeh Valley is losing water due to pumpage from groundwater storage. It is clear that the Diamond Valley is turning into a dustbowl DEIA [Draft EIS] at [Page] 3-108 state that irrigation pumping has created a groundwater depression, and the southern part of the valley is subsiding. What effect is overall mine depletion of ground water – Cortez to Robinson and all points in between – having on this, as well?

Response to Comment No. 4-181:

The cumulative effects from past, present, and reasonably foreseeable future actions for water resources are discussed in Final EIS Section 3.10.3.4, Water Resources, Cumulative Effects. As noted in Table 4.2-4 (Past, Present, and Reasonably Foreseeable Future Actions for the Native American Traditional Concerns Cumulative Effects Study Area) of the Mount Hope Project EIS, dewatering and groundwater consumption have occurred at several mines in the 3 Bars Project cumulative effects study area (available at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/mount_hope_project0.html). These effects, and those that would occur from development of the Mount Hope Project, are discussed in 3 Bars Project Final EIS Section 3.10.3.4 (Water Resources, Cumulative Effects), and in the Mount Hope Project EIS.

Comment No. 4-182 from Western Watersheds Project:

Grass Valley is also in serious trouble, and now the Ormat geothermal developers are punching holes in the aquifer all over the place. Are they using processes akin to fracking? Instead, though, of looking at any current information – BLM uses figures from 1966 in its so-called "analysis". We are greatly concerned that no information on mining impacts to aquifers (current or projected) is in here at all.

Response to Comment No. 4-182:

Geothermal development may use fracking. The cumulative effects from past, present, and reasonably foreseeable future actions for water resources are discussed in Final EIS Section 3.10.3.4, Water Resources, Cumulative Effects. Much of the information in this section related to mining, including effects of mining, agriculture, and other water uses on groundwater resources and water balance, was taken from the Mount Hope Project EIS from studies conducted in 2009 and 2010 (Montgomery and Associates 2010; see 3 Bars Project Final EIS Section 3.10.2.5, Water Resources, Groundwater Resources). The reader is encouraged to review this report and other groundwater studies

conducted in support of the Mount Hope Project EIS at URL: http://www.blm.gov/nv/st/en/fo/battle_mountain_field/blm_information/national_environmental/mount_hope_project0.html.

D.5.18.4 Water Resources – Environmental Consequences

Comment No. 4-128 from Western Watersheds Project:

Track-hoes, back-hoes, and dump trucks would be used for dirt work and to haul rock. BLM is highly likely to puncture and destroy the underlying clay layers where spring waters seep out, or impact areas of snowmelt deposition. See Sada et al. 2001, *BLM Technical Bulletin*. This will result in killing all surface flows – which instead of "improving" wildlife habitat and aquatic species habitat, will destroy it. Many important wild land springs will be ripped and torn apart:

Response to Comment No. 4-128:

See response to Comments 4-125 (Vegetation Treatments Planning and Management – Treatment Areas - Riparian), 4-151 (Water Resources – Affected Environment), and 4-191 (Vegetation Treatments Planning and Management – Methods – Riparian Treatments).

Comment No. 4-147 from Western Watersheds Project:

The EIS refused to consider a significant concern – the aquifer depletion from the moly [molybdenum] mine, the Carlin trend mines to the north, mines to the east, and from ag[riculture] pumping in the valleys. It is impossible to understand how this all will affect use of the landscape by all animals, recreation, impairment of the values of the WSA [Wilderness Study Area], and many important components of the public lands. Is this then why BLM plans to cut down all trees within 200 ft of the stream? Hoping to reduce transpiration and magically make there be more water - because the mines are drying up the springs, seeps and streams across the region? And is this why the bulldozing of the streams?

Response to Comment No. 4-147:

See response to Comments 4-186 and 4-187 (Water Resources – Cumulative Effects) for the effects of past, present, and reasonably foreseeable future mining, agriculture, and other activities on surface and groundwater resources within the 3 Bars Project cumulative effects study area. The adverse and beneficial effects of vegetation removal on hydrologic function, stream flows, water infiltration, groundwater recharge, water quality, and erosion are discussed in Final EIS Section 3.10.3, Water Resources, Environmental Consequences. The use of bulldozers near streams, and their effects, are discussed under Comment 4-191 (Vegetation Treatments Planning and Management – Methods – Riparian).

Comment No. 4-150 from Western Watersheds Project:

So then why has BLM not addressed the aquifer concerns WWP [Western Watersheds Project] raised in Scoping?

Response to Comment No. 4-150:

As noted in the *Final Scoping Report 3 Bars Ecosystem and Landscape Restoration* Project (AECOM 2010; available at URL: https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=37403), Table 3, Scoping Comment Issue Summary, and 3 Bars Project Final EIS Section 3.10.3, Water Resources, Environmental Consequences, effects on local aquifers from 3 Bars and other projects on groundwater resources were identified as a key issue to be addressed in the 3 Bars Project EIS. See response to Comments 4-181 and 4-182 (Water Resources – Cumulative Effects) for the effects of past, present, and reasonably foreseeable future mining, agriculture, and other activities on surface and groundwater resources within the 3 Bars Project cumulative effects study area. One commenter during public scoping asked the BLM to evaluate the effects of groundwater removal from the Southern Nevada Water Project on 3 Bars Project water resources. The BLM did not conduct this analysis because groundwater resources that would be used for the Southern Nevada Water Project are far removed from the 3 Bars Project area and do not interact with those on the 3 Bars Project area.

Comment No. 4-180 from Western Watersheds Project:

How many of the 334 springs have been dug into, piped, or otherwise altered for livestock? What were the impacts? What is the aquatic habitat condition at these? How dependent are they on snow accumulation? How will deforestation and denuding of the landscape reduce snow accumulation and speed.

Response to Comment No. 4-180:

Impacts from the proposed action to Water Resources can be found in Section 3.10 of Chapter 3, and impacts to Wetlands, Floodplains and Riparian Zones can be found in Section 3.11 of Chapter 3, of the Final EIS. Also see Figure 3-24 (Water Developments and Water Uses) in the Final EIS for the locations of water developments on the 3 Bars Project area.

Comment No. 4-184 from Western Watersheds Project:

There is no clear evidence that killing trees will increase water to any significant extent, especially after the full extent of erosion and grazing plays out. Will treatments remove stockponds? And what kind of water developments are being considered?

Response to Comment No. 4-184:

Studies that discuss the pros and cons of pinyon-juniper removal to improve water flows and infiltration are discussed in Final EIS Section 3.10.3, Water Resources, Environmental Consequences, Pinyon-juniper Treatments. The BLM does not propose to remove stockponds, or create water developments, under the 3 Bars Project.

Comment No. 4-188 from Western Watersheds Project:

BLM admits that "restoration"/destruction of native vegetation and disturbance of soils making them susceptible to erosion would affect surface water quality. The studies BLM cites do not account for livestock grazing effects. See Belsky 1996, for example. Note the Pierson study showing that erosion was 20-fold greater on burned sites.

Response to Comment No. 4-188:

The effects of livestock grazing and other past, present, and reasonably foreseeable future actions on water resources are discussed in Final EIS Section 3.10.3.4, Water Resources, Cumulative Effects. Pierson (2013; see Section 3.10.3, Water Resources, Environmental Consequences) did observe that runoff and erosion increased post fire, but also stated that activities that stimulate vegetation productivity may provide long-term reduction of soil loss, especially when compared to untreated areas with pinyon-juniper. The BLM has included this information in Final EIS Section 3.10.3, Water Resources, Environmental Consequences.

Comment No. 6-3 from J. Brown:

Any "treatments" to water sources (including use of motorized machinery) must be clearly outlined – specific locations, duration of each treatment, etc. must be disclosed and analyzed, and alternative actions with fewer impacts must be analyzed to ensure the most environmentally-friendly "treatment" is implemented.

Response to Comment No. 6-3:

Site-specific treatment locations and actions are clearly defined in Chapter 2. See response to Comment 4-135 (Alternatives) for a discussion of alternatives proposed for the 3 Bars Project.

Comment No. 9-7 from K. Gregg:

Any "treatments" to water sources (including use of motorized machinery) must be clearly outlined – specific locations, duration of each treatment, etc. must be disclosed and analyzed, and alternative actions with fewer impacts must be analyzed to ensure the most environmentally-friendly "treatment" is implemented.

Response to Comment No. 9-7:

See response to Comment 6-3 (Water Resources – Environmental Consequences).

D.5.19 Wetlands, Floodplains, and Riparian Zones

D.5.19.1 Wetlands, Floodplains, and Riparian Zones – Affected Environment

Comment No. 4-126 from Western Watersheds Project:

BLM here refers to PFC [Proper Functioning Condition]. PFC provides no valid assessment of aquatic habitat components. Who conducted PFC? When? Why was no assessment of aquatic habitat composition conducted? What biases are associated with PFC?

Response to Comment No. 4-126:

BLM ecologists have conducted Proper Function Condition surveys on about 179 miles of stream and 167 acres of wetlands. Surveys were conducted during the past 2 decades. Important components considered during the studies are discussed in Final EIS Section 3.11.2.5 (Wetlands, Floodplains, and Riparian Zones, Proper Functioning Condition Surveys), and in *Riparian Area Management, A User Guide to Assessing Proper Functioning Condition and Support Science for Lotic Areas* (USDOI BLM 1998; available at URL:

www.blm.gov/or/programs/nrst/files/Final%20TR%201737-15.pdf). Based on this guidance, BLM ecologists conduct field assessments of 17 riparian/aquatic habitat components to determine if riparian-wetland areas are functioning properly. These include components that help to determine if adequate vegetation, land form, or large woody debris are present to:

- dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality;
- filter sediment, capture bedload, and aid floodplain development;
- improve floodwater retention and groundwater recharge;
- develop root masses that stabilize streambanks against cutting action;
- develop diverse ponding and channel characteristics *to provide* the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses;
- and support greater biodiversity.

The methodology provided in the Guide helps BLM ecologists with the assessment process and helps to reduce the potential for bias among field surveyors.

Comment No. 4-189 from Western Watersheds Project:

Who conducted the PFC [Proper Functioning Condition] inventories and when? How was trend determined? How might these treatments degrade conditions? How can highly degraded watersheds withstand treatments? How and when does grazing occur? What is actual use any pasture? What riparian standards are in place, and where and when are they measured? What does monitoring show, and please provide this.

Response to Comment No. 4-189:

Proper Functioning Condition surveys and monitoring studies have been conducted by the BLM since the 1990s. The criteria for determining Proper Functioning Condition, and results of these studies, are given in Final EIS Section 3.11.2.5, Wetlands, Floodplains, and Riparian Zones, Proper Functioning Condition Surveys. The methods used to conduct Proper Functioning Condition are in *Riparian Area Management, A User Guide to Assessing Proper Functioning Condition and Support Science for Lotic Areas* (USDOI BLM 1998; available at URL: www.blm.gov/or/programs/nrst/files/Final%20TR%201737-15.pdf). As discussed in Final EIS Section 3.11.3, Wetland, Floodplains, and Riparian Zones, Environmental Consequences, proposed 3 Bars Project treatments could lead to short-term degradation of riparian function, but should lead to long-term improvement in riparian function. Highly degraded streams would be most in need for treatment to ensure that they do not continue to degrade. Grazing management is discussed in Final EIS Section 3.18, Livestock Grazing. Riparian standards are discussed in USDOI BLM (1998), and Final EIS Appendix C, Standard Operating Procedures. The BLM has also proposed mitigation and monitoring measures for the 3 Bars Project to ensure treatment success in riparian and other areas on the 3 Bars Project area, as discussed in Final EIS Section 3.18.4, Livestock Grazing, Mitigation.

D.5.19.2 Wetlands, Floodplains, and Riparian Zones – Environmental Consequences

Comment No. 4-33 from Western Watersheds Project:

Much more detailed analysis that must be conducted that avoids disturbance in RHCAs [Riparian Habitat Conservation Areas].

Response to Comment No. 4-33:

Aquatic Conservation Strategy standards and guidelines for riparian areas, including Riparian Habitat Conservation Areas, have been developed and are included in all BLM and Forest Service resource management plans through the Northwest Forest Plan (USDA Forest Service and USDOI BLM. 2004. Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl. Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy. Portland, Oregon. Available at URL: http://www.reo.gov/documents/acs/FinalROD03_17_04.pdf) to protect anadromous fish and bull trout within the Columbia River Basin. Riparian Habitat Conservation Areas were not developed for Nevada. However, as discussed in 3 Bars Project Final EIS Section 2.3.1.1, Alternatives, Riparian Treatment Units, the BLM has identified about 3,885 acres of riparian zone habitat for restoration on the 3 Bars Project area. In Final EIS Section 3.11, Wetlands, Floodplains, and Riparian Zones, and Appendix C, Section C.2.7, Standard Operating Procedures, Riparian Management, the BLM has identified numerous SOPs to ensure protection of riparian zones treatment areas and other riparian zone habitat within the 3 Bars Project area.

D.5.20 Wilderness Study Areas and other Special Management Areas

D.5.20.1 Wilderness Study Areas and other Special Management Areas – Affected Environment

Comment No. 4-246 from Western Watersheds Project:

Why haven't you done a Lands with Wilderness Characteristics study across the Three [3] Bars area? Particularly in the Simpson Park area?

Response to Comment No. 4-246:

An inventory of Lands with Wilderness Characteristics was completed in 2012 for Battle Mountain District, as part of the Resource Management Plan Revision in progress for the District. That inventory did not show any areas meeting the criteria for Lands with Wilderness Character in the 3 Bars Project area, and the proposed land treatments and project activities as part of the 3 Bars Project should not impact any Lands with Wilderness Character. Future project activities in upcoming years may be subject to additional and appropriate site-specific review under NEPA, and the inventory may be updated at that time as part of such site-specific review. The inventory also will be updated as the Resource Management Plan Revision further progresses for the whole Battle Mountain District.

D.5.20.2 Wilderness Study Areas and other Special Management Areas – Cumulative Effects

Comment No. 4-247 from Western Watersheds Project:

BLM has failed to provide an adequate baseline of the current degree and severity of impairment of values from livestock grazing degradation or other threats to the WSAs.

Response to Comment No. 4-247:

Impacts to WSAs can be found in Final EIS Chapter 3, Sections 3.22.3.3 and 3.22.3.4 (Wilderness Study Areas and other Special Management Areas).

Comment No. 4-248 from Western Watersheds Project:

We are very concerned about all the BLM proposed herbicide use, including aerial application where there is significant risk of drift.

Response to Comment No. 4-248:

No herbicides are being proposed for use as part of any proposed action for the 3 Bars Project.

D.5.20.3 Wilderness Study Areas and other Special Management Areas – Environmental Consequences

Comment No. 4-127 from Western Watersheds Project:

Where is a current survey for Lands with Wilderness Characteristics? Please provide us with this document. How will this affect and impair the values of both WSAs and LWC [Lands with Wilderness Characteristics]?

Response to Comment No. 4-127:

An inventory of Lands with Wilderness Characteristics was completed in 2012 for Battle Mountain District, as part of the Resource Management Plan Revision in progress for the District. That inventory did not show any areas meeting the criteria for Lands with Wilderness Character in the 3 Bars Project area, and the proposed land treatments and project activities as part of the 3 Bars Project should not impact any Lands with Wilderness Character. Future project activities in upcoming years may be subject to additional and appropriate site-specific review under NEPA, and the inventory may be updated at that time as part of such site-specific review. The inventory also will be updated as the Resource Management Plan Revision further progresses for the whole Battle Mountain District.

D.5.21 Wild Horses

D.5.21.1 Wild Horses – Affected Environment

Comment No. 4-18 from Western Watersheds Project:

Where are the areas of the HMAs with less disturbance and intrusion?

Response to Comment No. 4-18:

Final EIS Figure 3-43 shows areas within HMAs where habitat needs improvement. It is unclear what type of disturbance or intrusion the commenter is referring to in this question.

Comment No. 4-72 from Western Watersheds Project:

Where are all foaling areas, winter habitats, etc. and how do the horses and individual horse bands use this landscape?

Response to Comment No. 4-72:

The affected environment for wild horses within the 3 Bars Project Area is described in Section 3.17.2 (Wild Horses, Affected Environment) of the EIS. The Battle Mountain District does not have records of specific foaling areas by HMA, or information about individual bands of horses within the HMAs.

The Roberts Mountain HMA is the largest HMA within the project area. This HMA consists of lower elevation Wyoming big sagebrush and higher elevation sites that either support pinyon-juniper woodlands or mountain big sagebrush. Wild horse movement and usage patterns are affected by many variables including climate and weather; forage and water availability; wild horse population size and resulting competition for space, forage, and water; human activity (mining, hunting, recreating, ranching); and wild horse gathers. Within the Roberts Mountain HMA, a portion of the wild horse population resides in both lower and higher elevations during the year. During winter, many horses may move into the lower elevations of Kobeh Valley in the Roberts Mountain HMA, and the Kobeh Valley Herd Area, where snow is not as deep. In the summer, many horses use the open mountain big sagebrush slopes on higher elevations where forage and water are available, and temperatures are cooler. In recent years, with the HMA population in excess of AML, a large portion of the population resides north of the HMA boundary in the Three Bars and Roberts Mountain Allotments.

The small portion of the Fish Creek HMA within the project area is associated with the Roberts Mountain HMA and these two areas are managed as a Complex. No perennial waters are found within the Fish Creek HMA. Wild horses use the Kobeh Herd Area surrounding the Fish Creek HMA as they pass through Kobeh Valley into the Roberts Mountain and Whistler Mountain HMAs. During summer, only a few wild horses are typically observed near the Fish Creek HMA. Populations may increase in winter based on the severity of snow in the valley as wild horses move into lower elevations with less snow to forage.

The Whistler Mountain HMA is also associated with the Roberts Mountain HMA. Wild horses are not typically found within the Whistler Mountain HMA year-round, as the HMA is small and lacks water sources. Instead, horses move back and forth between the Whistler Mountain HMA, Kobeh Valley, and the Roberts Mountain HMA.

Rocky Hills is near, but not associated with, the Roberts Mountain HMA, although occasional movement of wild horse between the two areas does occur. The Rocky Hills HMA is comprised of lower valley areas supporting black and Wyoming big sagebrush, and rolling terrain covered with varying amounts of pinyon-juniper woodlands. The area endured a large wildfire in 1999 (Trail Canyon Fire) that burned a large portion of the HMA. Currently, crested wheatgrass and forage kochia are present in the northern portion of the Rocky Hills HMA due to seeding efforts following the 1999 Trail Canyon Wildfire. Wild horses do not currently, and have not historically, used the HMA evenly. Most wild horses congregate in the northern portion of the HMA near Cadet Springs. No use of the southern portion of the HMA has been documented since 1998, and wild horses rarely utilize the western portion of the HMA in the Grass Valley Allotment.

D.5.21.2 Wild Horses – Environmental Consequences

Comment No. 4-69 from Western Watersheds Project:

How has BLM systematically and methodically separated wild horse impacts from livestock impacts? How has BLM taken livestock trespass and non-compliance into account in this? Please provide all the monitoring and other data this claim is based on in a Supplemental EIS.

Response to Comment No. 4-69:

See Final EIS Chapter 3, Section 3.17.2 (Wild Horses, Affected Environment) for information on the affected environment for wild horses, and Section 3.18.2 (Livestock, Affected Environment) for information on the affected environment for livestock. The analysis for this project does not require that the impacts from wild horses be separated from livestock. As discussed in Section 3.17.3 (Environmental Consequences, Cumulative Effects), historical use by both wild horses and livestock have had impacts within the 3-Bars ecosystem. It is unclear what claim the commenter is referring to, or what particular monitoring data are being requested.

Comment No. 4-71 from Western Watersheds Project:

What reference areas is BLM using to separate livestock vs. wild horse impacts? Are there any? Where? What size? What do they show? This Project spans 4 HMAs, and Fish Creek extends beyond the Project area. What is the condition of lands outside the Project area? What are the threats to those areas – from mines, weeds, energy, grazing, roads, etc.?

Response to Comment No. 4-71:

See response to Comment 4-69 (Wild Horses – Environmental Consequences). See Final EIS Chapter 3, Section 3.17.2 (Wild Horses, Affected Environment) for information on the affected environment for wild horses The conditions of lands outside the project area are considered in the cumulative impacts analysis in Section 3.17.3.4 (Wild Horses, Environmental Consequences, Cumulative Effects).

Comment No. 4-92 from Western Watersheds Project:

The D[raft]EIS fails to ensure viable wild horse herds, because it lacks necessary detailed information and analysis of the projects that will be conducted, how grazing will be dealt with, the many stresses on the HMAs and herds, and many other serious concerns.

Response to Comment No. 4-92:

As discussed in Section 1.3.5 of the Final EIS, Proposed Action and Purpose and Need, Wild Horses, there is concern regarding the effects of multiple factors on rangeland resources for wild horses. An important objective of the RMP for the Shoshone-Eureka Resource Area is to manage viable herds of sound, healthy, wild horses in a wild and free-roaming state (see Table 1-1 in Final EIS Section 1.6.2, Shoshone-Eureka RMP). Information on how projects would be conducted is provided in Final EIS Chapter 2, Alternatives. The effects of treatments on wild horses are discussed in Final EIS Section 3.17.3, Wild Horses, Environmental Consequences, and includes a discussion of the stresses on wild horses and HMAs. As discussed in Section 3.17.3, there would be short-term adverse effects, but long-term benefits from 3 Bars Project treatments on wild horses and HMAs. The BLM has developed SOPs specific to wild horses (see Final EIS Appendix C, Section C.2.3, Wild Horses), to ensure that the health and safety of wild horses are not compromised by treatment activities.

Comment No. 4-93 from Western Watersheds Project:

How will these treatments increase likelihood of gathers? How will these treatments, fencing, and all kinds of disturbance impact wild and free roaming herds, family bands, use of important seasonal habitats?

Response to Comment No. 4-93:

3 Bars Project Final EIS Section 3.17.3, Wild Horses, Environmental Consequences, discusses the direct, indirect, and cumulative effects from proposed 3 Bars Project treatments on wild horses, their habitat use, and movements, and on the need for future gathers, under 3 Bars Project alternatives. There is no indication that any treatment implemented would increase the frequency of gathers within the project area. Future gathers will be influenced by application of population growth suppressants in addition to population size and habitat health. Improvements to the habitat would

be monitored through future years and evaluated as it pertains to wild horses in a Rangeland Health Assessment or other similar document.

Comment No. 4-220 from Western Watersheds Project:

How is BLM protecting wild horse foaling areas from grazing, for instance?

Response to Comment No. 4-220:

There is no information to suggest that wild horses need protection from livestock grazing during the peak foaling or other seasons of the year. Standard Operating Procedures that could affect wild horses are provided in Final EIS Appendix C, Section C.2.3, Wild Horses.

Comment No. 5-1 from G. Kuhn, American Wild Horse Preservation Campaign:

Does this area include any Herd Management Areas or Herd Areas? If so could you provide what specific 'habitat enhancement and/or hazardous fuel reduction treatments' would be taking place in those HMA's/HA's?

Response to Comment No. 5-1:

A discussion of HMAs that could be affected by the 3 Bars Project is provided in Final EIS Section 3.17.2.3, Wild Horses, Individual HMA Characteristics. Proposed hazardous fuels and habitat enhancement projects that would occur on HMAs are discussed in Chapter 2, Alternatives, and in Section 3.17.3, Wild Horses, Environmental Consequences.

Comment No. 6-4 from J. Brown:

Each proposed action must specifically be analyzed to determine if there is any temporary or permanent impact these actions may have on wild horses, their movement, their access to natural environmental components (cover, water, forage), etc.

Response to Comment No. 6-4:

Site-specific treatment locations and actions are clearly defined in Chapter 2 and impacts to wild horses can be found in Section 3.17.3 (Wild Horses, Environmental Consequences). No barbed wire or let-down fencing will be allowed within HMA boundaries, and let-down fencing will not be used where wild horses are present and may become entrapped in the fence. Where exclusionary fencing is constructed around water features, the BLM will provide access to water through the form of a water gap or impoundment.

Comment No. 8-2 from M. Devlin:

The project as currently described is likely to displace the wild horses during landscape-treatment periods. The horses will be further displaced by being fenced out for prolonged periods during landscape-recovery. The HMAs' configurations will shift, thereby disrupting the horses' use of land that is dedicated for their principal use. How will you mitigate these adverse effects?

Response to Comment No. 8-2:

See response to Comment 6-4 (Wild Horses – Environmental Consequences).

Comment No. 8-6 from M. Devlin:

Please disclose how BLM will ensure the continuation of viable wild-horse herds in spite of the project. The viability plan must be predicated on an analysis of each affected herd's:

history,
characteristics,
local water sources,
seasonal pastures,
migration routes,
roundup-and-removal record,
fertility-control record,
genetic-testing record, and
genetic-test results and recommendations.

Response to Comment No. 8-6:

Site-specific treatment locations and actions are clearly defined in Chapter 2 and impacts to wild horses can be found in Section 3.17.3 (Wild Horses, Environmental Consequences). Also see response to Comment 6-4 and 8-2 (Wild Horses – Environmental Consequences).

Comment No. 9-4 from K. Gregg:

The Draft EIS fails to adequately analyze the impact of the preferred or proposed actions on wild horses, wildlife and the wild horse Herd Areas in the targeted Project area.

Response to Comment No. 9-4:

Site-specific treatment locations and actions are clearly defined in Final EIS Chapter 2. Adverse and beneficial effects to wild horses and wildlife as discussed in Final EIS Sections 3.16.3 (Wildlife Resources, Environmental Consequences) and 3.17.3 (Wild Horses, Environmental Consequences).

Comment No. 9-8 from K. Gregg:

Each proposed action must specifically be analyzed to determine if there is any temporary or permanent impact these actions may have on wild horses, their movement, their access to natural environmental components (cover, water, forage), etc.

Response to Comment No. 9-8:

See response to Comment 6-4 (Wild Horses – Environmental Consequences).

Comment No. 10-1 from E. Hennessy:

There would surely be long-term impacts on mustangs and other wildlife from the proposed actions in the Project's targeted areas due to BLM removing protective cover, or poor site recovery. The long-term impacts of such actions, which would result in loss of vital protective coverage, necessary forage, habitat access and inadequate range restoration, have not been seriously considered and must be thoroughly examined in the revised EIS.

Response to Comment No. 10-1:

See response to Comment 9-4 (Wild Horses, Environmental Consequences).

D.5.22 Wildland Fire and Fire Management

D.5.22.1 Wildland Fire and Fire Management – Affected Environment

Comment No. 4-74 from Western Watersheds Project:

Key concerns from the AECC for fire include excessive hazardous fuel loads and fuel situations, and declining ecosystem health in some areas, which are contributing to high wildfire potential and threats to resource values. Then WHY haven't there been immense and large-scale fires here, like so many other places? The largest sage[brush] lands fires occur in large stands of grass, and particularly with cheatgrass in the interspaces.

Response to Comment No. 4-74:

There have been several large fires within the 3 Bars area as documented in Table 3-40 and Figure 3-34 in the EIS.

Comment No. 4-88 from Western Watersheds Project:

The underlying vegetation information (and DFC/"Desired" [Future] Condition) used to justify this are based on models that use wildly inaccurate fire return and disturbance intervals, and fundamentally ignore the natural historical vegetation community across much of the project area and broader landscape in the Great Basin.

Response to Comment No. 4-88:

The BLM selects methods for evaluation based on the most recent science, policy, and other information available.

Comment No. 4-114 from Western Watersheds Project:

What are the fire return and disturbance intervals that the 2004 Plan was based on? How do these compare to information in Knick and Connelly 2009, 2011 Studies in Avian Biology Baker and other Chapters, Bukowski and Baker 2013n?

Response to Comment No. 4-114:

The 2004 Fire Management Plan uses Landfire data and is intended to be a coarse scale guide to assist Fire Management decisions. This is the standard that has been established for use by the U.S. Department of the Interior.

Comment No. 4-115 from Western Watersheds Project:

See also Romme et al. 2009, Lanner The Pinyon Pine, describing much longer fire return/disturbance intervals for pinyon juniper, and PJ [pinyon-juniper] naturally burns very infrequently (every 200 years or much longer) in what BLM fear mongering jargon terms "catastrophic" fires. A very large body of current information and science on fires – that simply did not exist at the time of the old 2004 Fire Plan and was ignored in the]17-States] Veg[etation Treatments] PEIS and NEPA-less [17- States] PER shows that large fires are climate-driven – i.e. very hot, dry, windy conditions, and that that thinning and other efforts to fire-proof large wild landscapes are not effective under the conditions when the big fires, burn.

Response to Comment No. 4-115:

Fire regimes are classified by BLM specialists based on site specific field observations. Fire regimes for pinyon-juniper can be generally classified as either a III or a V based on the area and existing conditions.

The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced); and

V – 200+ year frequency and high (stand replacement) severity.

Comment No. 4-116 from Western Watersheds Project:

In fact, the "hazardous fuel" pinyon-juniper are the landscape areas that are actually the least likely to burn. They burn primarily in large-scale wind and dry conditions fire events – where no amount of very expensive chipping, chopping crushing, etc. will make much difference. Please provide much more detailed analysis of how fire proof these systems really naturally are.

Response to Comment No. 4-116:

While it is true that pinyon-juniper are less likely to burn than a sagebrush fuel type, and dry conditions and wind do contribute to pinyon-juniper burning, pinyon-juniper are not "fire proof." First, dry conditions and wind will contribute to increased fire behavior in almost all vegetation types. Second, pinyon-juniper are considered fire dependent, meaning that they need fire at some point in their life-cycle. In the case of pinyon-juniper, the role of fire is to open older, closed-canopy stands to allow for new growth.

Comment No. 4-208 from Western Watersheds Project:

What is the fire return interval and historical range of variability time intervals that are being used to determine this? You cannot rely on Rick Miller, who has been dead wrong about fire intervals.

Response to Comment No. 4-208:

The currently accepted definitions for fire return intervals are as follows:

"A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). Coarse scale definitions for natural (historical) fire regimes have been developed by Hardy et al. (2001) and Schmidt

et al. (2002) and interpreted for fire and fuels management by Hann and Bunnell (2001). This information has been included in Final EIS Section 3.14.2.3 (Fire Regimes and Condition Classes in the 3 Bars Project Area).The five natural (historical) fire regimes are classified based on average number of years between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75 percent of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75 percent of the dominant overstory vegetation replaced); and

V – 200+ year frequency and high (stand replacement) severity."

D.5.22.2 Wildland Fire and Fire Management – Assessment Methodology - Fire Intervals

Comment No. 4-219 from Western Watersheds Project:

What are the intervals and assumptions (based on what scientific information?) that [Draft EIS] Table 3-45 Fire regime condition Class relies? Is it the ever-changing, always out of date on-line blackbox of the agency Landfire site? How does this all take into account the typical dense rabbitbrush, cheatgrass, rabbitbrush and cheatgrass, and other conditions that result from many BLM fires/treatments – such as mowing, crushing, chopping, shredding? How does it take into account the fact that removal of protective shade, snowmelt retaining and moisture retaining vegetation that ends up making the fire season several weeks longer?

Response to Comment No. 4-219:

A Fire Regime Condition Class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy et al. (2001) and Schmidt et al. (2001). They include three condition classes for each fire regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and disease mortality, grazing, and drought). There are no wildland vegetation and fuel conditions or wildland fire situations that do not fit within one of the three classes.

The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al. 2001, Schmidt et al. 2002). The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside the natural historical) range of variability.

Comment No. 4-221 from Western Watersheds Project:

What fire return intervals is BLM relying upon in making the claim that it is going to: *Restore pinyon pine and juniper woodland density and coverage to the approximate values found under natural fire return intervals.*

Response to Comment No. 4-221:

See response to Comment 4-115 (Wildland Fire and Management – Affected Environment).

Comment No. 4-230 from Western Watersheds Project:

Figure 3-35 [in the Draft EI] is labeled Natural Fire Regimes. Is this based on the same fire intervals as the ENLC [Eastern Nevada Landscape Coalition] Ecosite [Ecological Site Condition] and any other assessments or analysis were based on?

Response to Comment No. 4-230:

Figure 3-34 (Natural Fire Regimes) in the Final EIS is based on Landfire data.

Comment No. 4-231 from Western Watersheds Project:

EIS mapping makes no sense in relation to greasewood and other veg[etation] communities. When one compares [Draft EIS] Map Figure 3-26 (if we are interpreting the pastel colors correctly), then it appears that greasewood and playas are in Group V.

Response to Comment No. 4-231:

Greasewood is accurately described as a Fire Regime Group V in Final EIS Figure 3-34 (Natural Fire Regimes). Fire Regime Group is described as a "200+ year frequency and high (stand replacement) severity"

Comment No. 4-232 from Western Watersheds Project:

Then, the next map is Fire Regime condition class – where it shows these areas as Group 1. An earlier map shows these areas as Moderate risk of "Catastrophic" [note BLM use of biased Fear-mongering terminology] fire. What is going on? Can BLM just dream up models and schemes until it hits upon one that shows what it wants to justify spending tens of millions of dollars? Are different schemes being applied with different fire and disturbance intervals, and different assumptions? And what are the recovery intervals, and how is recovery defined? What science is this based on?

Response to Comment No. 4-232:

Fire risk is different than Fire Regime Condition Class. Fire risk involves several factors, including ignition sources, fuels topography, and weather, while Fire Regime Condition Class is a classification of the amount of departure from the natural regime. We have included additional text in Final EIS Section 3.14.2.3, Wildland Fire and Fire Management, Fire Regimes and Fire Condition Classes in the 3 Bars Project Area, based on guidance from Hann and Bunnell (2001).

Comment No. 4-233 from Western Watersheds Project:

Please provide detailed analysis of the intervals, assumptions, scientific basis for all of these various schemes to portray native vegetation communities as unhealthy or having particular risks involved.

Response to Comment No. 4-233:

Fire regime and fire regime condition class data in the figures is based on Landfire data, which can be found at URL: www.landfire.gov. Risk of catastrophic wildfire is based on the professional assessment of ignition sources, fuels topography, and weather.

Comment No. 4-239 from Western Watersheds Project:

This is what BLM has claimed elsewhere is needed to prevent fuel breaks – not tearing up the whole landscape. Despite all the EIS bulk, there is not strategic planning and analysis of wind direction, slope, and other factors to identify fire risk.

Response to Comment No. 4-239:

The BLM would treat about 17 percent of the 3 Bars Project area under the Preferred Alternative. Treatments would be focused on areas with greatest need for restoration. However, the threat of wildfire and loss of habitat and other resources could occur throughout the 3 Bars Project area, including untreated areas. To reduce this risk to 3 Bars Project resources, and to protect treatment areas, the BLM would develop fire and fuel breaks to halt fire spread to the extent practicable. These include creating green strips and shaded fuel breaks, and using thinning and plantings near existing barriers/breaks to enhance their effectiveness. The effects of topography, vegetation, soil (as shown on Final EIS Figure 3-19, Fire Damage Susceptibility), weather, and other factors on fire risk on the 3 Bars Project area were evaluated in the *Battle Mountain District Fire Management Plan* (USDOI BLM 2004), and would be considered when identifying the locations for fire and fuel breaks and in treating vegetation to reduce the risk of wildfire.

D.5.22.3 Wildland Fire and Fire Management – Assessment Methodology - Fire Management Plan

Comment No. 4-234 from Western Watersheds Project:

BLM tries to rely on its greatly outdated 2004 BLM Fire Plan. BLM states: *In the amendment, the BLM developed fire management categories, ranging from wildland fire not appropriate and full suppression with an aggressive initial attack is recommended (Category A), to wildland fire is appropriate and there are no constraints (Category D). Under the fire management plan, most of the 3 Bars Project area dominated by pinyon-juniper vegetation was categorized as Category C. Under Category C, wildland fire is appropriate, but there are constraints on its use.* The world has changed dramatically since that old plan, based on even older and outdated assumptions about fire, cheatgrass, climate change, was develop. Did that plan ever undergo NEPA? If I recall correctly, it does not appear that the highly flawed Ely plan of that same vintage was ever subjected to NEPA. What scientific information was that plan based? On the unsupported Miller and Rose, Perryman or other claims that Basin big sage[brush] in valleys burned every 25 years or so, or that PJ burned every 35-50 years and then only in light little fires, and other long since disproven "range" friendly myths that Miller, Tausch and others had been promoting in that era?

Response to Comment No. 4-234:

The reference to "In the amendment, the BLM developed fire management categories, ranging from wildland fire not appropriate and full suppression with an aggressive initial attack is recommended (Category A), to wildland fire is appropriate and there are no constraints (Category D). Under the Fire Management Plan, most of the 3 Bars Project area dominated by pinyon-juniper vegetation was categorized as Category C. Under Category C, "wildland fire is appropriate, but there are constraints on its use," which is from the 2002 Fire Land Use Plan Amendment (FLUPA) to the Shoshone-Eureka RMP; an EA was completed to analyze this document. The Fire Management Plan (FMP) was updated in 2004 and was an update of the existing FMP into a new format, and included existing land management decisions from the Shoshone-Eureka and Tonopah RMPs, the FLUPA, and other policy documents concerning fire management (i.e., Wilderness Study Area policy).

D.5.22.4 Wildland Fire and Fire Management – Environmental Consequences

Comment No. 4-63 from Western Watersheds Project:

... *excessive buildup of hazardous fuels*. What is the basis for saying fuels are "excessive"? Under the FRCC [Fire Regime Condition Class] Models (which are based on inaccurate historical and disturbance regimes completely unsupported by current science) pretty much anything other than bare dirt and an occasional grass plants are categorized as "excessive". This is just like the Ecosite and ENLC [Eastern Nevada Landscape Coalition] models finding any older vegetation is fit only for treatment destruction.

Response to Comment No. 4-63:

Determinations of fuel build up and FRCC are different items. Fuel loading is determined using several methods. Brown's transects (Brown, J.K. 1974. Handbook for Inventorying Downed Woody Material. General Technical Report INT-16. Intermountain Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Ogden, Utah) and the Stereo Photo Series For Quantifying Natural Fuels in the Americas (R.D. Ottmar, R.E. Vihnanek, and C.S. Wright. 1998. USDA Forest Service, Fire and Environmental Research Applications Team, Seattle, Washington) are two of these methods and involve the professional judgment of trained and experienced fire management personnel.

Comment No. 4-222 from Western Watersheds Project:

In general, proposed treatments would have few adverse impacts on wildfire risk. This seems to be BLM claiming it won't cause hot, dry, cheatgrass-choked sites. This ignores the vast body of science on cheatgrass adaptations to grow on hot, dry sites, flammability, and drastically altered fire cycles that doom native ecosystems. BLM only considers risks of treatment vehicles in transporting weeds – and not the fact that destruction of the woody vegetation opens up country to all manner of motorized travel. Plus, removes denser woody vegetation that, in combination with slope, topography, water limitations, may have previously acted to reduce livestock impacts in less accessible areas. It ignores the full battery of adverse impacts of grazing imposition on treatments. For example, even Robin Tausch found that grazing use 5 or 6 years after a treatment caused cheatgrass – in the Shoshone Underdown site. It ignores that the treatment results in a hotter, drier, windier, more uniform site. And that cheatgrass, heat, dryness, weather extremes, etc. are all expected to favor the ever-adapting exotics like cheatgrass and other bromes.

Response to Comment No. 4-222:

The BLM acknowledges that cheatgrass has an influence on fire return intervals, fire behavior, and fire effects. As discussed in Final EIS Section C.2.1, Project Specific Standard Operating Procedures, General, the BLM is required to conduct pre-treatment surveys for cheatgrass, with treatments for cheatgrass occurring prior to any other treatment as necessary. Post-treatment monitoring for cheatgrass is also required by the BLM, and cheatgrass would be treated as necessary, for all proposed vegetative treatments.

Comment No. 4-235 from Western Watersheds Project:

By increasing canopy spacing among pinyon-juniper, the potential for a crown fire would be less, while residual trees would provide surface shading that lowers fuel temperatures (Tausch et al. 2009). Tausch turns out to have been wrong about PJ [pinyon-juniper] mining era deforestation, fire return intervals, and also selectively aged trees. This claim is disproven by the on-the-ground effects of recent fires across a variety of forest types that show that wind-driven fires put out embers far from the fire front, and that thinning of the type described here does not work in those conditions.

Response to Comment No. 4-235:

Crown fires and ember wash from a fire are different issues. Increasing canopy spacing reduces the possibility of a crown fire, but does not eliminate it, and creates a safer fire environment to deal with spotting, ember wash, and surface fires. Fuels treatments are designed to reduce the loss of natural resources to wildfire, not eliminate it.

Comment No. 4-236 from Western Watersheds Project:

BLM references 2008 Red Hills monitoring – but this was only a short time after the fire. How much cheatgrass is present now? We are also strongly opposed to BLM's reliance on expensive and harmful chemical herbicides that are very prone to drift when applied in wildland settings.

Response to Comment No. 4-236:

Red Hills is a separate project and is not within the scope of this action. Cheatgrass is present in the Red Hills project area, but its coverage is very spotty across the landscape both in where it occurs and how much occurs. No monitoring was done in 2013, but is scheduled for 2014 (Lewis 2014).

No use of herbicides is proposed as part of the 3 Bars Project.

D.5.22.5 Wildland Fire and Fire Management – Environmental Consequences - Pinyon-juniper

Comment No. 4-210 from Western Watersheds Project:

Increased pathogen infestations resulting in greater than 20 percent ongoing mortality within a given stand. Then why not just let the stand alone to self-thin through natural mortality agents? Why is this a problem? These are natural ways that the forests world-wide self-thin. This also reduces "flammable fuels".

Response to Comment No. 4-210:

The BLM intends to have a proactive treatment option to maintain healthy pinyon-juniper stands, from which multiple uses (i.e. fuel wood, fence posts, pine nuts, etc.) can be achieved. When trees die they become dead fuels, which are generally more flammable than live fuels.

Comment No. 4-211 from Western Watersheds Project:

Stand conditions in excess of 1,200 trees per acre in several watersheds. Is the forest undergoing self-thinning there, too? What are the age classes of the trees? If there is limited understory, even the miller models show you should not burn.

Response to Comment No. 4-211:

See response to Comment 4-210 (Wildland Fire and Management – Environmental Consequences – Pinyon-juniper). Age classes of the trees within the project area vary from sapling to old growth.

Comment No. 4-212 from Western Watersheds Project:

Many of these indicators have been observed in Phase III (or late successional) pinyon-juniper woodlands, which generally have a high density of trees and buildup of fuels. How was high density determined, and how does this vary by slope, terrain, past mining era or treatment history, etc.?

Response to Comment No. 4-212:

Table 1-2 (Restoration Goals and Objectives for Each Resource for the 3 Bars Ecosystem) of the 3 Bars Project Final EIS shows restoration goals and objectives for pinyon-juniper and other vegetation on the 3 Bars Project area. In general, high density pinyon-juniper occurs where stocking rates exceed 1,200 stems per acre. Higher densities are in Phase III pinyon-juniper areas, which tend to occur at higher elevations and on slopes. A number of factors can influence stocking density, including past stand use by historic mining, woodland harvest, and recreational uses, disease, and wildfire, and would vary by location on the 3 Bars Project area.

Comment No. 4-213 from Western Watersheds Project:

What is the basis for the claim that large fires are caused by a "build up" of shrubs? And again, where are trees re-occupying, undergoing natural successional processes? How many of the various Phase areas are persistent woodlands, and where are they located? How did BLM determine this?

Response to Comment No. 4-213:

We are unaware that the Draft EIS made the claim that large fires are caused by the build up of shrubs, although dense shrubland could contribute to the spread of wildland fire. Based on guidance from the USDA Natural Resources Conservation Service Ecological Site Conditions, Romme et al. (2007), and Miller et al. (2008), and as discussed in Final EIS Section 3.12.2.2.9 (Native and Non-invasive Vegetation Resources, Affected Environment, Pinyon-juniper Woodland), Phase I areas are where pinyon-juniper are expanding into areas where they were not found historically, while Phase III areas are areas where pinyon-juniper are the dominant species (historically and currently). Phase II areas are transitional between the two other phases. Final EIS Figure 3-28 (Pinyon-juniper Phase Classes) shows where these phases are found on the 3 Bars Project area. These areas were identified based on Ecological Site

Conditions, field studies, and aerial photography, as discussed in the *3 Bars Ecosystem and Landscape Restoration Project Pinyon-juniper Assessment* (AECOM 2011a). Also see response to Comment 4-76 (Native and Non-invasive Vegetation Resources – Affected Environment - Pinyon-juniper).

D.5.23 Wildlife Resources

D.5.23.1 Wildlife Resources – Affected Environment

Comment No. 4-16 from Western Watersheds Project:

Where are areas of remaining higher quality sage-grouse, pygmy rabbit, Brewer's sparrow, loggerhead shrike and other habitats? Please map and identify these, and develop a solid plan to remove livestock disturbance from them, and conduct any treatment with minimal disturbance to soils, native vegetation, microbiotic crusts, etc.

Response to Comment No. 4-16:

Higher quality habitat for greater sage-grouse is shown on Final EIS Figure 3-42 (Greater Sage-grouse Leks and Habitat). The BLM did not map higher quality habitat areas for the other sagebrush obligate species mentioned by the commenter, but in general these would include areas being of high importance to greater sage-grouse. Final EIS Figure 3-40 (Areas with Degraded Habitat Conditions), shows areas with degraded habitat for mule deer, pronghorn antelope, and greater sage-grouse that use sagebrush on the 3 Bars Project area. These areas would also have degraded habitat for sagebrush obligate and other wildlife species.

The BLM identified three action alternatives in the 3 Bars Project EIS that differed in the types of treatments allowed and acres treated. Alternative A (All Treatment Methods Alternative), would cause the greatest short-term disturbance and long-term enhancement to the landscape, while Alternatives B (No Fire Use Alternative) and C (Minimal Land Disturbance Alternative) would have less adverse and beneficial effects on the landscape. Section 3.18.4, Livestock Grazing, Mitigation, of the Final EIS describes measures the BLM would take to manage livestock to ensure treatment success. Other livestock disturbances would be address through analysis separate from this EIS.

Comment No. 4-20 from Western Watersheds Project:

How has the 2013 collapse of the pine nut crop in Nevada impacted pinyon jay, Clark's nutcrackers, and other species that rely on large-seeded pines?

Response to Comment No. 4-20:

Pine nut production is highly variable from year to year, and is based on a variety of factors. A reduction in the supply of pine nuts could adversely affect the pinyon jay and other wildlife that use pine nuts if they are unable to find another suitable food source.

Comment No. 4-22 from Western Watersheds Project:

How has loss of whitebark pine impacted Clarks' nutcracker across the species range?

Response to Comment No. 4-22:

No whitebark pine is found on the 3 Bars Project area. Thus, the EIS did not evaluate the relationship between whitebark pine occurrence on Clarks' nutcracker populations.

Comment No. 4-250 from Western Watersheds Project:

BLM omits many sensitive species from its paragraph descriptions in the EIS.

Response to Comment No. 4-250:

Special Status Species that are known to or may occur on the 3 Bars Project area are listed in Table 3-45 of the Final EIS; this list is based on several sources, as given in the footnote to the table. All of these species are discussed in the paragraph descriptions in Final EIS Section 3.16.2.3.4, Wildlife Resources, Special Status Species.

D.5.23.2 Wildlife Resources – Assessment Methodology – Baseline Studies

Comment No. 4-15 from Western Watersheds Project:

BLM has not conducted the necessary baseline surveys across the Three [3] Bars area to determine the status of local habitats and populations, the habitat quality and quantity, areas of seemingly suitable habitat that may be unoccupied, etc.

Response to Comment No. 4-15:

The status and habitat use of wildlife found on the 3 Bars Project area are given in Final EIS Section 3.16.2, Wildlife Resources, Affected Environment; suitable habitat conditions are also provided for several species. Studies and other information used to prepare this section are cited in Section 3.16.2. For purposes of the 3 Bars Project EIS, the BLM considers that suitable habitat is potentially occupied by the community of species that typically occur in these habitats, in order to better address potential adverse and beneficial effects to these species from proposed 3 Bars Project treatments.

Comment No. 4-136 from Western Watersheds Project:

Why didn't BLM start by conducting necessary baseline biological surveys across the landscape - which are essential to understand where species like ferruginous hawk sage sparrow, sage thrasher, pygmy rabbit - all currently occupy the landscape, and use of seasonal habitats, or conditions across the HMAs [Herd Management Areas] and identify livestock conflicts or other problems.

Response to Comment No. 4-136:

See response to Comments 4-15 (Wildlife Resources - Assessment Methodology – Baseline Studies) and 4-90 (Assessment Methodology - General) for sources of information used to describe biological conditions on the 3 Bars Project area, including wildlife populations and habitat use. 3 Bars Project Final EIS Section 3.17.2, Wild Horses, Affected Environment, discusses the characteristics of wild horse populations, habitat use, and herd management areas. The effects of livestock management on wildlife and wild horses are discussed in the Cumulative Effects sections under Environmental Consequences for these two resources.

Comment No. 4-195 from Western Watersheds Project:

This is the severely flawed baseline for sensitive species – not where the species live on the land, or determining where they can no longer lives due to degradation, or how important the lands AECOM/ENLC [Eastern Nevada Landscape Coalition] range studies claim need to be unhealthy may actually be for these species.

Response to Comment No. 4-195:

See response to Comments 4-15 (Wildlife Resources - Assessment Methodology – Baseline Studies) and 4-90 (Assessment Methodology - General), and Final EIS Section 3.17.2, Wildlife Resources, Affected Environment, for sources of information used and studies conducted to describe biological conditions on the 3 Bars Project area, including special status species wildlife populations and habitat use. The effects of current habitat conditions, and habitat conditions that could result short- and long-term from proposed treatments, on special status species and other wildlife are discussed in Final EIS Sections 3.16. 3, Wildlife Resources, Environmental Consequences. The rangeland health assessment conducted by Eastern Nevada Landscape Coalition and summarized in the *Landscape Restoration Project Rangeland Health Report* (Eastern Nevada Landscape Coalition and ACEOM 2012) determined rangeland health condition based on vegetation. The study was not designed to identify the cause(s) of resource problems, or suggests treatments to restore degraded resources, but to identify areas that are degraded or are at risk of degradation. The information derived from the report will be used by the BLM to determine rangeland health and to facilitate corrective actions to improve rangeland health.

D.5.23.3 Wildlife Resources – Environmental Consequences

Comment No. 4-14 from Western Watersheds Project:

How will the treatments affect the sustainability of the pinyon jay population, including drought years like 2013, when birds had to travel over large areas to find food?

Response to Comment No. 4-14:

A discussion of the potential adverse and beneficial effects of 3 Bars Project treatments on wildlife species, including pinyon jays, that use pinyon-juniper for all or a portion of their life needs is provided in Final EIS Section 3.16.3, Wildlife Resources, Environmental Consequences, for Pinyon-juniper Treatments. As noted for the purposes of the project in Final EIS Section 1.5 (Purposes of the Project), proposed BLM treatments include efforts to manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands and to manage pinyon-juniper and other woodlands stands to benefit wildlife.

Comment No. 4-43 from Western Watersheds Project:

BLM claims a mosaic will be good. A mosaic represents habitat fragmentation of a vegetation community. Imposing an artificial mosaic in a complex wild landscape result in extensive edges and disturbed areas that promote invasive species, livestock concentration in disturbed open "treated" sites, favor mesopredators that rely on disturbed habitats, causes a loss of security and hiding cover, and represents overall habitat loss and fragmentation. In fact, a "mosaic" represents fragmentation – for sage-grouse, Brewer's sparrow, sage thrasher, sage sparrow, loggerhead shrike, pygmy rabbit and other important, rare and sensitive sagebrush species. This is especially the case because the habitats are already often frequently broken up and disrupted by roads, past treatments, cattle salting sites, cattle fences, water troughs, mine exploration damage, etc.

Response to Comment No. 4-43:

See response to Comment 4-45 (Native and Non-invasive Vegetation Resources - Environmental Consequences).

Comment No. 4-44 from Western Watersheds Project:

BLM ignores the basic biology of species needs – for example, Steve Knick's work in the Snake River Birds of Prey Area found that sage sparrows are area-dependent and require large continuous blocks of sagebrush for nesting. Pygmy rabbits require dense sagebrush – which agencies always try to destroy in treatments – because of the long-standing range biases against any denser woody vegetation. This is precisely the habitat the "mosaic" treatment destruction will seriously alter. We have observed Ely BLM's vegetation mosaics from mowing, beating, crushing, and herbiciding. They selectively target the taller more structurally complex dense sage[brush] – i.e. – the exact kind of sites where pygmy rabbits live, or sage-grouse may nest – and selectively destroy those areas in a claimed "mosaic".

Response to Comment No. 4-44:

See response to Comment 4-45 (Native and Non-invasive Vegetation Resources - Environmental Consequences).

Comment No. 4-120 from Western Watersheds Project:

Material generated – will be left on site in piles for wildlife. Why in the world won't BLM just let the woody material naturally de-compose on-site, and not drag it into a pile –further tearing up the landscape with skidders and heavy equipment ? A wide variety of native wildlife require complex woody structure and understory composition as essential habitat components. The piles are likely to encourage mesopredators like skunks.

Response to Comment No. 4-120:

Final EIS Section 2.5.3.8, Alternatives, Activity Fuels Disposal, discusses the various methods that could be used to dispose of activity fuels generated by treatments. These include leaving activity fuels on site, chipping activity fuels, and placing coarse and large wood in streams, which would benefit fish and wildlife habitat and soil resources. However, some activity fuels may be selectively piled, and some piles may be burned. Material would be placed into piles, and in some cases burned, to reduce the risk of woody material serving as fuel for a wildfire.

Comment No. 4-143 from Western Watersheds Project:

Here we are told that this project is to "restore" grouse habitats, and BLM allows 35% of the shrub growth to be eaten. This will also greatly impair any young sage[brush] recovery post-treatment.

Response to Comment No. 4-143:

As discussed in Final EIS Appendix C, Standard Operating Procedures, Section C.3.2.5, Greater Sage-grouse, to ensure that treatments benefit greater sage-grouse, sagebrush restoration treatments would adhere to the most recent guidance available at the time of treatment implementation, currently the Western Association of Fish and Wildlife Agencies and the Wyoming Game and Fish Department greater sage-grouse guidelines, and the BLM Nevada State Office and Washington Office Instructional Memoranda when restoring sagebrush habitats.

As discussed in Final EIS Section 3.3.2, Cumulative Effects, for Grazing and Grazing Management, Range Improvement, and Allotment Management, the BLM would manage livestock to meet greater sage-grouse foraging and nesting habitat objectives identified in the *Nevada and Northeastern California Sub-regional Greater Sage-grouse Resource Management Plan Amendment/EIS* (USDOI BLM 2013). This report provides the latest guidance on habitat objectives for sage-grouse. These objectives include having a sagebrush cover of greater than 20 percent, and total shrub cover of greater than 40 percent for nesting cover; ensuring that at least five plant species used by greater sage-grouse broods are present in brood-rearing areas; ensuring that sagebrush canopy cover equals or exceeds 10 percent, and sagebrush height equals or exceeds 25 centimeters in the winter use area; and ensuring that allowable use levels for livestock for herbaceous species are less than or equal to 45 percent in mountain big sagebrush, and 35 percent in Wyoming big and black sagebrush stands, and less than or equal to 35 percent for all sagebrush types for utilization of shrub species.

Comment No. 4-164 from Western Watersheds Project:

BLM ignores the adverse impacts of noise on wildlife, and this battery of aggressive bulldozer, dump truck, chaining, helicopter and off-highway vehicle prescribed fire activity may cause significant initial displacement of wildlife, and this of course will be followed by long-term displacement.

Response to Comment No. 4-164:

The effects of noise on wildlife are discussed in Final EIS Section 3.16.3.3.1, Wildlife Resources, Environmental Consequences, Direct and Indirect Effects Common to All Action Alternatives.

Comment No. 4-175 from Western Watersheds Project:

If BLM applies a 40% upland utilization level on the herbaceous vegetation and Key larger sized grass species that means that many other grass plants get grazed to much higher levels. 40% upland utilization fails to provide necessary residual nesting cover for sage-grouse, and also must be viewed in terms of how little watershed cover it provides, and how little vegetation is present to capture snow, shade the ground and slow evaporation following rainfall events, and block the wind

Response to Comment No. 4-175:

See response to Comment 4-143 (Wildlife Resources – Environmental Consequences).

D.5.23.4 Wildlife Resources – Standard Operating Procedures

Comment No. 4-251 from Western Watersheds Project:

BLM violates the National Technical Team Report and its own Instruction Memos for sage-grouse. It violates the Conservation Plan for sage-grouse, and may thwart the outcome of the Greater sage-Grouse Regional EIS process by prematurely destroying vegetation in aggressive treatments that would be limited under that EIS.

Response to Comment No. 4-251:

The BLM reviewed the documents identified by the commenter to ensure that 3 Bars Project treatments would not violate guidance for the protection and enhancement of sage-grouse and their habitat. As shown on Final EIS Table 1-2, Restoration Goals and Objectives for Each Resource for the 3 Bars Ecosystem, and in Section 3.16, Wildlife Resources, ensuring against the decline or loss of greater sage-grouse populations, and enhancing and restoring greater sage-grouse habitat, are key goals of the 3 Bars Project. Activities such as wind, solar, and mineral development, which would not be allowed under the Preferred Alternative of the *Nevada and Northeastern California Greater Sage-grouse Draft Land Use Plan Amendment and EIS* (USDOI BLM 2013), are not part of the 3 Bars Project, but their effects on greater sage-grouse from past, present, and reasonably foreseeable future development, are discussed in Final EIS Section 3.16.3.4, Wildlife Resources, Environmental Consequences, Cumulative Effects. Should these development activities be proposed on the 3 Bars Project area in the future, their effects on greater sage-grouse would be evaluated under a separate NEPA analysis. Under the Preferred Alternative, the BLM would restore approximately 31,300 acres of existing sagebrush habitat, and habitat that historically was dominated by sagebrush but now consists of noxious weeds and other invasive non-native vegetation, pinyon-juniper, or other vegetation. There would be some short-term disturbance, primarily in areas where the BLM would plant and seed to promote the growth of forms and grasses. Long-term, treatments should enhance sagebrush habitat and increase the amount of acreage dominated by sagebrush.

D.6 References

The following references were used by the BLM to prepare their responses to public comments.

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D.7 List of Agencies, Non-government Organizations, and Individual Providing Comments

D.7.1 List of Agencies Providing Comments

Eureka County Board of Commissioners (Document 11)

Nevada Department of Wildlife (Document 3)

U.S. Department of the Interior National Park Service (Document 2)

U.S. Environmental Protection Agency (Document 1)

D.7.2 List of Non-government Organizations Providing Comments

Western Watersheds Project (Document 4)

American Wild Horse Preservation Campaign (Document 5)

D.7.3 List of Individuals Providing Comments

(Note: Individuals providing unique comment letters with substantive comments that are included in Section D.7 have a comment number next to their last name. Responses to their comments are provided in Section D.5. The remainder of individuals responded to a mass emailing request and their emails were similar to those shown for Document 6 in Section D.8. Individuals that did not include the full spelling of their last name are not included in the list below.)

Valerie	Aaland-Madrid	Charles	Adam	Eugenia	Ahern
Anja	Abbott	David	Adam	Heidi	Ahlstrand
Bruce	Abbott	Carol	Adams	Shanida	Ahmad
Darlene	Abbott	Carolyn	Adams	May	Ahmed
Holly	Abbott	Kaatje	Adams	Michael	Aijlman
Aliaa	Abdel-Gawad	Kim	Adams	Michael	Akstull
Olga	Abella	Phillip	Adams	Lloma	Alameda
Michelle	Abouchabki	Rebecca	Adams	Lori	Alaniva
Jane	Abraham	Richard	Adams	Patricia	Albers
Al	Abrams	Ruth	Adams	Shan	Albert
Sally	Abrams	Debra	Adimey	Tracy	Albert
Felipe	Abrigo	Toni	Adisano	Allison	Alberts
Shelley	Abuble	Patti	Adkins	Freda	Albrecht
Leticia	Acevedo	Wendy	Adler	Michael	Albrecht
Jan	Ackerman	Diana	Afshari	Judy	Albury
Julie	Acs-Ray	Kaitlin	Agee	Margaret	Alderfer
Janine	Adair	Nancy	Agrusa	Mark	Alexander
Jackie	Adam	Diego	Aguirre	Natalie	Alexander
		Gayle	A'Harrah	Steve	Alfieri
		Alice	Ahern	Maureen	Alfonso

Tiffany	Alfrey
Paul	Ali
Aileen	Allen
Amanda	Allen
Frances	Allen
J.	Allen
Kimberly	Allen
Laura	Allen
Rachael	Allen
Susan	Allen
Vanessa	Allen
Peter	Allenbacher
Donna	Alleyne-Chin
Carol	Allie
Nancy	Allis
Joao	Almeida
S.P.	Almskaar
Jan-Paul	Alon
Jeff	Altaffer
Mary	Altamirano
Kathy	Alter
China	Altman
Jim	Altree
Choky	Alvarez
Geraldo	Alves
Gloriamarie	Amalfitano
Gaetano	Amato
Joseph	Amato
Julie	Amato
Jan	Amba
Greg	Ambrose
Maeve	Ambrose
Harry	Ameen
Alessandro	Amicone
Bonnie	Amino
Isabella	Amoroso
Philip	Amos
Julie	Amsler
Alyson	Amsterdam
Beret	Amundson
Annette	Ancel-Wisner
Jennifer	Andersen
Kristin	Andersen
Patricia	Andersen
Allison	Anderson
Barbara	Anderson
Carolyn	Anderson
Christeen	Anderson
Christina	Anderson
Connie	Anderson
Dave	Anderson
Diana	Anderson
Donna	Anderson
Dorothy	Anderson
Douglas	Anderson
Edna	Anderson
George	Anderson
Jennifer	Anderson
Kristina	Anderson
Lynnette	Anderson
Meldean	Anderson
Michelle	Anderson
Pat	Anderson
Patricia	Anderson
Rick	Anderson
Tina	Anderson
Toni	Anderson
Virginia	Anderson
Saliane	Anderssen
Gunvor	Andersson
Patricia	Anderton
Jeaneen	Andretta
Elizabeth	Andrews
Anneke	Andries
Lory	Anello
Aimee	Ang
Beth	Angel
J.	Angell
Joseph	Angelo
Marjorie	Angelo
Sally	Angelo
Billy	Angus
Lisa	Annecone
Laura	Annunziata
Anne	Anthony
Lea	Anthony
Joanne	Anton
Georgia	Antonopoulos
Tuesday	Antonowicz
Laura	Apley
Maryanne	Appel
Virginia	Apple
Stephanie	Appleton
Karen	Aquila
Arlene	Aquino
Debra	Arab
Nancie	Araki
Douglas	Arana
Sandra	Arapoudis
Isabel	Araujo
Michele	Archbold
Tracy	Arcure
Cristina	Ardavin
Juanita	Arellanes
Elaine	Arellano
Danielle	Arfin
Francesca	Argiro
Terri	Armao
Tadd	Armbruster
Salme	Armijo
Tami	Armitage
John	Armstrong
Marshia	Armstrong
Vicki	Armstrong
Diane	Arnal
Linda	Arndt
Ben	Arnold
Charles	Arnold
Kathleen	Arnold
Sarah	Arnsdorff
Mikki	Aronoff
Barbara	Aronowitz
Ardith	Arrington
Elizabeth	Arrowood
Eric	Arroyo
Charlisa	Arthur
David	Arthur
Madeleine	Ascott
Rich	Ash

Connie	Ashbaugh
Kait	Ashenfelter
Jackie	Ashley
William	Ashworth
Karen	Askelson
Curt	Asman
Carrie	Asmar-O'Guin
Andrea	Atef
C.	Atkins
Alisha	Atkinson
Nancy	Atkinson
Peggy	Atwood
Kay	Aubrey-Chimene
Nickole	Aubuchon
Patty	Auch
Andrew	Aucoin
Shauna	Auditor
Rossi	Audrey
Marilyn	Auer
Sylvie	Auger
Joyce	August
Susan	Ault
Joann	Aurand
Christine	Austin
Sandy	Austin
Teresa	Avant
Thomas	Avery
Ron	Avila
Yarel	Avitia
Annette	Ayling
Ben	Ayotte
Barbara	Azari
Kris	Azzarello
Gabriele	Baader
Jonathan	Babb
Sharon	Babbitt
Susan	Babbitt
Gloria	Babcock
Karen	Babcock
Rachel	Babitz
Christina	Babst
Anna	Bach
Elaine	Backal
Pam	Bacon
Evelyn	Badeau
Barbara	Bader
Clea	Badion
Mariamelia	Badoza
Theresa	Badus
Jill	Badyrka
Diana	Baerveldt
Janet	Bagby
Angie	Bahris
Carol	Baier
Mary	Baier
Helen	Bailey
Karen	Bailey
Marcia	Bailey
Melissa	Bailey
Sharon	Bailey
Matthew	Bailis
Pamela	Baillio
Melissa	Baines
Katherine	Bair
Ceceile	Baker
Diana	Baker
Jean	Baker
Jenna	Baker
Leslie	Baker
Natalie	Baker
Nelson	Baker
Susan	Baker
Tina	Baker
Theresa	Bakko
Marilyn	Balduff
Mary	Baldwin
Patricia	Baley
Evelyn	Ball
Eleonor	Ballot
Brigitte	Ballouard
Karen	Balmer
Lidia	Baltazar
Margo	Bangert
Lisa	Banik
Charlene	Bantula
Martha	Banuelos
Sandra	Baran
Stacy	Barbagallo
Melissa	Barbella
Mary	Barczak
Viola	Bare
Bonnie	Barfield
Lynn	Barker
Penny	Barker
Robin	Barker
Caroline	Barkley
Stephanie	Barlow
Ann	Barnes
Carolyn	Barnes
Elaine	Barnes
Nani	Barnes
Robyn	Barnes
Sheryl	Barnes
Melinda	Barnett
Ines	Barreiros
Laura	Barrera
Bevin	Barrett
Constance	Barrett
Keiko	Barrett
Marlene	Barrett
Simon	Barrett
Steven	Barrett
Susan	Barrow
Amy	Barry
Marina	Barry
Karen	Bartell
Don	Barth
Lisa	Barth
Eileen	Bartholomew
Judy	Bartholomew
Angela	Barton
Jane	Barton
Sarah	Barton-King
Purnima	Barve
Melinda	Bashen
Anna	Bashkirova
Bobbi	Baskerville
Jessica	Baskett
Suzanne	Baskett

Cindy	Bassar
Andrea	Bassett
Martyn	Bassett
Bonnie	Bassey
Cindy	Bassham
Judith	Basye
Kristina	Batcanova
Bruce	Batchelor
Marlene	Bateman
Alisa	Battaglia
Deby	Battaglia
Candace	Batten
Margaret	Batterman
Becky	Bauer
Deborah	Bauer
Karen	Bauer
Kim	Bauer
Melissa	Bauer
Thomas	Bauer
Lee	Baum
Lou	Baxter
Regina	Baxter
Karen	Bayour
Paula	Bdiwi
Heidi	Bean
Kathy	Bean
Dove	Bear
Mindy	Beardsley
Helen	Beasley
Jane	Beattie
Mary Kay	Beattie
Debbie	Beatty
Jo Ann	Beatty
Katness	Beatty
Cobina	Beaudette-Wellman
Jessica	Beaudry
Ed	Beaulieu
Christine	Beaumont
Chris	Beaver
Elisabeth	Bechmann
Brenda	Bechtol
Barbara	Beck
Carla	Beck
Claudine	Beck
Colleen	Beck
Elzbieta	Beck
Jeff	Beck
Lynee	Beck
Susan	Beck
Barbara	Becker
Carol	Becker
Klaus	Becker
Oksana	Becker
Anna	Bedirian
Marion	Beens
Joanne	Beeson
Toni	Beetham
Paulette	Begon
Daniel	Belachew
Elizabeth	Belasco
D.	Bell
Denise	Bell
Jodi	Bell
Lynette	Bell
Sylvie	Bellemare
Nancy	Bellers
Anna	Bellin
Jorge	Belloso-Curiel
Alice	Bellotti
Connie	Bellows
Ludmila	Belousova
R.	Belsher
Pamela	Benavides
Lis	Bender
Sherry	Bender
Teresa	Bender
Catherine	Bendig
Nadine	Benedetti
Jessica	Benefield
Julianna	Benefield
Michelle	Benes
Lynn	Bengston
Ilene	Beninson
Sharon	Benkovic
Brenda	Bennett
Jonathan	Bennett
Keri	Bennett
Tamera	Bennett
Virginia	Bennett
Shirley	Bensetler
Kathy	Benson
Mona	Benson
Robyn	Benson
Corie	Bento
Pamela	Benton
Ramona	Benton
Patricia	Benward
Danielle	Benz
Herve	Berard
Hayley	Berario
Myra	Berario
T.J.	Berario
Marie-Ange	Berchem
James	Berchert
Patricia	Bereczki
Sheryl	Berg
Arthur	Berger
Christine	Berger
Keith	Berger
Susan	Berger
Brad	Bergeron
Thomas	Bergqvist
Debi	Bergsma
Brittney	Bergstrom
Carol	Berkeley
James	Berkheimer
Suzy	Berkowitz
Marie	Bernache
G.	Bernard
Janice	Bernard
Martin	Bernard
William	Bernard
Brother	Bernardine
Toni	Bernardo
Dana	Bernbach
Kathy	Berquist
Sarah	Berry
Silvia	Bertano
Kathleen	Berto

Julie	Bertolucci
Judy	Berube
Linda	Bescript
Ruth	Bescript
Richard	Best
Gary	Bettega
Kathleen	Betters
Arie	Bettsack
Jamie	Beutler
J.	Beverley
Ann	Beverly
Jean	Bevsek
Wendy	Beyda
K.	Bhojwani
Cheryl	Biale
Debra	Bialko
Diletta	Bianco
Mark	Bick
Ann	Bicking
Leigh	Bidwell
Maureen	Biedron
Melissa	Biela
Debbie	Biere
Amy	Biggs
Helene	Bigvaiev
Leslie	Billings
Nancy	Billings
Stacy	Billings
Suzanne	Billings
Jodi	Billingsley
Angela	Bilotti
Gina	Bilwin
Bogdan	Bilyk
Janet	Bindas
Randall	Bingham
Linda	Bingle
Caroline	Bird
Kenneth	Bird
Melissa	Bird
Paul	Bird
Yvonne	Bird
Bonnie	Bisbee
Carol	Bischoff
Patricia	Biscoe
Beth	Biscuso
Mary	Bisesi
Julia	Bishop
Elisabeth	Bittremieux
Judith	Bixby
Lacie	Bizzell
Rebecca	Bjelland
Shar	Bjeree
Christie	Black
Joan	Black
Kimme	Black
Viki	Black
Angela	Blackburn
Beverly	Blackburn
Catherine	Blackburn
Bruce	Blacknight
Sherry	Blackshear
Paula	Blackwell
Sara	Blaise
Daisy	Blake
Gail	Blakely
Linda	Blakely
Sally	Blakey
Casey	Blanchard
Rosa	Blanckaerts
Thomas	Blaney
E.	Blankers
Donna	Blascczyk
Jaime	Blasingim
Marci	Blatt
Eileen	Bleidorn
Michele	Bleymeyer
Tanner	Bleymeyer
Denise	Bligh
Silvia	Block
Trent	Block
Lisa	Blodgett
Claudia	Bloom
Darren	Bloom
Hanna	Bloom
Joyce	Bloom
Barbara	Blount-Powell
Sherry	Blue
Steven	Blumenfeld
Kit	Blumenstein
Jane	Blythe
Mixa	Bmixa
Sherry	Bobick
Brent	Bobo
Melantha	Bobrick
Ralph	Bobroski
John	Bodfish
Kathryn	Bodine
Sharon	Bodkin
Tom	Boe
Sigrid	Boehm
Barbara	Boettcher
Bill	Bogacki
Corrie	Bogtstra
Izabela	Boguslawska
Crickett	Bohanan
Martha	Bohannon
Jennifer	Bohn
Carol	Boice
Deniz	Bolbol
Beverley	Boling
Deb	Boller
Becky	Boman
Pamela	Bonaventura
Rebecca	Bondarewicz
Petra	Bonello
Carol	Bonfield
Carmen	Bonilla-Jones
Debbie	Bonnet
Corinne	Bonnici
Monica	Bonualas
Deborah	Boomhower
Amy	Boone
Barbara	Boone
Carolyn	Boor
Gracie	Booth
Kiana	Booth
Sara	Booth
Patrick	Bopp
Vita	Bordonaro

Serena	Borella
Diane	Borger-Ness
Maria	Borges
Magdalena	Borkowska
Gavin	Bornholtz
Kat	Boron
Carol	Boronkay
Barbara	Boros
Christy	Borriello
Laura	Borst
Anne	Bosard
Marianne	Boschen
Eric	Bosers
Kristen	Bossert
Vic	Bostock
John	Boswell
Linda	Boswell
Thomas	Boswell
Renee	Boteilho
David	Bott
Michelle	Bourg
Claudia	Bourque
Stefano	Bovero
Sharon	Bowden
Fran	Bowen
Laraine	Bowen
Pat	Bowen
Sarah	Bowen
Anna	Bower
SarahLynn	Bower
Barbara	Bowie
Alexandra	Bowman
Candy	Bowman
Jason	Bowman
Jeff	Bowman
Jessie	Bowman
Sheila	Bowman
Susan	Bowman
Alice	Bowron
Helene	Bowyer
Gen	Boyd
Charlene	Boydston
Katie	Boyle
Christine	Boysen
Diane	Bozarth
Eliette	Bozzola
Kyle	Bracken
Jeanne	Bradbury
Denver	Braden
Denver	Braden
Charles	Bradford
Donna	Bradley
Maria	Bradley
Ryan	Bradley
Sabine	Bradley
Stacey	Bradley
Denise	Bradshaw
Emma	Bradshaw
Tasha	Bradshaw
Laurie	Brady
Emma	Bragg
Deborah	Brake
Chandra	Brambles
Jenny	Bramlette
Victoria	Brandon
Carol	Brandt
Frauke	Brandt
V.	Brandt
Susan	Brandwein
Carolyn	Bratton
Michael	Braunstein
Corine	Brayton
Chris	Brazis
Leenie	Breckenridge
Marina	Bredda
Ann	Breeden
Paul	Breeden
Becky	Breeding
Patricia	Breedlove
Cvetka	Bregant
Maximilian	Brek
Denise	Brennan
Nancy	Brenner
Natasha	Brenner
Natasha	Brenner
Lorenzo	Bresciani
Gail	Breslin
Daniela	Bress
Ginger	Brewer
Ginger	Brewer
Stacey	Brewer
Bonnie	Brezette
John	Brian
Kay	Brian
Lisa	Brice
Laura	Briden
Julie	Bridge
Brenda	Bridges
Judy	Bridges
Sherry	Bridgford
Adrienne	Brietzke
Debbie	Briggs
Vicki	Brine
Karen	Bringol
Diane	Brinks
Peggie	Bristow
Joyce	Britcher
Hope	Britt
Belinda	Britton
Sandra	Britton
Julia	Broad
Barbara	Brockell
Robin	Brockman
Elena	Brodskaya
Seymour	Brodsky
Becky	Brok
Carol	Broll
Ginny	Brommelsick
Wendy	Bronson
Pauline	Brooks
Theresa	Brooks
Irene	Brosseit
Gerald	Brothen
Patti	Brotman
A.	Brown
Anita	Brown
Bonnie	Brown
Chanel	Brown
Cheryl	Brown

Denise	Brown
Dennia	Brown
Dianne	Brown
Fiona	Brown
Georgine	Brown
Heather	Brown
Heike	Brown
Jan	Brown
Janet	Brown (6)
Kristina	Brown
Linda	Brown
Marie	Brown
Melanie	Brown
Michael	Brown
Mimi	Brown
Nancy	Brown
Ronald	Brown
Shawna	Brown
Susan	Brown
Valerie	Brown
Vickie	Brown
William	Brown
Harvey	Brown, Jr.
Marsha	Browne
Lauren	Browning
Clifford	Bruber
Jessica	Bruce
Virginia	Bruce
Debra	Bruegge
Paula	Brugger-Neves
Michelle	Brugiere
Charles	Brumleve
Leland	Brun
Roger	Bruneau
Bobby	Bruner
Curzio	Bruni
Linda	Brunner
Alison	Bruno
Robert	Bruno
Shelley	Brunskill
Debbie	Brush
Babette	Bruton
Barbara	Bryan
Barbara	Bryant
Elizabeth	Bryant
Lauren	Bryant
Mary	Bryce
Sara	Bryce
Roberta	Brzozowski
Susan	Bubbers
Cathy	Buccola
James	Bucolo
Cynthia	Buczkowske
Ilene	Budin
Sherry	Budniak
Anita	Buffer
Douglas	Buffo
Heidi	Bujak
Tanis	Bula
Jill	Bule
Sharon	Bull
Heather	Bullard
Karen	Bullis
Patricia	Bullock
Donna	Bungo
Ineke	Bunink
Brooke	Bunting
Craig	Bunting
Shirin	Bunting
Clarissa	Bunuel
Pauline	Burak
George	Buras
Michelle	Burawski
Jason	Burch
Jayme	Burch
Elena	Burge
Ryan	Burger
Diane	Burgin
Joan	Burgins
Angela	Burgio
Cynthia	Burgner
Eleanor	Burke
Russell	Burke
Shirley	Burke
Diane	Burket
Paula	Burket
Alice	Burkett
Imogene	Burkhart
Kerri	Burnett
Carol	Burney
Kathleen	Burnham
G.	Burns
Jerry	Burns
Joy	Burns
Susan	Burns
Jim	Burris
Shannon	Burt
Stacy	Burt
Christina	Burton
Debbie	Burwell
Jennifer	Burwinkle
Donna	Buscemi
Martha	Bushnell
Chantal	Buslot
Ray	Bustos
Betty	Butler
Bruce	Butler
Connie	Butler
David	Butler
Ruth	Butler
Sheila	Butler
Abby	Butterfield
Ricky	Buttery
Kate	Buttles
Pat	Button
Brenda	Byler
Sue	Byorick
Leeann	Byrne
Lindsay	Byrne
Nicolas	Caballero
Linda	Cabanban
John	Cabe
Nike	Cacoullos
Sandy	Cadwell
Eugene	Cahill
Lisa	Cahill
Terrie	Cahoe
Deborah	Caiaga
Eileen	Cain

Misa	Cajnko
Barbara	Calamai
Laura	Calderon
Phillip	Caler
Becky	Calhoun
Doreen	Calise
Deborah	Calkins
Anne	Callace
Jane	Callahan
Julie	Callahan
Deirdre	Callan
Christina	Callas
Carmen	Calleja
Karen	Callies
Susan	Calltharp
Monika	Calvert
Nil	Cam
Tammy	Camacho
Linda	Camac-Vittorio
Carolina	Camarillo
Elizabeth	Cambareri
Gloria	Cameron
Greg	Cameron
James	Cameron
Jean	Cameron
Lois	Cameron
Patrick	Cameron
Stephanie	Cameron
Edward	Camilleri
Jaime	Cammarata
Elizabeth	Campbell
Grant	Campbell
Joan	Campbell
Kevin	Campbell
Laura	Campbell
Linda	Campbell
Monica	Campbell
Nancy	Campbell
Sandra	Campbell
Eduardo	Campos
Ursula	Campos
John	Canavan
Kathleen	Canfield
Barbara	Cangiano
John	Cannon
Mark	Canright
Gary	Cantara
Linda	Canter
M.	Canter
Elaine	Cantrell
Eva	Cantu
Ronald	Capek
Cindy	Capellen
Anthony	Capobianco
Cinzia	Caporali
Jeanette	Capotorto
Joan	Cappelluti
Silvia	Cappi
Leigh Ann	Cappizi
Michele	Capra
Audrey	Caprio
Giuliana	Caprioglio
Hilary	Capstick
Elizabeth	Caputo
Michele	Caputo
Gina	Caracci
Kitty	Cardaci
Brenda	Carey
Edward	Carey
Carla	Cargballo
Anne	Cargill
Ida	Carideo
Ida	Carideo
Sioux	Carlgren
Jeff	Carlin
Alessa	Carlino
Chris	Carlon
Nicole	Carlson
Corrine	Carlson-Cox
Sara	Carmichael
Susan	Carmody
Laura	Carmona-Mancilla
Selva	Carnevale
Michael	Carney
Wendy	Carney
Gina	Carollo
Kim	Carothers
Steve	Carothers
Gary	Carpenter
Sylvie	Carpentier
Mary	Carptenter
Rebecca	Carr
Viola	Carr
Elaine	Carrick
Adriana	Carrico
Cynthia	Carroll
Kathryn	Carroll
Laura	Carron
Glenn	Carson
M.	Carson
Sandra	Carstensen
Brandon	Carswell
Evelyn	Carter
Michelle	Carter
Natalie	Carter
Judith	Cartisano
Sandi	Cartwright
Maurico	Carvajal
Debbie	Carvouniaris
Susan	Casad
Uli	Casares
Chris	Casey
David	Casey
Dawn	Casey
Joynce	Casey
Neelie	Casey
Julia	Caspar
Chris	Casper
Judy	Cassario
Susie	Cassens
Virginia	Cassidy
Victoria	Castaneda
Kristine	Castillo
Allison	Castle
Beverly	Castricone
June	Castro
Liana	Castro
Ruth	Castro
D.	Caswell

Lexie	Cataldo
Paola	Catapano
Ellen	Cather
Diana	Cato
Joseph	Cator
Linda	Caulk
Andrea	Cavalier
Janet	Cavallo
Pauline	Cavanagh
Violet	Cavanaugh
Michelle	Cech
Jan	Cejka
Carolyn	Celler
Judy	Centineo
James	Cerniglia
Elizabeth	Cerny
Catherine	Cerqua
Ingrid	Cerqueni
Louie	Cervantes
Nancy	Cervenka
Isabel	Cervera
Jean	Cervi
Jillian	Cessna
Elizabeth	Cewmar
Judy	Chace
Sheila	Chaffins
Cathy	Chaipis
Debbie	Challman
Shirley	Chalmers
Adriana	Chalson
Patsy	Chamberlain
Kari	Chamberlin
Barton	Chambers
Connie	Chambers
Martha	Chambers
Peggy	Chambers
Tara	Chambers
Nancy	Champion
Jaci	Chan
Persia	Chan
Wallace	Chan
Rani	Chandi
Michael	Chang
Sharon	Chang
Zella	Chapman
Lin	Charania
Stanley	Charles
Cindy	Charnetski
Danielle	Charney
Donna	Charter
Judith	Chase
Nadine	Chatel
Therese	Chatelain
Leonor	Chavez
Morris	Chay
Jean	Cheesman
Lois	Cheesman
Lori	Cheezem
Marie	Chellino
Melodie	Cheney
Suzy	Chersky
Lee	Chesterfield
Belinda	Chettle
Kathryn	Cheyne
Antonia	Chianis
Barbara	Chichester
Leonardo	Chiconello
Judy	Childers
Margaret	Childers
Marilyn	Childers
D.	Childress
Pete	Childs
Janet	Chirrick
Kim	Chmel
Sun	Cho
Kelly	Choi
Kay	Chrissis
Shawn	Christenson
Madra	Christian
Yvonne	Christison
Laura	Christman
Angela	Christopher
Gina	Chronowicz
A.	Chupa
Jean	Chuprevich
Janelle	Church
Lucile	Church
Sandra	Church
Terry	Church
Teresa	Cichon
Annmarie	Ciesla
Karen	Cignoli
Fran	Cilella
Laura	Cimino
Jordan	Cinqmars
Edna	Ciurleo
Alexis	Claar
Carol	Clark
Dale	Clark
Donna	Clark
Jay	Clark
June	Clark
Laurie	Clark
Leilani	Clark
Randi	Clark
Irina	Clark
Michele	Clark
Arlene	Clarke
Linda	Clarke
Lisa	Clark-Kahn
Susan	Clarkson
Kate	Clark-Spencer
Susanna	Clason
Heather	Clausner
Gerald	Clawson
Sue	Clayton
Holly	Cleary
Agustin	Clemente
Rhonda	Clements
Harriett	Clementson
Marilyn	Clemenza
Leslie	Clemmons
Louise	Clendenen
Cynthia	Cleveland
Jill	Cleveland
Sherry	Cliborne
Hannah	Clifford
Lauren	Clinch
Marian	Clinton

Marjorie	Clisson
Heather	Clough
Heather	Clough
Lois Ann	Clouthier
Imogene	Clymore
Scott	Coahran
Beverly	Coates
Edith	Coates
Patty	Coates
Robert	Cobb
Sandra	Cobb
Susan	Cody
Joyce	Coe
Lance	Coffel
Margery	Coffey
Peggy	Coffey
Cameron	Coffman
Kathleen	Coffman
Lauri	Coffman
Patricia	Coffman
Izabela	Cogelja
Harriet	Cohen
Linda	Cohen
Roslyn	Cohen
Susan	Cohen
Ken	Cohn
Marie	Coiscaud
Rebecca	Colaw
Kathleen	Colburn
Chris	Cole
Kevin	Cole
Patrice	Cole
Sunnie	Cole
Dori	Cole
Brandt	Coleman
Deanna	Coleman
Edith	Coleman
Janet	Coleman
Elizabeth	Collard
J.	Collens
Cathleen	Collett
Carla	Collier
Vicki	Collier-Chambers
Brenda	Collins
E.	Collins
Gerry	Collins
Heather	Collins
Holly	Collins
Janet	Collins
Laura	Collins
Lyle	Collins
Megan	Collins
Patricia	Collins
Teresa	Collins
Helga	Collister
Fundacion	Colombia
Peggy	Colonna
Margaret	Colony
Connie	Colvin
Kathleen	Colvin
Silvana	Comacchio
Mary Anne	Combs
Pat	Combs
Kathy	Compagno
Margaret	Compton
Christian	Comstock
Melissa	Conley
Melissa	Conn
John	Connelly
Liza	Connelly
Susan	Conner
Cherie	Connick
Alice	Connor
Bob	Conrich
Jim	Conroy
Laurie	Conroy
Peggy	Conroy
Michelle	Constantine
Margaret	Conti
Carolyn	Contreras
Luana	Contreras
Susan	Conway
Debra	Cook
Linda	Cook
Mary	Cook
Necole	Cook
Theresa	Cook
Richard	Cooke
Kenneth	Cooksey
Janice	Coombes
Grace	Coon
Donald	Cooney
Susan	Cooney
Mitzi	Coons
Ann	Cooper
Cassandra	Cooper
Charlene	Cooper
David	Cooper
Dayton	Cooper
Rebecca	Cooper
Sylvia	Cooper
Alan	Coote
Beth	Copanos
Denys	Cope
Gwen	Cope
Shari	Copeland
Tracy	Copper
Terri	Coppersmith
Marguerite	Cordell
Jeanne	Cordner
Ute	Cordova
Donnell	Corelle
Norma	Corey
Angelina	Coriandoli
Harmony	Coriddi
Adrian	Cormier
Bonnie	Cormier
Joan	Cornett
Sarah	Cornish
Athena	Coroneos
Bev	Corp-King
Nancy	Correa
Claudia	Correia
M. Cecilia	Correia
Stefania	Corrias
Mike	Corsello
A.	Corte
Bene	Corti
Christine	Corutky

W. Michael	Cosby
Fletcher	Cossa
Camila	Cossio
Angela	Costa
Sandra	Costa
Dee	Costello
Sanda	Costello
Pamela	Cote
Renee	Cote
Rita	Cote
Robert	Cote
Laura	Cotter
Elise	Coughlin
Sandrine	Coulon
Brigid	Courtney
Carole	Courtney
Monika	Courtney
Meri	Coury
Betsy	Cousins-Coleman
Annie	Coustaty
Melita	Covic
Laurel	Covington
Linda	Covington
Camille	Cox
Jane	Cox
Lorena	Cox
Nora	Coyle
Ann	Coz
Ben	Crabb
Jeanne	Crabb
Summer	Crabtree
Janice	Craddock
Desiree	Craig
Evelyn	Craig
Michelle	Craig
Phyllis	Craig
Marcella	Crane
Margo	Crane
Mark	Crane
McKenzie	Crane
Patricia	Cranmer
Barbara	Craven
Rebecca	Craven
Holly	Crawford
Joyce	Crawford
Marianne	Crawford
Tina	Crawford
Marcia	Cree
James	Creely
Ashtin	Crenshaw
Jill	Cresko
Theresa	Creten
Laura	Crevillen
Rose	Cribbs
Kim	Crickard
Pamela	Criscio
Andrea	Crisp
Stacy	Croan
Frances	Crocco
Mary	Croft
Clifford	Crook
Bob	Crosby
Saralee	Cross
Victoria	Cross
Jennifer	Crossette
Gena	Crow
Jan	Crowder
Diane	Crummett
Lorraine	Cruz
Karen	Cucci
Drew	Cucuzza
Bernadette	Cuellar
Stephanie	Cuellar
Sarah	Culp
Elaine	Cummings
Leslie	Cummings
Linda	Cummings
Alyssa	Cunniff
Shirley	Cupani
Debra	Curci
Judy	Curcuru
Frank	Curley
Connie	Curnow
Janet	Curran
Elizabeth	Curry
Edward	Curtin
Catherine	Curtis
Cynthia	Curtis
Janet	Curtis
Patricia	Curtis
Janice	Cyrill
Shelley	Czeizler
Steve	Czerviski
Alex	Czurylo
Rebecca	Czurylo
Marianne	Daggres
Cathleen	Dagher
Cathleen	Dagher
Barbara	Dague
Deborah	Dahlgren
Philip	Dahlheimer
Robert	Dahm
Felicia	Dale
Linda	Daley
Sheila	Dallas
Jenette	D'Allessandro
Lisa	Daloia
Nancy	Daly
Giustina	Damiano
Elizabeth	Dana
Krishna	Dangol
Debra	Daniel
Laura	Daniel
Giboin	Danielle
Joan	Daniels
Kristin	Dankworth
Meghann	Danley
Marie	D'Anna
Nathalie	Daoust
Karis	Daphne
Ruth	Darden
Wanda	Darland
Donna	Darling
Anne	Darlington
Nancy	Darlington
Heather	Darrow
Anita	Das
Melinda	Dastrup
Roxanne	Daus

Juliette Dauterive
Fran Daversa
Nora Davidoff
Regina Davidshofer
Lawrence Davidson
Simone Davie
Lynne Davies
Milly Davies
A. Davis
Ali Davis
Ashlee Davis
Barbara Davis
Carol Davis
Celeste Davis
Darlene Davis
Donna Davis
Jim Davis
Lisa Davis
Pam Davis
Terri Davis
Betty Davison
Angel Dawson
Alexandria Day
Cris Day
Robyn Day
Sheila Day
Terri Day
Ingrid de Baintner
Sylvia De Braca
Alicia De Dios
Victori De Goff
Nicholas De La Cruz
Alicia De Leon
Sylvie de Parny
Natasha De Santis
Phillip Deal
Karon Dean
Rayline Dean
Franshisca Dearmas
William Dearstyne
Michael Dearth
Louann DeBerry
Anthony DeBiase

R. deBlaey
Katrina Deboer (7)
Deborah DeBois
Mary DeBono
Debra Debra
Karen DeBraal
Christine DeCamp
Cindy DeCarlo
Kelene Deccio
Callie Decena
Robert Deck
Kim Decker
Lisa Deckert
Denise DeCunzo
John Deddy
Theresa Deery
Vali Dees
Donna Deese
Roberta DeFoe
Kellie DeFosset
Jennifer DeGerolamo
Sheelagh Degnan
Xandra DeGraeve
Dagmar Degree
Gina DeGrenier
Patricia Dehler
Sherry Deitrich
Patricia Delagrange
Amy Delaney
Denise Delatorre
Kate DelCorpo
Chris Delcourt
Elizabeth DeLeon
Crystal Delgado
Dru Ann Delgado
Ximena Delgado
Debera Delgatto
Barbara Delis
Catherine Delise
Sheila Dellarma
Debora Dellinger
Launa Delp
Patricia Deluca

Megan DeLucia
Jan DeLuke
Tony DeMalio
Jackie Demarais
Diane DeMartini
Tracey Demartini
Pinelopi Demetriadou
Shane Demone
Christian Demottes
Sandra Dempsey
Roberta DeNieu
Susan Denike
Laurie Denis
Dianne Denney
Beth Dennis
Gudrun Dennis
Lori Dennis
Brett Dennison
Carolyn Dennison
Lana DeNoni
Coleen Denson
Sheri DeOrio
Donna DePauw
George Deprelle
Marianne DeRitis
Carm Derrico
Nancy Deruchie
Shirley DeRuchie
Karen Descamps
Shirley deSilva
R.E. Desmond
Sheila Desmond
Donna Desrosiers
Michele Dessons
Catherine Deuter
Joanne Devaney
Teresa Devaney
Joan DeVanzo
Vicki DeVaux
Valerie Devigne
Marybeth Devlin (8)
Missy Devlin
Justine Devoe

Lisette	deWaard
Pat	Dewar
Marda	DeWet
Anna	Dewing
Andrea	Dezendorf
Alice	Di Gregorio
Janet	Diamond
Robin	Diaz
Kimberly	DiBartolomeo
Charyl	Dick
Aaron	Dickens
Diane	Dickens
Marie	Dickenson
Amanda	Dickinson
Kim	Dickinson
Stacey	Dieck
Patricia	Diekman
Thomas	Diener
Roxanne	Dierking
Kim	Dieter
Beate	Dietrich
Katharine	Dietrich
Lissa	Diffenderfer
Eileen	Dignardi
Diahann	DiLella
Carol	Dillingham
Christi	Dillon
Mary	Dillon
Sheila	Dillon
Ivana	Dimovski
Joyce	Dindlebeck
Martha	Dingilian
Nicola	Dingley
Mary	Dinino
Joanne	Dinsmore
Angela	Dinter
Cynthia	Disanto
Mary	DiStefano
Kathleen	Dittmar
Judy	Ditton
Maria	Divirgilio
Linda	DiVittorio
Donna	Dixon
Joyce	Dixon
Kathleen	Dixon
Toxi	Dixon
Sofia	Dober
Bonnie	Dobrowski
Kathleen	Dodd
Melanie	Dodson
Sara	Dodson
Sherri	Dodson
Beth	Doherty
Joanne	Doherty
P.	Doherty
Colleen	Dolan
Andreas	Dolezal
Iris	Dolezal
Francine	Dolins
Warren	Doll, Jr.
Jill	Dombrowski
Mary	Dominic
Cheryl	Donahue
Ken	Donar
Jeanette	Donato
Chuck	Donegan
Melissa	Donham
Sandra	Donlon
Susan	Donmoyer
Gloria	Donn
Cheryl	Donnelly
Debbie	Donnelly
Richard	Donner
Judy	Donofrio
Nanina	D'Onofrio
Karen	Donohue
Diana	Dooley
John	Doorish
Brianna	Dorantes
Susan	Dorchin
Joan	Doren
Alan	Dorfman
Suzanne	Dorman
Din	Dornseif
Mary	Dorr
Linda	DosSantos
Wanda	Dossey
John	Dotta
Twyla	Douaire
Lisha	Doucet
Dianne	Douglas
Virginia	Douglas
Lisa	Douglass
Natasha	Douglass
Brenda	Doulin
Janice	Douma
Larry	Douma
Kristine	Dove
Deborah	Dowling
Holly	Dowling
Craig	Downer
Jean	Downey
PK	Doyle
AniMaeChi	Drabic
Lucy	Drahorad
Laura	Drake
Sommer	Drake
Ryan	Draper
Heather	Drees
Linda	Drescher
Gail	Dressel
Arlene	Drewniak
Jane	Drews
Barbara	Drinkwater
Diana	Driver
James	Drogo
Shelli	Drummer
Anna	Drummond
Gary	Dube
Vicky	Dubie
Harris	Dubin
Anne	Dubois
Jason	Dubois
Diana	Ducharme
Nadia	Duclaud
Emerald	DuCoeur
Tim	Duda
Terri	Duderstadt
Roseann	Dudrick

Diana	Duffy
Monica	Duffy
Jeff	Duflon
Jacqueline	DuFoe
Robert	Duke
Lorraine	Dumas
Lynette	Dumont
Janie	Duncan
Janie	Duncan
Katherine	Dunk
Nicole	Dunlap
Joan	Dunlavey
Beverly	Dunn
John	Dunn
Kathy	Dunn
Kristi	Dunn
Leslene	Dunn
Vicki	DuPraw
Donna	Duran
Janet	Duran
Laurie	Durante
M.	Durrenberg
Michael	Dutton
Kimberly	Duval
Craig	Dvorkin
Gail	Dwyer
Jeff	Dwyer
Sylvia	Dwyer
Michele	Dye
Darlene	Dyer
Shirley	Dykhuis
Darlene	Dynega
Susanna	Dzhabrailowa
Joseph	Dziczek
Cheryl	Dzubak
Karen	Eachus
Janina	Eager
Aeyrie	Eagle
Susan	Earle
Teresa	Earle
Gail	Earls
Teresa	Earp
SueAnne	Easter
Tina	Easterbrook
Sarah	Eastin
Brian	Easton
Eileen	Easton
Aleene	Eastwood
Kathleen	Eaton
Paula	Eaton
Samuel	Eaton
Victoria	Eberwein
Carlos	Echevarria
J.	Eck
Everlyn	Eckert
William	Edelman
Cheryl	Eden
Carole	Edmonds
Pandora	Edmonston
Ariane	Edmundson
Betty	Edwards
Cynthia	Edwards
Rose	Edwards
Mary	Effron
Deborah	Efron
Janice	Egan
Stuart	Egan
Karin	Eichten
Brenda	Eisenhart
Carolyn	Eisenmenger
Amy	Ekelman
Brad	Ekstrand
Joan	Elder
Patricia	Elder
Lisa	Eldred
Amy	Elepano
David	Elfin
Julie	Elfin
Nancy	Elgin
Marlen	Elias
Eva	Eliassen
Ingrid	Elkins
Jane	Ellenberg
Laura	Ellenwood
Kate	Elliot
Judith	Elliott-Brown
Cori	Ellison
Sara	Ellisson
Maura	Ellyn
Sanchez	Elodie
Carolyn	Elsey
Lora	Elstad
Mari	Elvi
Jack	Ely
Tracy	Ely
Breanne	Emerine
Janet	Emerson
Ann	Emmerson
Wendilyn	Emrys
Jill	Ender
Richard	Eng
Ann	Engebretson
Nancy	Engebretson
Kayla	Engelson
Carrie	England
Susan	England
I.	Engle
Encanta	Engleby
Raya	Engler
Denie	English
Donna	English
Jill	English
Charles	Engman
Rose	Enloe
Jordan	Ennis
Lindzie	Ennis
Jackie	Enright
Jacqueline	Enright
Pam	Erb
Shelly	Erickson
Hilarie	Ericson
Jessica	Eskew
Paula	Esposito
Susan	Esposito
Susan	Esposito
Richard	Espuga
John	Essman
Nicolas	Estevez
Karen	Estok

Denisa	Estokova
Jenny	Estripeaut
Elaine	Eudy
Joan	Eukitis
Elissa	Eunice
Jillian	Evangelista
Ann	Evans
Barbara	Evans
Bronwen	Evans
Christopher	Evans
Kelly	Evans
MaryAnn	Evans
Roberta	Evans
Rochelle	Evans
Walker	Everette
Sheryl	Ewald
Anne	Eynern
Heather	Eyssi
Rosemary	Eyssi
Jet	Ezra
Leigh	Fabbri
Carol	Facey
Judith	Fader
Justine	Faeth
Kerry	Fagone
Diane	Fairfield
Judy	Fairless
Judith	Fairly
Daniel	Faisal
Richard	Faith
Bonnie	Faith-Smith
Karli	Fajdiga
Veronica	Falcon-Gomez
Fred	Fall
Nanci	Falley
Nancy	Fanara
Barbara	Faner
Susan	Fanning
Linda	Fante
Melissa	Farago
Maryam	Faresh
Sam	Fargnoli
Janice	Farley
Gail	Farmer
Sandra	Farrell
Wendy	Farrell
Phyllis	Fast
Yvonne	Fast
Ani	Faulkner
Peter	Faure
Jeanne	Faust
Thierry	Favre
Dimitria	Fay
Marilyn	Fay
Melinda	Fay
Joann	Feather
Susan	Featherstone
Ingrid	Fechner
Albert	Fecko
Susan	Federici
Karen	Federov
Kristina	Fedorov
Tatiana	Fedotova
Audrey	Fee
Brian	Feeney
Sarah	Feick
Anne	Feingold
Veronica	Feinstein
John	Feissel
Jill	Feist
Felix	Felde
Kate	Feldman
Grace	Feldmann
Heike	Feldmann
Patricia	Felice
Nancy	Fenstermacher
David	Ferger
Ellen	Ferguson
Steph	Ferguson
Louise	Fernandes
Donna	Fernandez
Elizabeth	Ferrari
Jan	Ferraro
Tara	Ferraro
Carl	Ferrie
Gail	Ferriera
Felicia	Ferrington
Theresa	Ferritto
Shari	Ferro
David	Ferrucci
Sharon	Fetter
Suzanne	Ficara
Chris	Fick
George	Fick
Merrily	Fickert
Renee	Fiebelkorm
David	Fiedler
Patricia	Fiedler
Doska	Field
Gayle	Fieldgrove
Laurie	Fiesler
James	Fife
James	Fife
Craig	Figtree
Ana	Figueiredo
Jamie	Fillmore
John	Finazzo
Jacqueline	Finch
Kathleen	Finch
Gabriele	Fincham
Rebecca	Finley
Marilyn	Finnelli
Jeri	Fioramanti
Sara	Fisch
Dan	Fischbach
Cheryl	Fischer
Dennis	Fischer
Karla	Fischer
David	Fisher
Doris	Fisher
Kay	Fisher
Linda	Fisher
Monika	Fisher
Nancy	Fisher
Jessica	Fishman
Ted	Fishman
Bernice	Fishstein
Katie	Fite
Cathy	Fitzgerald

Deborah	Fitzgerald
Kathleen	Fitzgerald
Ruth	Fitzgerald
Tamara	Fitzgerald
Trish	Fitzgerald
Sylvia	Fitzpatrick
Judy	Flanagan
Nicholas	Flanagan
Trish	Flanagan
Glen	Flaningham
Robert	Fleck
Nancy	Fleming
Diane	Flohre
Patricia	Flood
Jessica	Flores
Veronica	Flores
Bobbie	Flowers
Ginny	Flowers
Mary	Floyd
Kris	Fobes
Sara	Fogan
Terezia	Fogarasi
Rose	Fogarty
Meaghan	Fogerty
Sunshine	Fogleman
Erin	Foley
James	Foley
Mary	Foley
Robert	Foley
Jessica	Folger
Christina	Fong
Douglas	Fonley
Cheryl	Fontaine
M.	Fontenoy
J.D.	Forbes
John	Forbes
Carolyn	Ford
M.	Ford
Robert	Ford
Stephen	Foree
Robert	Forgette
Fay	Forman
Janet	Forman
Mary	Forman
Nuria	Forrellad
Bruce	Forster
Jack	Forster
Wendy	Forster
Janet	Fortner
Tina	Foss
Beverley	Foster
Merle	Foster
Ronnie	Foster
David	Foulger
Dreana	Fountain
Ashley	Fowler
Caroll	Fowler
Elizabeth	Fowler
Linda	Fowler
Luci	Fowler
Carole	Fox
Ellen	Fox
R.	Fox
Rachelle	Fox
Karen	Fox
Sabrina	Fox-Bosetti
Jim	Frageman
Laurie	France
Irena	Franchi
Julie	Francis
Stacey	Francis
Linda	Francisco
Lynne	Francovich
Harriette	Frank
Keely	Frank
Marie-Therese	Frank
Mitzi	Frank
Robert	Frank
Daniel	Frankal
Michelle	Franke
William	Franklin
Ingrid	Frassl
Ann	Fraueheim
Marion	Frazier
Shelley	Frazier
Carolyn	Frederick
Lee	Frederick
Roberta	Frederick
Erik	Fredrickson
Karen	Freebersyser
Helen	Freedman
Heather	Freeman
Linda	Freeman
Deborah	French
Dianna	French
LeeAnn	French
Rosemary	Freskos
Janet	Frey
Kimberly	Frey
Jacqueline	Friederichsen
Jamie	Friedlander
Susan	Friedlander
Joyce	Friedman
Manuela	Friedrich
Arkadij	Friedt
Susan	Fries
Dina	Frigo
Vida	Fritz
Joyce	Frohn
J.	Froiland
Anna	Frondoso
Sue	Frounfelter
Davina	Fryman
Peggy	Fugate
Nancy	Fuller
Paul	Fullerton
Stacey	Fulton
Christine	Fultz
Margie	Fultz
Laura	Fung
Chad	Fuqua
Ann	Furey
Mary	Furlong
Shearle	Furnish
Pia	Furtkamp
Midori	Furutate
Derrelle	Gable
Carol	Gabor
Irena	Gabut

Carole	Gaerte	Liz	Garratt	Tamara	Gerdts
Linda	Gaffney	Marsha	Garrett	Priscilla	Gerfen
Lauren	Gaffney=blum	Niki	Garrett	Christian	Gerlach
Susan	Gage	Grace	Garrigan	Susan	Gerlach
Pamela	Gagliardo	Esther	Garvett	Jo	Germano
Lori	Gagne-Hockenberry	Evelyn	Garvey	Ginger	Geronimo
Elizabeth	Gaida	Donna	Gasbarro	Howard	Gershon
Linda	Gainey	Nicolette	Gascon	Valerie	Gerster
D.	Gakeler	Cheri	Gaspero	Susan	Getejanc
Debra	Gakeler	Marilyn	Gast	Janell	Ghiorso
Maria	Galbiati	Ellen	Gaston	Kathleen	Giacca
Cristina	Galiano	Elaine	Gates	Isabelle	Giagni
Diana	Gallant	Gina	Gatto	Nikos	Giannakis
Julie	Gallegos	Nathalie	Gauw	Julie	Gianni
Patti	Gallo	Sarah	Gavison	Cynthia	Gibb
Ronda	Gallo	Terri	Gawlinski	Lourdes	Gibbons
Susan	Gallo	Tammielyn	Gay	Carolyn	Gibbs
Richard	Gamache	Judith	Gayle	Jody	Gibney
Rosa	Gamazo	Karen	Geampa	Devin	Gibson
Croitiene	GanMoryn	Ina	Gebert	Drea	Gibson
Anna	Gannon	Traci	Gee	Elsa	Gibson
Coleen	Gannon	Linda	Geeson	Jody	Gibson
Jodi	Garbarino	Sandra	Gehri-Bergman	Scott	Gibson
Lisa	Garbarino	Peter	Geidel	Sharon	Gideo
Kathe	Garbrick	Carol	Gelfand	Jill	Giencke
Sonya	Garbutt	Terri	Gellin	Ivy	Giessen
Beverly	Garcia	Richard	Geltman	Cathe	Giffuni
Dulce	Garcia	Charlotte	Gem	Valerie	Gilbert
Edwina	Garcia	Judy	Genandt	David	Gilbertson
Erin	Garcia	Genny	Genevich	Bryan	Gilderoy
Flora	Garcia	Anneliese	Gengel	Carol	Giles-Straight
Laura	Garcia	Lynn	Gennrich	Peggy	Gilges
Suz	Garcia	R.	Genovese	Nancy	Gilkyson
Margaret	Gardiner	Rothery	Gensel	Ron	Gilliland
Cinda	Gardner	Mija	Gentes	Debra	Gillis
Cinda	Gardner	Diane	Gentile	Erma	Gillis
Jeanne	Gardner	Carla	Gentry	Mark	Gillono
Anu	Garg	LaQuita	Gentry	Nancy	Gilman
T.	Gargiulo	Rita	Gentry	Chris	Gilmer
Joan	Gariazzo	Angeliki	Georganta	Carol	Gingue
Sharon	Garlena	Constance	George	Vicki	Ginoli
Jeff	Garmon	Jason	George	Barbara	Ginsberg
Kristen	Garneau	Jason	Gerdes	Andrea	Giolli

Karen	Giordano	Nina	Gondos	Jim	Graham
Katrina	Gioshes	Virginia	Gonsalves	Joan	Graham
Deanna	Giovacchini	Cassandra	Gonzales	Karen	Graham
Cindy	Girgenti	Roco	Gonzalez	Lynn	Graham
Carolyn	Girten	S.	Gooch	Rosemary	Graham-Gardner
Laura	Gish	Doris	Good	Luisa	Granados
Jennifer	Gitschier	Starr	Goode	Sandy	Grandchamp
Chiara	Giudice	Beverly	Goodell	Susan	Granias
Philip	Glaser	Jennifer	Goodell	Jessica	Grant
Marian	Glass	Nancy	Goodell	Stephanie	Grashaw
Joan	Glasser	Claudia	Goodman	Constance	Grasso
Lisa	Glazier	Ellen	Goodman	Lorraine	Grasso
Debra	Gleason	Mary	Goodman	Walter	Graue
Jill	Gleeson	Bradford	Goodwin	Vivienne	Graves
Andrea	Glenn	Heather	Goodwin	Beberly	Gray
Ingeborg	Glier	Lynn	Goodwin	Lynn	Gray
Elizabeth	Glixman	Mattie	Goodwin	Robin	Gray
Petr	Glotov	Sherry	Goodyear	Jeanne	Graziani
Joseph	Glynn	Matthew	Gordon	Marilyn	Graziano
Jane	Goebel	Shelli	Gordon	Denise	Greaves
William	Goedker	Lynne	Gordon-Watson	Ronda	Greaves
Jean	Goetinck	Ewa	Gorniak	Angelica	Greco
Tammy	Goetschel	Margaret	Goscilo	Annette	Greco
B.	Goheen	Lisa	Gosnell	Joseph	Greco
Andrea	Goiolli	Richard	Gosney	Geraldine	Green
Marie	Gois	W.	Gosney	Ingrid	Green
Susan	Golberg	Kathy	Goss	Jamie	Green
Leslie	Gold	Kathy	Gosselin	Kerstin	Green
Meredith	Gold	Judith	Gottesman	Kristin	Green
Robin	Goldansky	Susan	Gottfried	Mike	Green
Chris	Golden	Jyrica	Gough	Pam	Green
Tony	Goldin	Simon	Gould	Pamela	Green
Jill	Goldman	Reisa	Gould-Donath	Penny	Green
Nita	Goldman	Joan	Gove	Marilyn	Greenberg
Judith	Goldner	Roland	Goyette	Paulena	Greene
Linda	Goldstein	Beverlee	Goynes	Estelle	Greener
Michael	Golembeski	Bogna	Grabicka	Glenn	Greenwald
Jan	Golick	Ella	Grace	Ken	Greenwald
Laurie	Gomes	Pamela	Graff	Kristopher	Greenwald
Frank	Gomez	Amanda	Graham	Barbara	Greenwood
Patti	Gomez	Danielle	Graham	Laurie	Greenwood
Paul	Gomez	Diane	Graham	Cathy	Greer
Anita	Goncalves	Dolores	Graham	Jeff	Greer

Kathy	Gregg (9)
Ana	Gregorio
Penny	Gregorio
Chilton	Gregory
Leslie	Gregory
Marilyn	Gregory
Probyn	Gregory
Louis	Greiner
Pamylle	Greinke
Cassie	Greisheimer
Ann	Grenci
Annie	Grenier
Laurel	Gress
S.	Grey
Dawn	Grib
Carmen	Griffin
Carmen	Griffin
Meg	Griffin
Rickey	Griffin
Rose	Griffin
Saundra	Griffin
Eric	Griffith
L.	Griffiths
Sue	Griffiths
Charlotte	Grillot
Kathy	Grim
Gigi	Grim
Mirrell	Grimes
Risa	Grimes
Christiane	Grimm
Wiebke	Grimm
Keith	Grimson
Nicola	Grobe
Vincent	Gromley
Kim	Groom
Harriet	Grose
Tracy	Grossberg
Anna	Groth
Cindy	Grove
Regina	Grover
Cathleen	Groves
Linda	Groves
Carol	Grubb
Christine	Gruber
Kathy	Gruber
Daniel	Grunberg
Larry	Grunspan
Valerie	Gruver
D.	Gryk
Donatella	Gualandi
Mary	Guard
Rachel	Guarino
Cindy	Guarnieri
Merry	Guben
Kaye	Gucciardo
Martine	Guerinet
Jean	Guerrier
Berenice	Guides de Sa
Dennis	Guiney
Denny	Guinta
Sheila	Gunn
Beryl	Gunning
Ken	Gunther
Joanne	Gura
Laura	Gural
Steve	Gurner
Angel	Gurrazzi
Patti	Guss
Billie	Gutgsell
Elizabeth	Guthrie
Randi	Guthrie
Sabrina	Guthrie
Mary	Gutierrez
Naia	Gutsche
Laura	Guttridge
Tisha	Guy
Ntasha	Guyot
Lourdes	Guzman
Anita	Gwinn
Gloria	Gysbertsen
Randolph	Gyulay
Claudia	Haas
Kimberly	Haas
Gilbert-Joseph	Hache-Gallant
Patricia	Hackney
Valerie	Hackney
Joann	Haddock
Jane	Hadfield
Nicole	Hafemeyer
Misty	Haffner
Deborah	Hagan
Delphine	Hagan
Laurie	Haggard
Mary	Haggerty
J.	Hagler
Barbara	Hagofsky
Brenda	Haig
Joel	Hailey
Ali	Haines
Lynda	Haines
Marcia	Haines
Theresa	Haines
Ellen	Halbert
Kim	Hale
Nicki	Hale
Patty	Haley
Clara	Halfin
Lale	Halimoglu
Joanne	Hall
Sandra	Hall
Silvia	Hall
Jennifer	Hall
Leslie	Hall
Linda	Hall
Daniele	Halle
Everett	Halligan
Pamela	Halsey
Pat	Halter
Suzanne	Hamer
Bethany	Hamilton
Charles	Hamilton
Claudia	Hamilton
Donna	Hamilton
F.	Hamilton
Hedda	Hamilton
Lois	Hamilton
Patricia	Hamilton
Theresa	Hamilton
Lisa	Hammer

Lori	Hammett
Lori	Hammon
Patricia	Hampton
Pat	Hanbury
Jenny	Hancey
Lynn	Hancock
Marcia	Hancock
Margie	Hancock
Dan	Hand
Tucker	Handerson
Lu	Haner
Linda	Hanick
Susan	Hanlon
Kathleen	Hanold
Janice	Hansard
Jody	Hansell
Arthur	Hansen
Dawn	Hansen
Jeff	Hansen
Jens	Hansen
Linnea	Hansen
Linnea	Hansen
Sandy	Hansen
Alice	Hanson
Barbara	Hanson
Christine	Hanson
Mary Jane	Hanson
Susan	Hanson
CarolAnn	Harbolt
Judith	Hardin
Constance	Hardt
Carolyn	Hardy
Kris	Harker
Alicia	Harlow
Larry	Harmsen
Stevan	Harnad
Karen	Harp
Valesca	Harp
Marilynn	Harper
Rebecca	Harper
Joan	Harrell
Lene	Harries
Tyler	Harrington
Frankie	Harris
Hilary	Harris
Karen	Harris
Kathy	Harris
Krystal	Harris
Melissa	Harris
S.	Harris
Shirley	Harris
Catherine	Harrison
Donna	Harrison
Jamie	Harrison
Leanne	Harrison
Linda	Harrison
Randy	Harrison
Scott	Harrison
Susan	Harrison
Dawn	Harrod
Codee	Hart
Ralph	Hart
Stan	Hart
Karryn	Hart
David	Hartje
Cynthia	Hartley
Jackie	Hartman
LaRee	Hartman
Nancy	Hartman
George	Hartmann
Bruce	Hartog
Mitchell	Harty
Shelley	Hartz
Marie	Harubin
Janet	Harvath
Joanne	Harvey
Margaret	Hashmi
Ellen	Hassett
Carol	Hatfield
Robert	Hatfield
John	Hatton
Kathleen	Hatton
Lisa	Haugen
Shelly	Haugen
Alicia	Haupt
Carol	Hauschild
Kathy	Haverkamp
Kathy	Haverkamp
Angela	Hawk
Carol	Hawk
Debra	Hawkes
Hollie	Hawkins
Jennifer	Hawkins
Kyle	Hawkins
Jennifer	Hawthorne
Tiffany	Hayden
Jon	Hayenga
Jeanne	Hayes
Jennifer	Hayes
Linda	Hayes
Laurie	Haynes
Michelle	Hayward
Erika	Hazen
Laura	Hazucha
Chris	Hazynski
Ashley	Head
Katherine	Head
Paddy	Head
Cora	Healy
Richard	Heaning
Jeanett	Heard
Bonnie	Hearthstone
Marian	Heath
Andrea	Heaton
Sam	Heaton
Elaine	Heberling-Aungst
Brenda	Heddictch
Barbara	Hegedus
Petra	Hegenscheidt
Linda	Heiartz
Carole	Heide
Linda	Heidt
Frances	Heijman
Linda	Heimbach
Shelby	Heimbach
Laurie	Hein
Richard	Heinlein
Nancy	Heintz
Gail	Heinz

Theresa	Helander
Jeanne	Held-Warmkessel
Lee	Heller
Sheila	Hellevang
Dee	Hellings
Ricki	Hellner
Kathleen	Helmer
Laurice	Helmer
A.	Hemenway
Jennifer	Hemmingway
Annette	Henderson
Lynn	Henderson
Maria	Henderson
C.	Hendrickson
Carol	Hendrickson
Charlene	Henley
Debbie	Hennessey
Eileen	Hennessy (10)
Paula	Henriques
Anne	Henry
Devin	Henry
Mallika	Henry
Patricia	Henry
Wendy	Henry
Stephanie	Hensley
Lana	Henson
Theresa	Hentges
Gary	Hepner
Emily	Herald
Amy	Herber
Jill	Herbers
Suzanne	Herbruck
Katie	Herd
Janine	Hering
Kellee	Herington
Bill	Herman
Kelsey	Herman
Mark	Herman
Mai	Hermann
Laura	Herndon
Karlie	Heron
Daniel	Herrera
Juan	Herrera
Beverly	Herrington
Andria	Herron
Vickie	Hersh
Mary	Herzberg
Susan	Herzer
Stephen	Heselwood
Joanne	Hesselink
Joanne	Hesser
Judy	Hestehave
Cynthia	Hever
Debra	Heverly
Rhoda	Hewett
Meera	Hewett-Ruggia
Robert	Hewlett, Jr.
Kathryn	Hibbs
Luann	Hickey
P.	Hickey
Bethany	Hicks
Carol	Hicks
Cass	Hicks
Cherrie	Higgins
Gail	Higgins
Judi	Higgins
Clyde	Hiland
James	Hildebrand
Ronald	Hildebrand
Valerie	Hildebrand
Jon	Hilderbrand
Michelle	Hiles
Linda	Hilf
April	Hill
Charles	Hill
Ginger	Hill
Harry	Hill
Helen	Hill
Jennifer	Hill
Joann	Hill
Karen	Hill
LeAnn	Hill
Marian	Hill
Teresa	Hill
Harold	Hills
Reuben	Hills
Carol	Hilton
Faith	Hilton
Holly	Hilton
Kristina	Hilton
Nikki	Hilton
Rebecca	Hilton
Barbara	Himmelright
Elizabeth	Hines
Lanier	Hines
Jeremy	Hinkson
Ann	Hinshaw
Tammera	Hinshaw
Melinda	Hirsch
Wendy	Hirsch
Larry	Hirsch
Karen	Hirschfeld
Alice	Hissim
Mike	Hlat
Lisa	Hobson
Ehren	Hock
Suszanne	Hodges
Carol	Hodgman
Rhonda	Hodgman
Mimi	Hodsoll
Harold	Hoell
Terry	Hoenig
Rebecca	Hoeschler
Joseph	Hoess
Theresa	Hoff
Susan	Hoffer
Carolyn	Hoffman
Karen	Hoffman
Murray	Hoffman
Marla	Hoffmann
Melany	Hogan
Ellen	Hogarty
Roberta	Hohman
Daniela	Hohn
Robert	Hoitela
Carol	Hoke
Jackie	Hoke
Marla	Holbrook
Alan	Holder

Sandra	Hollander
Lynne	Holley
Laura	Holliday
B.J.	Hollifield
David	Hollister
Carol	Hollomon
Hollie	Hollon
Renee	Holme
Carolyn	Holmes
Daniela	Holmes
David	Holmes
Diane	Holmes
Ella	Holmes
Julie	Holmes
Margaret	Holmes
Debi	Holt
Gina	Holt
Rhonda	Holt
Stuart	Holt
Tracy	Holthaus
John	Holton
Lawrence	Holtzman
Dominque	Holy
Gisele	Holy
Leslie	Homan
Patricia	Homsy
Nancy	Homyak
Marie	Honey Jones
Nancy	Honeychuck
Denise	Honeycutt
Marie	Honey'Jones
Robert	Honish
Melanie	Honneysett
Nick	Hood
Roxanne	Hoople
Sharon	Hoornstra
J.	Hoover
Nan	Hoover
Deborah	Hope
Katherine	Hope
Gwen	Hopkins
Jeff	Hopkins
Kathleen	Hopkins
Suzy	Hopkins
Lindy	Hoppe
Sandra	Hoppmann
Yumiko	Horie
Pamela	Hormiotis
Cindy	Horn
Terry	Horner
Denise	Horning
Deanna	Horton
Jeff	Horton
Marc	Horton
Sally	Horton
Susan	Hoskam
Linda	Hoskins
Brenda	Hoten
Walter	Hoten
Cathy	Houde
Nickie	House
Bonnie	Howard
Eliza	Howard
Jaye	Howard
Melinda	Howard
Ruth	Howard
Wayne	Howard
James	Howarth
Jeff	Howe
Amber	Howell
Lisa	Howell
Mary	Howell
Robyn	Howell
Valerie	Howell
Jordan	Howells
Julie	Howitt
Sherrie	Hoyer
Karen	Hoyle
Mishel	Hromoko
Phyllis	Huang
Virginia	Huang
Eddie	Hubbard
Misty	Hubbard
Cheryl	Hubbell
Karen	Hubbell
Julie	Hubers
Elizabeth	Hucker
Dorothy	Hudecek
Julie	Hudson
Kathy	Hudson
Sallie	Hudson
Shelly	Hudson
Tammy	Hudson
Chris	Huff
Joan	Huff
Athena	Huff-Sandstrom
Jink	Huge
Margie	Huggins
Cheryl	Hughes
Haley	Hughes
James	Hughes
Kathryn	Hughes
Michelle	Hughes
Dan	Hughett
Cynthia	Hull
Melissa	Hull
Vicky	Humbarger
Toni	Hummell
Michelle	Hunsicker
Debra	Hunt
Jill	Hunt
Steph	Hunt
Kristy	Hunter
Shannon	Hunter
Vivian	Huntley
Rachelle	Hurd
Lisa	Hurley
Nena	Hurley
Susan	Hurley
Kimberly	Hurschik
Susan	Hurwitz
Laurel	Hutcherson
Kimberly	Hutchinson
Belinda	Hutchison
Kristi	Hutchison
Debra	Hutto
Rick	Huyett
Jinx	Hydeman
Patti	Hyman

Lisa	Iannucci
Danielle	Ifrah
Dostana	Ijusic
Betty	Ikrent
Alunni	Ilaria
Charlene	Inglis
Carole	Ingram
Harriet	Ingram
Susan	Inman
Teresa	Inselman
Pam	Iraci
Bridget	Irons
Sherry	Irvin
Susan	Irving
Janet	Isaacs
Takako	Ishii-Kiefer
Zia	Islam
Kathy	Ison
Miriam	Ivaldi
Zara	Ivanova
Mrianne	Ivarsson
Dana	Ivers
Rebecca	Ivie
Donna	Jabillo
Lisa	Jablow
Jocelyn	Jackman
Ginny	Jackson
Jan	Jackson
Julie	Jackson
Maureen	Jackson
Monica	Jackson
Shirley	Jackson
Sheena	Jacob
Josh	Jacobs
Kathy	Jacobs
Louisa	Jacobs
Susan	Jacobs
Vincent	Jacobs
Frances	Jacobson
Lisa	Jacobson
Sharon	Jacobs-Salinas
Pat	Jacoby
Carrolle	Jacques
Laus	Jacques
Ellen	Jaedicke
Leonard	Jaffee
Elan	Jagger
Peggy	Jakopak
Deborah	Jakubek
Darlene	Jakusz
Barb	James
Damian	James
Donna	James
Joy	James
Ondine	James
Russell	James
Suzanne	James
April	James-Hooper
Ghazale	Jamsheed
Cheryl	Janachione
Kathy	JanFrisco
Joyce	Janicki
Ica	Jans
Sarah	Jansen
Eric	Janty
Gayle	Janzen
Lisa	Jaramillo
Brenda	Jarrard
Debra	Jarvis
C.K.	Jasiorkowski
Adelina	Jaudal
Elizabeth	Javinsky
Vickie	Jay
Cheyenne	Jenkins
Colin	Jenkins
Jo Ann	Jenkins
Kathrine	Jenkins
Robin	Jenkins
Lynn	Jenkinson
Robert	Jenks
Cheryl	Jennings
Janell	Jensen
Jean	Jensen
Kathy	Jenson
Dana	Jeon
Marilyn	Jesmain
Darynne	Jessler
Nicole	Jessup
Jo	Jetson
Quinton	Jewellen
Lorraine	Jiminez
Rose	Jiminez
S.	Jitreun
Shirley	Johannsen
Toby	Johansen
Kim	Johns
Barbara	Johns
Barbara	Johnson
Caren	Johnson
Carol	Johnson
Cheryl	Johnson
Jane	Johnson
Janice	Johnson
Jeanne	Johnson
Karen	Johnson
Linda	Johnson
Lyndaroux	Johnson
Mark	Johnson
Nita	Johnson
Nona	Johnson
Nora	Johnson
Patrice	Johnson
Sue	Johnson
Summer	Johnson
Whitney	Johnson
Yvonne	Johnson
J.B.	Johnson-Allen
Gail	Johnston
Susan	Johnston
Audrone	Jokubauskiena
Allison	Jones
Betti	Jones
Brenda	Jones
Charlotte	Jones
Eileen	Jones
Eleanor	Jones
Joyce	Jones
Karen	Jones
Lauren	Jones

Linda	Jones
Megan	Jones
Mike	Jones
Nancy	Jones
Sandra	Jones
Shannon	Jones
Sian	Jones
Valerie	Jones
Yvonne	Jones
Mary	Jones-Giampalo
Stanley	Jones-Umberger
Ruth	Jonston
Casey	JoRemy
L.	Jorna
Janet	Joseph
Jay	Joslin
Elizabeth	Jost
Leopoldina	Jovanovski
John	Jovino
Tonie	Joy
Gail	Joyiens-Salam
Jennifer	Juarez
Brumby	Judkins
Esther	Juhl
Mary	Junek
Mari	Jung
Marilou	Jung
Carol	Jurczewski
Cynthia	Jurkovic
Elaine	Jurumbo
Lauren	Jusek
Shelley	Juss
Leslie	Just
Lillian	Just
George	Kacouris
Jason	Kadar
Kathy	Kae
Edith	Kagy
Peter	Kahigian
Jane	Kahikina
Stephanie	Kalfayan
Karen	Kalmenson
Teri	Kaluza
Lacey	Kammerer
Sarah	Kampel
Rob	Kamps
Joyce	Kandalaft
Jill	Kane
Kathy	Kane
Patricia	Kane
Marilynne	Kanter
Barbara	Kantola
Deborah	Kaplan
Dori	Kaplan
Jana	Kaplan
Nancy	Kapsaskis
Franklin	Kaputska
Anastasia	Karagiannidis
Kelly	Karbon
Alan	Kardoff
Gerald	Karlovitz
David	Karopkin
Tina	Karstens
Jane	Kartes
Heike-Ingeborg	Karwatzki
A.	Kasbarian
Barbara	Kasch
Maxann	Kasdan
Vivian	Kasey
Amanda	Kassa
Gelly	Kastania
Afroditi	Katsikis
D.C.	Katten
Alissa	Katz
Mahabba	Kauffman
Karen	Kawszan
Stephanie	Kaylan
Ilene	Kazak
Jehana	Kearney
Kristin	Kearns
Maggie	Kearns
Colleen	Keating
Karen	Keating-Secular
Bruce	Keegan
Carter	Keegan
Susan	Keeler
Rhonda	Keen
Sandy	Keese
John	Kegler
Lori	Kegler
Susannah	Kegler
Tyler	Kegler
Michelle	Kehm
Andrea	Kehoe
Norm	Keiser
Cheri	Keisner
Nancy	Keiter
Dixie	Keith
Dianna	Keller
Janis	Keller
Myriam	Keller
Robert	Keller
Carol	Kelley
Marci	Kelley
Nancy	Kelley
Steven	Kellman
Barbara	Kelly
Debbie	Kelly
Diane	Kelly
Doe	Kelly
Joanne	Kelly
John	Kelly
Karen	Kelly
Kathy	Kelly
Leanne	Kelly
Monica	Kelly
Phyllis	Kelly
Bonnie	Kelsey
Jason	Kemple
Debbie	Kendall
Tina	Kendall
Eden	Kennan
Betty	Kennedy
Dianne	Kennedy
Holly	Kennedy
Karen	Kennedy
Mitzie	Kennedy
Robert	Kennedy
Sharon	Kennedy

Kate	Kenner
Janet	Kennington
Ellen	Kent
Steve	Kent
Kris	Kenyon
Mary	Kenyon
Mark	Kenzer
Judy	Keown
Lorna	Kepes
Susan	Kepner
Cindy	Kern
Lindsay	Kern
Robin	Kern
Katha	Kerr
Gloria	Kersey
Gloria	Kersey
Rhonda	Kess
Darice	Kessler
Ronald	Kestler
Sharon	Ketcherside
Lance	Ketterling
Susan	Ketterling
Lori Beth	Kidd
Nicole	Kieber
Linda	Kiernan
Sara	Kilbara
Jennifer	Kilgore
Kaye	Kilgore
Cricket	Killen
Melinda	Killen
Shirley	Kim-Ng
Rebecca	Kimsey
Kris	Kindberg
Karen	Kindel
Deanna	King
Elizabeth	King
Judith	King
Julia	King
Paula	King
Sandra	King
Stephanie	King
Janis	Kinslow
Eileen	Kippen
Yvonne	Kirby
Crystal	Kirchner
Connie	Kirkham
Maryann	Kirkhoff
David	Kirkman
Judy	Kirkman
Melissa	Kirkpatrick
M.	Kirsch
Karen	Kirschling
Esther	Kirshenbaum
Sandra	Kisieleski
Alexis	Kiss
Kathleen	Kitchen
Richard	Kite
Donna	Kitti
Eveline	Kjelstrup
Una	Kjerulf
Madi	Klawitter
Jennifer	Kleb
Craig	Kleber
Peggy	Klee
Christine	Kleiman
Anne	Klein
Julie	Klein
Joan	Klengler
Diana	Kliche
Gloria	Klimczak
Debra	Kline
Elissa	Kline
Rebecca	Kline
Karen	Klinefelter
Sally	Klinke
Walter	Klockenbrink
Dave	Klommhaus
Toni	Klos
Susann	Klose
Tina	Klosiewski
Carole	Klumb
Christine	Klunder
Terri	Knauber
Karen	Knebel
Loretta	Kneebone
Susan	Knieriemen
Bronzesean	Knight
Linda	Knight
Susan	Knoll
Rose	Knopff
Madeleine	Knowlton
Darlene	Knox
Elena	Knox
Barry	Knudsen
Tricia	Kob
Kate	Kobayashi
Emily	Kobroff
Denise	Kobylarz
Evelynb	Kocket
Melissa	Kodaly
June	Ko-Dial
Lisa	Koehl
Renee	Koenitzer
Sharon	Koester
Mirjam	Koesterke
Bette	Koetz
Amala	Kohler
Bodhi	Kohler
Vanessa	Kohlgruber
Alan	Kohn
Melanie	Kohn
Stephanie	Kokal
Kim	Koker
Irina	Kolomietz
Elaine	Komorny
Joni	Kooken
Karen	Koop
Alex	Kopac
Margot	Kopecky
Lisa	Kordich
Edib	Korkut
Carollina	Kormann
Meryle	Korn
A.	Korstanje
Lucille	Korwin
Nancy	Kosa
Dawn	Kosec
Nancy	Kost
JoAnn	Kostenbader

Ekaterina	Kostina	Ernest	Kuban	Jennifer	Lake
Steven	Kostis	Olga	Kubareva	Renee	Lake
Dee	Kotinas	Barbara	Kucala	Sanja	Lalic
Kate	Koum	Ewa	Kuczenska	Anne	Lalley
Debbie	Koundry	Gary	Kuehnapfel	Joan	LaLonde
Linda	Kourtis	Barbara	Kuehner	Monique	LaMarca
Jaynellen	Kovacevich	Martha	Kuepper	Jeanette	Lamb
Wendy	Kovacs	L.	Kuhar	Anne	Lambert
Christina	Kowaleski	Grace	Kuhn (5)	Cynthia	Lambert
Douglas	Kowalewski	Kirsten	Kuhre-Holmquist	Alexis	LaMere
Christopher	Kowalski	Holly	Kukkonen	Debbie	Lamm
Jennkfer	Koziol	Kelly	Kulauzovic	Trudy	LaMonica
Kelly	Kraemer	Marie	Kullman	Kristina	Lamons
Manuela	Kraft	Linda	Kurgan	Maria	Lamothe
Raianna	Krahn	Nancy	Kurinec	Mark	Lamport
Sandra	Krakowiak	A.	Kurjian	Deborah	Lancman
Lois	Kral	Carrie	Kurtz	David	Land
Kelly	Kramer	Madelaine	Kurzer	Doug	Landau
Hannah	Kraus	Deborah	Kuskye	Luba	Landeka
Doug	Krause	Ann	Kuter	Cindy	Landice
Susan	Krause	Sheri	Kuticka	Mireya	Landin-Erdei
Darla	Kravetz	Mariposa	Kutler	Maggie	Landis
Ed	Kraynak	Cindy	Kuziel-Romero	Windi	Landis-Stermer
Elinore	Krell	Jolanda	Kuzmanic	April	Lane
David	Kremer	Donna	Kwilosz	Aubri	Lane
Miki	Krenelka	Joan	Kyler	Bethann	Lane
Marilee	Krenik	Jill	Kyriakopulos	Deborah	Lane
Dean	Kresila	Sharon	Kyriakos	Elizabeth	Lane
Robert	Krikourian	Gloria	La Fleur	Judy	Lane
Kerry	Krininger	Lynne	La Fleur	Rachel	Lane
Susanne	Krispien	Monique	La Marca	Robin	Lane
Diane	Kristoff	Deborah	Labb	Susie	Lane
Pamela	Kritner	Dwain	LaBrooy	Vanessa	Lane
Kathy	Kron	Ioana	Lacatus	Nancy	Lang
Megan	Krout	Yveline	Lacave	Susan	Lang
Robert	Krueger	Frank	Lachelli	Lea	Lange
Stephanie	Krumm	Sharon	Lacy	Sally	Langer
Kathryn	Krusen	Phylana	Ladd	Sandra	Langer
Erika	Krushinsky	Elizabeth	Ladiana	Joe	Langford
Jennifer	Kruzel	Patricia	LaDue	Kelly	Langston
Leslie	Krygier	Barbara	Lahrson	Lethie	Lanham
Nichole	Krysil	Mark	Lainer	Puller	Lanigan
Phyllis	Krystal	Carol	Laitinen	Emerald	Lanto

Virginia	Laolante
Gary	Lapid
Matthew	Lapointe
Larry	Lapuyade
Dan	Larivey
Heather	Lariviere
Sandra	LaRocca
Laurie	LaRock
Linda	LaRoy
Kim	Larsen
Sharon	Larsen
Beverly	Larson
Beverlee	Larsson
Cristina	Larsson
Lisa	Lashaway
Sheryl	Lashway
Barbara	Lasley
Laura	Lassiter
Anja	Lasthaus
Katherine	Latham
Lanece	Lathauer
Terry	Latschar
Janeen	Latta
Daniela	Laudata
Barb	Lauer
Mary	Lauer
Jillana	Laufer
Nicole	Lauren
Fredricka	Laurian
Dana	Lauritsen
David	Laux
Karen	Lavender
Jacqueline	Laverdure
Michelle	LaVitola
Lava	Lavyn
Leslie	Law
Rhonda	Lawford
Carol	Lawler
Leslie	Lawrence
Melissa	Lawrence
Carol	Lawson
Kathy	Lawson
Jason	Lawson-St. Hill
Robert	Lawton
Diana	Laxdal
Ometh	Layton
Marianne	Lazarus
Robin	Lea
Katherine	Lea
Debby	Leadbetter
Lorraine	Leal
Crystal	Leaman
Geoff	Leavell
Diana	Leavitt
Candy	LeBlanc
Daniela	LeBlanc
Laraine	Lebron
Linda	Leckliter
Amber	Lee
Camryn	Lee
Christine	Lee
Debbie	Lee
Joan	Lee
Rex	Lee
Aubrey	Lees
Pennie	Lefkowitz
Laura	Leifer
Tahoe	Leigh
Katherine	Leinster
Dagmar	Leischow
Carmen	Leitch
Mary Ann	Leitch
Jean	LeMarquand
Carl	Lemelin
Almides	Lemes
Bernadete	Lemes de Sa
Ronald	Lemmert
Sylvie	Lemmet
Bettina	Lemmon
Jess	Lemmon
Kathryn	Lemoine
Terri	LeMoyne
Denise	Lenardson
Sandra	Lenart
Clint	Lendard
Tijana	Lendvai
Donna	Lenhart
Toni	Leo
Mary	Leon
Barbara	Leonard
Deidre	Leonard
Richard	Leonard
Anna	Leone
James	Leopold
Jonathan	Leopold
James	Lep
Alice	Lepage
Annick	Leparque
Cody	LePow
Michelle	Lerner
Viviane	Lerner
Jose	Leroux
Kathi	Lese
Peggy	Lesley
Michelle	Lesmond
Alex	Lester
M.	Leszczynski
Deborah	Letsche
Natalie	Leu
Carol	Leuenberger
Jacqueline	Leuener
Christi	Levannier
Laura	Levey
Beth	Levine
Christy	Levine
Lacey	Levitt
Paula	Leweke
Elizabeth	Lewis
Jamie	Lewis
Joann	Lewis
Julie	Lewis
Margaret	Lewis
Michelle	Lewis
Patricia	Lewis
Sunny	Lewis
Shariann	Lewitt
Wendy	Li
Debra	Libby
Dominic	Libby

Wendy Libman
Antonina Licastri
Jonine Lichtenwald
Esther Lidstrom
Laura Lieberman
Rhonda Lieberman
Horacio Liedo
Vida Liera
Al Lilla
Evelyn Lilly
Yee Lim
Britt Lind
Eric Lind
Michelle Lind
Marie Lindberg
Aleksander Lindemann
Kay Linder
Patty Linder
Margit Lindner
Erin Lindquist
Pamela Lindquist
Sharon Lindsley
Nancy Lines
Harriet Ling
Liu Ling
Orlando Linhares
Vicki Linkin
Lyn Linkous
David Linnane
Gail Linnerson
Stu Lip
Shannon's Lipke
Deborah Lipman
Linda Lippert
Robert Lipsky
Adriana Lisman
Michael Little
Suzie Little
Alison Litton
Joann Liuzzo
Tania Liva
Elaine Livesey-Fassel
Treena Livesley
Cynthia Livingston
Deborah Livingston
Michelle Livingston
Beth Livingstone
E. Lloyd
Kitten Lloyd
Sheila Loayza
Sheila Lobel
Delphi Locey
Joanna Lochowska
Stacey Lock
Peggy Loe
Mary Lou Loesch
Donna Logan
J. Logan
S. Logan
T. Logan
Lisa Logic
Annette Lombardi
Carolyn Lombardi
Robert Lombardi
Eva Lonborg-Madsen
Donna London
Rose London
Deborah Long
Richard Long
Tamara Long
Twila Longenecker
Ki Longfellow
Cynthia Longo
Mia Longo
Ed Loosli
Tamara Loperfito
Cheryl Lopes
Susan Lopes
Christa Lopez
John Lopez
Jose Lopez
Kathie Lopez
Marie Lopez
Nelly Lopez
Sonia Lopez
Andy Lora
Gina Lordo
Rosalie Lorenzen
Elisa Lorenzetti
Larry Lorinsky
Jannette Loshbough
Cathy Louwers
Judith Lovas
Amanda Love
Keith Love
Laurine Love
Lanelle Lovelace
Terra Lovelace
Janis Lovi
Dhona Lovick
Barbara Lowden
Karen Lowe
Kay Lowe
Nancy Lowell
Candice Lowery
Melinda Lowery
Maryanne Lowman
Cindy Lowry
Lorraine Lowry
Joni Lowther
Silvia Lozano
Mary Lu Kelley
Bonita Lubinsky
Toni Lubka
Diane Luck
Susan Lucking
Nicolette Ludolphi
Nenad Lukac
Michelle Lukasiewicz
Anna Lukaszewicz
Aggie Lukaszewski
Jaedra Luke
Tara Lulla
Sherry Lund
Sonja Lund
Nils Lunde
Lorraine Luntsford
Ellaine Lurie-Janicki
Andrew Lustig

Darlene	Luth
Jeanette	Luttrell
Maresa	Luzier
Janet	Lynch
Kelli	Lynch
Fran	Lynghaug
Sandy	Lynn
Angela	Lyon
Kathi	Lyons
Marilyn	Lyons
Mike	Lyons
Terry	Maag
Monique	Maas
Kelly	MacCaulay
Colleen	MacDonald
Meghan	MacDonald
Nilah	MacDonald
Pattie	MacDonald
Theresa	MacDonald
Adrienne	MacFarlane
Thomas	MacFarlane
Larry	Machado
Sherry	Macias
Kerry	MacInnes
Michael	MacIntyre
Krista	Mack
Kerry	Mackenzie
Frances	Mackiewicz
Chris	MacKrell
Lynette	MacLagan
Melanie	MacLennan
Eileen	Macmillan
Susan	MacPhee
Michelle	Macy
Nelson	Madariaga
Karen	Maddalena
David	Madden
Laurra	Maddock
Chelsea	Madison
Theory	Madison
Kathy	Madlem
Heloisa	Madureira
Gay	Maestas
Samantha	Maffeo
Mona	Magana
Lilithe	Magdalene
Caroi	MaHarry
Jennifer	Maharry
Kathleen	Mahoney
Eileen	Mahood-Jose
Anna	Maier
Mary	Main
Margaret	Mainelli
Roberto	Mainetti
Diana	Maiocco
Karen	Maish
Romina	Maja
Eve	Major
Janet	Maker
Rosa	Malagisi
Karen	Malcolm
Jacquie	Malette
Vicki	Malick
Christina	Malm
Jaime	Malone
Robi	Malone
Hilary	Malyon
Katherine	Malzahn-Bass
Susan	Mamich
Austin	Manchester
Jace	Mande
Rebecca	Mandich
Joseph	Mangarelli
Michaelene	Manion
Lindsay	Mann
Susan	Mann
Christine	Mannetta
Jacqueline	Manning
Nancy	Manning
Teri	Manno
Audrey	Mannolini
Cate	Manochio
Mark	Mansfield
Lida	Mansouri
Nicholas	Mantas
Kimberly	Manuel
Flavio	Manzi
Tania	Marchand
Babs	Marchands
Diane	Marciano
Christina	Marcus
Diane	Marcus
Debra	Marge
Martin	Margolis
Nan	Margraves-Hoover
Shawn	Mariella
Patricia	Marino
Carolyn	Marion
Lisa	Markel
Jacobus	Markesteijn
Steven	Markgraf
Ann	Markham
Zinaida	Markine
Jan	Markkarian
Joan	Marks
Joel	Marks
P.	Marks
Patricia	Marlatt
Kathryn	Marlett
Bryan	Marley
Yvonne	Marley
James	Marlow
Dale	Marlowe
Marci	Marmor
Bev	Marnewick
Susan	Maroc
Joseph	Marotta
Christine	Marquette
Allie	Marriott
Nina	Marrocco
Cynthia	Marrs
Jennifer	Marrs
Nancy	Marschel
P.	Marsella
Empathy	Marsh
Heather	Marsh
Michael	Marsh
Sherry	Marsh
Amelia	Marshall

Kay	Marshall
Laurie	Marshall
Rebecca	Marshall
Rose	Marteeny
Jon	Martell
Julie	Martenson
Kim	Marthens
Linda	Marticek
Ann	Martin
Cynthia	Martin
Gerry	Martin
Julie	Martin
Melanie	Martin
Sherri	Martin
Becky	Martin
Schuyler	Martin
Diane	Martin-Brodak
Amy	Martinez
Bonnie	Martinez
Coral	Martinez
Corrine	Martinez
Harriet	Martinez
Janet	Martinez
Valerie	Martinez
Patricia	Martins
R.	Martire
Joan	Martorano
A.	Marts
Janet	Martucci
Nathana	Marunich
Tracy	Marzano
Anna	Mashevcich
Susan	Mashevcich
Cherie	Mason
Dawn	Mason
Joyce	Mason
Kellie	Mason
Marla	Mason
Ellen	Mass
J.	Massarini
J.	Massetti
Darice	Massey
Dolores	Massey
Justine	Massey
Mary	Massey
Ramie	Massie
Gene	Massion
J.	Masters
Sandra	Materi
Barbara	Mathes
Carole	Mathis
Rita	Mathues
Sue	Mathys
Lynette	Maton
Vicky	Matsui
Paul	Mattera
Ashley	Matthews
Donna	Matthews
Nan	Matthews
Phillip	Matthews
Rogene	Matthews
Cinzia	Mattiace
Georgia	Mattingly
Karen	Matulina
Anne Marie	Matzko
Laurie	Mauler
Jerry	Mawhorter
Alana	Mawson
Casee	Maxfield
Marygrace	Maxwell
Cactus	May
Chris	May
Ellen	May
Jackie	May
Marisol	Mayell
Ramona	Mayer
Monica	Mayes
Donna	Mayfield
Margaret	Maynard
Ann	Mayo
Gloria	Mayo
Teresa	Mays
Tasunka	Maza
Darius	Mazaheri
Katy	Mazoch
Lisa	Mazur
Susan	Mazza
Janet	Mazzarini
Lisa	Mazzola
Rebecca	McAlary
Janet	McAlister
Helen	McAllister
Carol	McArdle
Jennifer	McArdle
James	McArthur
Cheryl	McAtee
Elaine	McAuliffe
Nancy	McBride
Bonnie	McCabe
Kathleen	McCabe
Toni	McCalley
Keith	McCampbell
Rosa	McCann
Diane	McCarter
Susan	McCarter-Wade
Mary	McCarthy
Georgina	McCartney
Julie	McCarty
Sue	McCasey
Lorraine	McCawley
Betsy	McClain
Cynthia	McClain
Walter	McClatchey
Elizabeth	McCleary
Harriet	McCleary
Jeff	McCollim
Ellen	McConnell
Mary	McConnell
Bonny	McCormick
Devin	McCormick
I.	McCormick
Jacque	McCormick
Jean	McCormick
Sandy	McCoy
Virginia	McCoy
Lorie	McCracken
Bernadette	McCrea
Terese	McCready
Jan	McCreary

Gail	McCredie
Jim	McCue
Kara	McCullar
C.	McDonald
Graham	McDonald
John	McDonald
Karen	McDonald
Nancy	McDonald
Rita	McDonald
Stacey	McDonald
Susan	McDonald
Rosemary	McDonnell
Andrew	McDowall
Margaret	McEldowney
Joanne	McEntee
Vandy	McEwen
Michele	McFerran
Sandra	McGee
Carol	McGeehan
Joy	McGinty
Martin	McGladdery
Jeanne	McGlenister
Colleen	McGlone
Alice	McGough
Hollie	McGovern
Cindy	McGrady
Karen	McGranahan
Brian	McGuigan
William	McGuire
Margaret	McHugh
S.	McHugh
Judith	McInnis
Barbara	McIntosh
Malva	McIntosh
Zena	McIntosh
Patricia	McIver
Diane	McJunkin
Marianne	McKay
Tracy	McKay
Christina	McKee
Katherine	McKee
Shelley	McKee
Patricia	McKelvie
Deki	McKenney
Cathy	McKesson
Debbie	McKitrick
Sharon	McKnight
Linda	McLain
Kate	McLaughlin
Terri	McLaughlin
Susan	McLenaghan
Cynthia	McLendon
Elizabeth	McLinton
Patricia	McMahan
Anah	McMahon
Mair	McNamara
Maureen	McNamara
Deann	McNeal
Diana	McNeel
Amanda	McNeill
Laurie	McNevan
Colleen	McNicoll
Brenda	McNorton
Stephanie	McQueen
Doris	McQuiddy
Donna	McQuirter
Kathryn	McRoden
Janice	McShane
Myron	McVeigh
Stephen	Mead
Sharon	Meagher
Marta	Meares
Suzanne	Meathrell
Katrina	Meddings
Ernest	Medeiros
Patricia	Medeiros
Janique	Mednis
Tara	Meehan
Judith	Meek
Joan	Meeker
Suzana	Megles
Mona	Mehas
Gwendolyn	Mehring
Dawn	Meier
Tim	Meier
Francine	Meinelschmidt
Ken	Meinhardt
Margaret	Meinschein
Linda	Melichar
Vikki	Melnick
Lisa	Melone
Jim	Melton
Kathryn	Melton
Gwenn	Meltzer
Cecilia	Mendez
German	Mendez
Tatiana	Mendez
Virginia	Mendez
Vince	Mendieta
Lynn	Menefee
Keith	Menteer
Michele	Mercer
Mary	Merchant
Rosemary	Meredith
Olga	Merinova
Bunni	Merk
Ralph	Merlino
Adele	Meroni
Judy	Merrick
Sandra	Merrill
Jean	Merritt
Wendy	Merritt
Brian	Mesich
Nancy	Mesich
Daniela	Mess
Susan	Messerschmitt
Constance	Messina
Pat	Metsinger
Bonna	Mettie
Harvey	Metzger
Claire	Metzler
Dianne	Meyer
Moranda	Meyer
Sarah	Meyers
Lori	Meyrick
Priscille	Meystre
Jeanette	Micca
Tina	Michael-Dahlmann
Chris	Michaelides

Cheryl	Michaelis
MaryLynn	Michaelis
Elaine	Michaels
Judye	Michaels
Raelyn	Michaelson
Kim	Michels
Marilyn	Mick
Janine	Mickley
Wayne	Middleton
I.	Mies
Anne	Migone
Susan	Migues
Jeannine	Mihalek
Lisa	Mikolich
Liz	Mikre
Barbara	Milano
Sandra	Mileham
Amanda	Miles
James	Miles
Lesli	Miles
Marilyn	Miles
Renee	Miles
Julia	Milford
Ljiljana	Milic
Arlene	Miljour
Ann	Millan
Betsy	Millard
Angelita	Miller
Brad	Miller
Carol	Miller
Carolyn	Miller
Catherine	Miller
Denise	Miller
Devon	Miller
Diane	Miller
Donna	Miller
Eileen	Miller
Elaine	Miller
Helen	Miller
Jennifer	Miller
Jessica	Miller
Joanne	Miller
Kathy	Miller
Linda	Miller
Marlene	Miller
Nancy	Miller
Ruth	Miller
Sandra	Miller
Sherie	Miller
Sherriey	Miller
Tanja	Miller
Vicky	Miller
Vince	Miller
Stephanie	Millet
Treena	Millett
Robert	Milligan
Irene	Mills
Lee Anne	Mills
Melayne	Mills
Shirley	Mills
Martha	Milne
Lisa	Milo
Nikolaos	Milonas
Bruno	Milone
Joanna	Miloszewska
Alexander	Minaev
Barb	Minar
Curt	Miner
Marcia	Miner
Ivana	Minic-Lukac
Ila	Minton
Crystal	Mintz
Natalia	Miramontes
Lupyta	Miranda
Urbain	Mireille
Susan	Misa
Janet	Mishler
Joanne	Mitcham
Alicia	Mitchell
Bo	Mitchell
Cheryl	Mitchell
Crystal	Mitchell
Desiree	Mitchell
Elizabeth	Mitchell
Jan	Mitchell
Julie	Mitchell
Linda	Mitchell
Margaret	Mitchell
Marilynn	Mitchell
Robert	Mitchell
Stephen	Mitchell
Lisa	Mitrano
Mihaela	Mitrea
Michael	Mitsuda
William	Mittig
Larry	Mix
Eugenia	Mixon
Jean	Mixon
Rachel	Mobley
Cindy	Moczarney
Deidre	Moderacki
Jan	Modjeski
Rebecca	Moed
Christopher	Moehl
Amanda	Moeller
Michael	Moeller
Julia	Moes
Kaye	Mohammadi
Erika	Mohos
Lea	Mohr
Suzanne	Mohr
Madelaine	Moir
Jean	Molinari
Jean	Mollack
Phyllis	Mollen
Judith	Monarch
Jane	Monday
Irene	Moneyhun
Aggie	Monfette
Suzi	Monk
Dean	Monroe
Janis	Monstad
Katherine	Montague
Marni	Montanez
Anthony	Montapert
June	Monteleone
Deborah	Montero
Marti	Montoya
Marjie	Montrose

Margaret	Monty
Lenny	Moon
Michele	Mooney
Benita	Moore
Catherine	Moore
Colleen	Moore
Gayle	Moore
J.K.	Moore
Janet	Moore
Jessica	Moore
Pauline	Moore
Robert	Moore
Sally	Moore
Thomas	Moore
Tony	Moore
Rey	Mora
Marco	Morales
Tanya	Morales
Brenda	Moran
Dee	Moran
Judy	Moran
Michael	Moran
Sally	Moran
Pam	Morarre
Kathleen	Moraski
Rosalie	More
Diane	Morency
Angel	Moreno
Linda	Morero
Joni	Moretti
Alexa	Morgan
Michelle	Morgan
V.	Morgan
Carla	Morin
Raphael	Morin
Dennis	Morley
Mary	Morley
S.	Moroney
Jan	Morong
David	Morres
Ana	Morris
Jean	Morris
Michele	Morris
Wendy	Morris
Sue	Morrison
Christine	Morrissey
Hank	Morrow
Lynn	Morrow
Maureen	Morse
Ali	Mosa
Vivianne	Mosca-Clark
Theresa	Moscowitz
Lance	Moseley
Bettina	Moser
Rochelle	Moser
Connie	Moses
Nicole	Moss
John	Moszyk
Marcie	Mott
Kim	Motyka
Hussein	Mourtada
Carine	Moustier
Helene	Mowka
Cary	Moy
Tamara	Moyer
K.	Mueller
Theresa	Muir
James	Mulcare
Diane	Mulhern
Jan	Mulholland
Sharon	Mullane
Julie	Mullen
Margy	Mullen
Michael	Mullen
Amanda	Muller
Audrey	Muller
Bambi	Muller
Alice	Mullins
Vinny	Mullins
Laura	Mulvaney
Sharon	Mulvaney
Sherrie	Munday
Dorothy	Munderloch
Lynn	Mundinger
Jaime	Munera
Donald	Munn
Laura	Munoz
Allysa	Muntean
Linda	Muntner
Jo	Munz
Maki	Murakami
Laura	Murchison
Elizabeth	Murdoch
Marian	Murez
Becky	Murine
Betty	Murphy
Cynthia	Murphy
Karen	Murphy
Linda	Murphy
Mary	Murphy
Michelle	Murphy
Molly	Murphy
Paula	Murphy
Bonnie	Murray
Cristy	Murray
Kathy	Murray
Lisa	Murray
Marcia	Murray
Casey	Mushkin
Anna	Mxitarova
Keli	Myers
Mary	Myers
Teresa	Myers
Josee	Nadeau
Janis	Nagengast
Sandra	Naidich
Ram	Nair
Kimberly	Najarian
Dorrie	Nang
Bob	Napier
Elizabeth	Napier
Alexandra	Napoleon
Barbara	Nardone
Isabel	Nash
Theresa	Nason
John	Nattrass
Gabriele	Naumann
Patricia	Nazzaro
Lina	Nedergaard Hjorth

Janet	Needler
Grace	Neff
Miriam	Neff
David	Neiberger
Janet	Neihart
Laura	Neiman
Mary	Neivens
Margaret	Nelmes
Alexandra	Nelson
Anna	Nelson
Carrie	Nelson
Cecelia	Nelson
Connie	Nelson
Hilleary	Nelson
Jackie	Nelson
Judith	Nelson
Julie	Nelson
Mary	Nelson
Pam	Nelson
Rebecca	Nelson
Rita	Nelson
Mandy	Neltner
Justina	Nemoy
Sue	Nerad
George	Neste
Lisa	Neste
Leanne	Nester
Ruby	Nester
Debbie	Netardus
Kelly	Nettesheim
Karen	Neubauer
Keri	Neuling
Julia	Neumaier
Mary	Neumann
Nancy	Neumann
Marleen	Neus
Kandace	Nevin
Laura	Nevins
Shelly	Newell
Maureen	Newey
Lisa	Newkirk
Anita	Newman
Jacqueline	Newman
Kathy	Newman
Kristy	Newman
Terry	Newman
Emain	Ng
Tuan	Nguyen
Chris	Nicholas
Roxanne	Nicholas
Carol	Nichols
Rey	Nichols
Bonni	Nicholson
Lisah	Nicholson
Pamela	Nickell
Monique	Nickerson
Jeanette	Nicola
Nicola	Nicolai
Sarah	Nicoll
Patricia	Nicolosi
Seiglinde	Nieberle
Susanna	Nieddu
Claudia	Niehues
Katherine	Nield
Antonella	Nielsen
Irene	Nielsen
Sonja	Nielsen
Susann	Nielsen
Marie	Nieves
Amir	Niknam
Jennifer	Nitz
Kathy	Nix
Robert	Nobrega
Martha	Nochimson
James	Noe
Letitia	Noel
Laurence	Nokel
Katherine	Nolan
Tina	Noland
Maria	Nolen
Cheryl	Noone
Jill	Nord
Jane	Norling
I.	Norris
Marc	Norris
Jasmine	North
Lisa	Northrup
Emma	Norton
Laurie	Norton
Thea	Norton
Paul	Norup
Denise	Nostro
Collette	Novak
Cristina	Novelo
Jan	Novotny
Sylwia	Nozderko
Deborah	Nudelman
Noris	Nunez
Julie	Nurenberg
Diane	Nushawg
Annabelle	Nye
Dorothy	Nylen
Carl	Nylund
Candace	Oakes
Karen	Oakes
Rebecca	Oberlin
Donna	O'Berry
Carolyn	O'Brien
Dennis	O'Brien
Loreen	O'Brien
Kathryn	Obryan
Kim	O'Bryan
Barbara	O'Cassel
Chris	Ocean
Sherry	Ochoa-Rounkles
Mary	O'Connel
Siochain	Oconnor
Ellen	O'Connor
Laura	O'Connor
Norma	Odell
Anne	O'Donnell
Joanne	O'Donnell
Jessica	O'Doski
Carl	Oerke
Mark	Offerman
Edith	Ogella
Iwona	Ogg
Jayme	Oglesby
Jeanne	Ogorzaly

Danielle	Ohanesian
Carol	Ohlendorf
Lilli	Ohse
Sam	Oksner
Audrey	Okubo
Kimberly	Okumoto
Doris	Oldham
Barbara	O'Leary
Elizabeth	Oliveira
Mariana	Oliveira
Roberto	Oliveira
L.	Oliver
Leslie	Oliver
J.JoAnn	Ollar
Gloria	Olman
Debbie	Olmstead
Jessica	Olnhausen
Mare	Olsen
Sufi	Olsen
Angela	Olson
Renie	Olson
Jennifer	O'Neal
Maureen	O'Neal
Bonnie	O'Neil
Kay	O'Neil
Ellen	O'Neill
Fiona	O'Neill
Tim	O'Neill
Frank	Onishuk
Desire	Oosthuizen
Carol	Orbino
Phyllis	O'Reilly
Ilene	Orem
Triinu	Org
Valerie	Ornatowski
Karen	Ornelas
Joanne	Oroark
Elene	O'Rourke
Danielle	Orr
Rosa	Orsetti
Janet	Ortega
Ginger	Ortiz
Jayne	Ortiz
Arlene	Ory
Tina	Osborne
Linda	Osburn
Ewa	Oscarsdotter
Susen	Oseth
Claudia	Osorio
Sherry	Oster
Julie	Ostoich
Michael	Ostrosky
Kathleen	O'Sullivan
Kathleen	O'Sullivan
Sarah	Oswald
Annmarie	O'Toole
Lynn	O'Toole
Mick	Otten
Fran	Ottinger
Velma	Ottmar
Kristin	Otto
Dalila	Ouai
Patti	Ouderkirk
Judy	Oust
Annette	Overstreet
Steve	Overton
Jane	Owens
Karen	Owens
Nada	Owens
Sibel	Ozer
Dogan	Ozkan
Paula	Ozzello
Barbara	Pabisz
Lisa	Pace
Susan	Pacheco
Patti	Packer
Theodosia	Paclawskyj
Wendy	Pacquette
Beverly	Pacquin
Grace	Padelford
Don	Paden
Sergio	Padilla
Cinzia	Paganuzzi
Lane	Page
Deb	Paget
Anne	Pagliaro
Alexis	Pagoulatos
Dice	Pain
Vera	Paisner
Laura	Pajot
Tami	Palacky
Michele	Palermo
R.	Palermo
Michelle	Palladine
Linda	Palm
Ruth	Panella
Rosiris	Paniagua
Theresa	Pankey
April	Paoff
Sara	Paoluzzi
Kathy	Papineau
Melodie	Papoojian
Alexandra	Pappano
Rachael	Pappano
Mary	Paquet
Laurie	Paquin-Leet
Loretta	Paraguassu
Heather	Paravella
Julie	Parcells
Marco	Pardi
Al	Paris
Anthony	Parisi
Julie	Parisi
Neal	Parisi
Valerie	Park
Daphne	Parker
Evelyn	Parker
Lonna	Parker
Molinda	Parker
Patricia	Parker
Sandra	Parker-Turnage
Terrence	Parkhurst
Marion	Parkyn
Tim	Parmly
Kirsten	Parris
Stephen	Parsons
Nancy	Partin
Sharon	Partington
Jane	Pascarella

Eric	Pash
D.	Pasha
Rashid	Patch
A.	Pathen
Arlene	Patoray
Barry	Patrick
Duane	Patrick
Tina	Patrick
Jan	Patterson
Lorraine	Patterson
Martina	Patterson
Shelley	Patterson
Sherry	Pattillo
Barbara	Patton
Karin	Patze
Rashida	Paul
Terry	Pauls
George	Pavlinos
Christi	Pawlak
Gabi	Payne
Giana	Paz
Elizabeth	Peach
Elizabeth	Peacock
Nancy	Pearlmutter
Juliet	Pearson
Nancy	Pearson
Rose	Pearson
Tia	Pearson
Cindy	Peart
Joan	Peaslee
Sharon	Peck
Ashley	Pedersen
Lisa	Pedersen
Jenna	Pelella
Elaine	Pelke
Diane	Pell
Jim	Pell
Benita	Pelletier
Mark	Peltan
B.	Pelton
Susan	Peltonen
Roberto	Penaherrera
Apollonia	Peniceni
Marsha	Penner
Barbara	Pennington
Janie	Pennington
Lisa	Penny
Kathye	Pepka
Natalie	Pepper
Jana	Peppin
Paul	Peraino
Connie	Perala
Karen	Peralta
Julie	Perco
Dan	Perdios
Elena	Perez
Jaime	Perez
Janet	Perez
Julie	Perez
Marcia	Perez
Susan	Perez
Lela	Perin
Nina	Perino
Barbara	Perkins
Joel	Perkins
Lela	Perkins
Nancy	Perkins
Eleanor	Perkis
Ralph	Pero
Sue	Perrin
Alison	Perry
Cyrle	Perry
Lisa	Perry
Rita	Persichetty
Leslie	Persons
Amy	Pestritto
Maria	Peteinaraki
Alice	Petersen
Ann	Petersen
Dannette	Petersen
Elaine	Petersen
Stefan	Petersen
Al	Peterson
Alfred	Peterson
Beverly	Peterson
Carrie	Peterson
Kristina	Peterson
Lorri	Peterson
Maree	Peterson
Nicole	Peterson
Judy	Peterson
Loretta	Peterson
Laetitia	Petit
Rositsa	Petkova
Shari	Peto
Sandra	Petranek
Mike	Petro
Lynn	Petronella
Maryke	Petruzzi
Mary	Pettengill
Angela	Petty
Kevin	Petty
Allison	Petzko
Barbara	Petzko
Janice	Pfeiffer
Loni	Phariss
Laura	Pheasant
Linda	Phelan
Tami	Phelps
Neysa	Phillippi
Kimberly	Phillips
Nina	Phillips
Robert	Phillips
Rita	Philo
Catherine	Phipps
Nancy	Phipps
David	Photos
Dominika	Piasecka
Ewa	Piasecka
Ivette	Picazo
Gloria	Picchetti
Frank	Pickens
Lisa	Pickens
John	Pickett
Kayla	Pickford
Mason	Pickholz
Melissa	Pickle
Iornaa	Pickrell
Annette	Pieniazek

E.	Pierce
Beatrice	Pierre
Evelyn	Pietrowski-Ciullo
Tanya	Piker
Isabelle	Piller
Catherine	Pillsbury
Alba	Pillwein
Sharon	Pilon
Kathy	Piltz
Harry	Pinand
Vikki	Pingle
Debra	Pinkham
Judy	Pinkham
Meryl	Pinque
Linda	Pinsent
Juliann	Pinto
Angela	Piojda
Sandra	Pirro
Victoria	Pitchford
Jolene	Pitman
Karen	Pitt
Bryna	Pizzo
Carolyn	Plaisance
Leah	Plant
Patricia	Plasky
Ray	Plasse
Franklin	Platizky
Margaret	Plese
Debra	Plishka
Marilyn	Plott
Madeline	Plucinski
Piotr	Plucinski
Wanda	Plucinski
JoAnn	Pochciol
Jamie	Poe
Annette	Poerschke
Katherine	Poff
Charlene	Poglitsch
Jane	Poklemba
Cheryl	Pokomo
Alice	Polesky
Michelle	Poliart
Pamela	Polizzi
Janelle	Pollock
Joanna	Poloczek
Sheri	Polski
Deb	Pomfret
Kathy	Pomicter
Susan	Pommer
Kim	Pond
Lesa	Pond
Carole	Pooler
Margaret	Pooler
Kevin	Popeck
Katie	Popiel
Kelly	Popp
Kelly	Popp
Nancy	Porcino
Ailsa	Porter
Carol	Porter
Kaye	Porter
Susan	Porter
Christina	Posey
Lina	Poskiene
Jeanne	Posner
Susan	Posner
Steven	Potosky
Doris	Potter
Heather	Potthoff
Laurie	Pottish
Richard	Potts
Linda	Pouncey
Anne	Powder
Mona	Powe
Alexis	Powell
Miyuki	Powell
Peggy	Powell
Robin	Powell
Inara	Powers
Laura	Powers
Laurel	Powers
Nina	Powers
Sandra	Powers
Paula	Powers
Claudia	Prado
Emma	Prascio
Kristen	Prasek
Yvonne	Pratt
Kris	Preslan
Robin	Pressler
Jennifer	Prezant
Catherine	Preziosi
Bill	Price
Mary	Price
Charlotte	Priddy
Maxine	Priest
Meredith	Priestley
Sherry	Prince
Steven	Prince
Jeanne	Principe
Kathryn	Prins
Isabelle	Pritchett
Hellen	Prodocimo
Suda	Prohaska
Paula	Propst
Dolores	Proubasta
Lauri	Provencher
Leoncio	Provoste
Paula	Pruner
Jana	Pruse
Nicholas	Prychodko
Jennifer	Pryor
Andrey	Pshenitskiy
Marlene	Puaoi
Richard	Puaoi
Susan	Puaoi
Jean	Public
Robert	Puca
Elena	Pucci
Norman	Pugliese
Frederic	Pulcini
Stephanie	Pulfer
Christine	Puliselic
Lisa	Purcell
Deeanne	Purchase
Paula	Purviance
Holly	Putnam
A.	Puza
Kevin	Quail

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Susan Querze
Nthalie Quesnel
Dana Quillman
Mary Quimby
Maureen Quinlan
Elise Quinn
Heather Quinn
Ursela Rabe
Rebecca Rabinowitz
Elena Racansky
Debi Rachel
Heike Rade
Irene Radsack
Jocelyn Rafferty
Laura Raforth
Patricia Ragazzon
MarieElaina Rago
Cecelia Ragusa
Alicia Rahe
Kelli Rain
Dee Rainey
Christina Rainwater
Debra Rajchel
Lisa Ramaci
Julianne Ramaker
Karen Rambat
Armando Ramirez
Mary Lou Ramirez
Jaime Ramos
Joann Ramos
Paul Ramos
Carmen Ramsey
Dorene Randall
Debra Randazzo
Linda Randel
Monica Randell
Mary Randolph
Shirley Randolph
Caroline Rankin
Gordon Rankin
Melanie Ransom
James Ranstrom
Pearl Ranstrom
Linda Rappoport
Shannon Ratliff
Karen Ratzlaff
Heather Raubenheimer
Jackie Raven
Lauren Rawlings
Tim Rawlings
Stanley Rawlins
Carol Ray
Gigi Ray
Leslie Ray
Bobbie Rayburn
Becky Raymond
Elaine Raynor
Dale Rdiehart
Sa Re
Charlene Reader
Tara Reale
Janice Reamer
Laine Reams
Maria Reato
Fran Recca
Ann Reddick
Tracy Reddig
Vicki Redding
Stephanie Redgate
Laura Redgrave
Lauren Rednour
Mark Reed
Kathy Reese
Toby Reese
Lynn Reeser
Ella Reeves
Kathleen Reeves
Lenore Reeves
Raelynn Reeves
Toni Reeves
Maria Regam
Evelynb Regan
Laura Regan
Nora Regan
Vanessa Register
Sonia Rego
Gary Rehs
Ingrid Reich
Robyn Reichert
Christine Reid
Nina Reid
Susan Reid
Kathleen Reifke
Alta Reimund
Rose Reina-Rosenbaum
Shirley Reinartz
Joan Reinbott
Jennifer Reinert
Diane Reinhold
James Reinke
Deb Reis
Maria Reis
Lynore Reiseck
Angela Relder
Ania Religa
Cornelia Relyea
Cheryl Remington
Matt Remmington
Edward Rendon
Ann Rennaker
Joe Renneke
Kylie Renner
Cynthia Rennick
Rebecca Rens
Sandra Repiquet
Shannin Resendes
Karin Rettig
Barbara Reukauf
Rocky Reuter
Cathy Revis
Reynaldo Reyna
Audrey Reynolds
Judith Reynolds
P. Reynolds
Kimberly Rhodemyre
Donna Rhodes
Michelle Rhodes
Susan Rhynhart

Bodil	Ribel
Sherida	Ribordy
Tina	Ricb
Marie	Riccardi
Angel	Ricci
Karol	Rice
Laura	Rich
Kimberly	Richard
Deborah	Richards
Jody	Richards
Caroline	Richardson
Connie	Richardson
Diane	Richardson
Fay	Richardson
Keisha	Richardson
Stacey	Richardson
Susan	Richardson
Teri	Richardson
Virginia	Richardson
John	Richkus
Ionna	Richmond
Amanda	Richter
Elisabeth	Richter
Carolyn	Ricketts
Barbara	Rickus
Lynette	Ridder
Iva	Riddle
Carolyne	Rideg
Carlene	Ridenour
Heather	Rider
Betsy	Ridge
Bill	Ridgeway
Janet	Rieben
Nina	Riechers
Kathy	Riemer
Barbara	Ries
S	Rietz
Karen	Rigatti
Nancy	Riggins
Kristin	Riggs
Mary	Riggs
Nicole	Rigney
Callie	Riley
Liz	Riney
Geraldine	Ring
Roberta	Ringstrom
Cindy	Riplinger-Konrath
Suzanne	Rish
Joanne	Rist
Mark	Rist
Calvin	Rittenhouse
Philip	Ritter
Mary	Rivas
Teresa	Rivas
Will	Rivas
Alexandria	Rivera
Javier	Rivera
Macarena	Rivera
Robert	Rivera
Doug	Riverdale
Carol	Rivielle
Joanne	Roach
Ann	Robarge
Chris	Robbins
Jolene	Robbins
Nancy	Robbins
Julaine	Roberson
Claudia	Roberts
Deborah	Roberts
Irma	Roberts
Jan	Roberts
Kathy	Roberts
Kimberly	Roberts
Lynne	Roberts
Sandra	Roberts
Emilyn	Roberts
Karen	Roberts
Les	Roberts
S.	Roberts
Gail	Robertson
Jennie	Robertson
Jill	Robertson
Kenneth	Robertson
Tamela	Robertson
Tina	Robichaux
Barbara	Robinson
Brenda	Robinson
Cathy	Robinson
Dameta	Robinson
Joyce	Robinson
Julie	Robinson
Lois	Robinson
Margaret	Robinson
Ron	Robinson
Shirley	Robinson
Fernando	Robles
April	Roby
Cheryl	Rocca
Candace	Rocha
Nidia	Rocha
Sylvie	Rochat
Jessica	Rocheleau
Paulinka	Rochemont
Dianne	Rochenski
Marcia	Rock
Paula	Rock
Christian	Rocklein
Norma	Rockman
Terrell	Rodefer
Nola	Roden
Kelly	Rodgers
Mary	Rodgers
Stephani	Rodin-Zinn
Amber	Rodman
Angela	Rodrigues
Iliana	Rodriguez
Isabel	Rodriguez
Jamie	Rodriguez
Nuria	Rodriguez
Selene	Rodriguez
Steven	Rodriguez
Susan	Rodriguez
Nancy	Roeber
Margaret	Roebuck
Michelle	Roesch
Lynn	Rogalsky
Diana	Rogers
Shirley	Rogers
Suzanne	Rogers

Tracey	Rogers
Laurel	Rohrer
Paola	Rojas
Hank	Roland
Jelica	Roland
Mike	Rolbeck
Angelika	Roll
Peggy	Rollie
Susa	Rollison
Pat	Rollo
Jennie	Rolon
Mary Ann	Roma
Gwen	Romani
Jennifer	Romans
Elke	Romer
Bettina	Romero
Susan	Romersa
Arleen	Rooney
Elizabeth	Root
Jessie	Root
Tammy	Root
Everlyn	Rorick
Greg	Rosas
Margarita	Rosberg
David	Rose
Dawn	Rose
Diana	Rose
Elizabeth	Rose
Karen	Rose
Bill	Roseberry
Helene	Rosen
Rebecca	Rosenberger
Jon	Rosenblatt
Henry	Rosenfeld
Zachary	Rosenfeld
Katrin	Rosinski
Adrienne	Ross
Beth	Ross
Bruce	Ross
Jan	Ross
Traci	Ross
Wendy	Ross
Jean	Ross
Kate	Ross
Marsha	Ross
Bernice	Rossana
Daniela	Rossi
Laura	Rossi
Paul	Rossilli
Deborah	Rossum
Ada	Rote
Doris	Roth
Jamie	Roth
Monika	Roth
Maria	Rothstein
Richard	Rothstein
Tamara	Rousseau
Sharon	Routledge
Jodi	Rowe
Edward	Rowell
Susanne	Rowell
Donna	Rowland
Susan	Roy
Ed	Royko
Ann	Roylance
Abraham	Rozman
Louise	Ruck
Patty	Rucker
Vickie	Rudd
Amanda	Rudisill
Linda	Rudman
Gina	Rueck
Marianne	Ruegg
Kat	Ruelle
Merle	Ruf
Serena	Ruffilli
Janet	Ruggiero
Carole	Ruise
Liliana	Ruiz
Elena	Rumiantseva
Lori	Rumpf
Margaret	Runfors
Patti	Ruocco
Rita	Ruocco
Kathy	Ruopp
Carhy	Ruperti
Kelly	Rushby
Bob	Rusk
Julia	Russell
Terri	Russell
M.	Russi
Robin	Russo
John	Rutherford
Janet	Rutigliano
Darlene	Ryan
Kim	Ryan
Kitty	Ryan
Mary	Ryan
Richard	Ryan
Theresa	Ryan
Wayne	Ryan
Cindy	Rybarczyk
Joanne	Ryczak
Frank	Rydzinski
Robin	Rysavy
Susan	Saari
Amandine	Sablonnieres
Elaine	Sabotka
Vera	Sadkovsky
Patty	Saffran
Melody	Safken
Miriam	Sagania
Rodolfo	Sagardua
Eve	Saglietto
Charlotte	Sahnow
Marie	Saint
Don	Saito
Jean	Saja
R.	Sakiyama
Emanuela	Sala
Leyda	Salamanca
Lisa	Salazar
Rocio	Salazar
Diane	Salek
Natasha	Salgado
Kinga	Salierno
Mary	Salomon
Lynn	Salzberger
Dorian	Samaniego

Max	Sampson
Tara	Samra
Debbie	Sams
Sharon	Samuelson
J.	San Diego
Sofia	Sanborn
Angela	Sanchez
Naila	Sanchez
Mike	Sand
Renae	Sandber
Martina	Sander
Kari	Sanderson
Leigh	Sanderson
Julia	Sandler
Thomas	Sandman
Adele	Sands
Denise	Sands
Sarah	Sanford
Gloria	Santillo
Eloy	Santos
Saskia	Santos
Aldana	Santto-Quinnell
Anna	Santucci
GinaMarie	Sapanaro
Diane	Sapone
Steven	Sapp
Linda	Sapp-Cox
Robert	Sargent
Julie	Sasaoka
Cassandra	Sather
Liz	Sauer
Alexandra	Saulino
John	Saunders
Mary	Savage
Judith	Savard
Ellen	Sawyer
Lise	Sayer
Linda	Saylor
Melody	Scamman
Kelley	Scanlon
Belinda	Scarborough
Alayne	Schaefer
Norma	Schaefer
Sandra	Schaefer
Adrianne	Schafer
Helen	Schafer
Maggie	Schafer
Julie	Schampel
Karen	Schams
Delia	Schamsai
Candy	Schanks
Victoria	Schanzle
Cathy	Schaupp
Nancy	Schechterle
Sue	Schedin
Norman	Scheele
Stephanie	Scheetz
Ken	Schefter
Maria	Scheibl
Angelika	Scheidt
Candice	Schellenger
Wenke	Schellhas
Charles	Schenck
Michelle	Schenck
Kathie	Schenk
Cheryl	Scher
Elizabeth	Scherbak
Deborah	Scherrer
Renate	Schewcyzk
Linda	Schiavo
John	Schill
Donna	Schiller
Christy	Schilling
Linda	Schimpf
Cindy	Schlener
Sybil	Schlesinger
Barbara	Schlitz
Olivia	Schlosser
Darlene	Schmall
Marti	Schmauss
Eva	Schmelzer
Jacqui	Schmidt
Ron	Schmidt
Shelli	Schmidt
Sylvia	Schmidt
Heather	Schmitz
Jean	Schmitz
Christine	Schneebeli
Caitlin	Schneider
Gretchen	Schneider
Linda	Schneider
Lucy	Schneider
Lynn	Schneider
Maria	Schneider
Sharon	Schneider
Douglas	Schneller
LeeAnna	Schniebs
Rosa	Scholes
Barbara	Scholl
Nick	Scholtes
Sandra	Schomberg
Tamara	Schrama
Kristin	Schroeder
Stephanie	Schubert
Darlene	Schueler
Crystal	Schuh
Lois	Schuler
Theresa	Schulke
Mary	Schultz
Amy	Schumacher
Brandy	Schumacher
Cindy	Schumacher
Donna	Schutter
Bettina	Schwan
Brock	Schwartz
Diane	Schwartz
Maxine	Schwartz
Sibylle	Schwartz
Susan	Schwartz
Kurt	Schwenk
Teena	Schwering
Casey	Schynaible
Kimberly	Scibetta
Charlotte	Scoble
Paola	Scodellari
Mary	Scollin
Joseph	Scorcia
Barbara	Scott
David	Scott

J. David	Scott
Jennifer	Scott
Judith	Scott
L.J.	Scott
Marty	Scott
P.	Scott
Shannon	Scott
Theresa	Scott
Joan	Scott
Ann	Scotti
P.	Scoville
Sheila	Seaman
Bar	Sears
Kathleen	Sears
Linda	Sebastian
Cynthia	Sebregts
Ann	Seccombe
Kathy	Seckinger
Debra	Secor
Frank	Seewester
Ellen	Segal
Jetera	Sehart
Kathy	Seitzer
Gabby	Sekuterski
Angeles	Selgas
Sharon	Selinski
Ginger	Selman
Rob	Seltzer
Meg	Selzer
Michelle	Semaan
Toni	Semple
Diane	Senatore
Aaron	Senegal
Zoe	Seppi
Julie	Septrion
Sonia	Sequeira
Gabriella	Serafino
Nina	Serman
Ruth	Serra
Carole	Serras
Karen	Sessions
Anne	Settanni
Char	Settle
Greg	Settle
Susan	Setzke
Caroline	Sevilla
Michelle	Sewald
Susan	Sewell
Sue	Sexton
Jacqueline	Sgroi
Priscilla	Shade
Tamara	Shaffer
Melissa	Shaffer-O'Connell
Floss	Shahbegian
Gerald	Shaia
Bennie	Shalbetter
Elsy	Shallman
Heather	Shambarger
Evan	Shamoon
Anita	Shapiro
VickyLou	Sharer
Andrew	Sharp
Cynthia	Sharp
June	Sharp
Linda	Sharp
Jennifer	Shatraw
Diane	Shaughnessy
Charles	Shauver
Fred	Shaw
Ingrid	Shaw
Jessica	Shaw
Linn	Shaw
Pamela	Shaw
Phyllis	Shaw
Susan	Shaw
Karen	Shaw
Linda	Shawhan
George	Shea
Jeanne	Sheats
Duane	Sheehan
Denise	Sheehy
Diana	Sheffield
Shirley	Shelangoski
Nancy	Shelley
Justine	Shelton
Ramanda	Shelton
Roderick	Shepard
Peter	Shephard
Colleen	Shepherdson
Theresa	Sheridan
Richard	Sherman
William	Sherman
Ester	Shields
Jennifer	Shields
Julie	Shields
Nancy	Shinn
Nina	Shirina
Elena	Shirlina
Dennis	Shivers
Clare	Shomer
Anita	Shook
Kim	Shrader
Pam	Shreeves
Rick	Shreve
Theresa	Shrum
Kim	Shultz
Irene	Shum
H. Dennis	Shumaker
Tamar	Shurghaia
Jeanette	Shutay
Lois	Siberstein
George	Sidoti
Ann	Siegel
Debbie	Siegel
Suzy	Siegmann
Toni	Siegrist
Alice	Sievert
Barbara	Siewert
Bob	Sigmund
Carlyn	Sikes
Dar	Sikora
Barbara	Silber
Uly	Silkey
Margaret	Silver
Ron	Silver
Beatrice	Silvestre
Jean	Sim
Amanda	Simao
Jennifer	Simbrow

Janice	Simmonds
Chris	Simmons
Irene	Simmons
Johanna	Simmons
Karen	Simmons
Naomi	Simmons
Susan	Simmons
Sharon	Simms
Jill	Simon
Sonnta	Simon
Thomas	Simon
Anita	Simons
Dulcey	Simpkins
Alice	Simpson
Crysyal	Simpson
Edith	Simpson
Katherine	Simpson
Linda	Simpson
Terri	Simpson
Victoria	Simpson
Mary	Sims
Millicent	Sims
Kate	Sims
Esther	Simson
Jodi	Sinclair
Linda	Sinclair
Tara	Sinclair
Janice	Singer
Dawn	Sink
Cindy	Sinks
Kathryn	Sipes
Mindie	Sivey
Nicole	Siwak
Betty	Sizelove
Sandra	Sizemore
Penny	Skaff
Margaret	Skeel
Kathy	Skees
Candace	Skelton
Matthew	Skinner
Birthe	Skov
Catherine	Sky
Linda	Slabenak
Jonette	Slabey
Debbie	Slack
Julie	Slater-Giglioli
Carrie	Slayton
Susie	Sleight
Nancy	Slesinger
Alice	Sloan
Cheryl	Sloan
Donna	Slocum
Brian	Smale
Sharon	Small
Susan	Small
Lisa	Smallegan
Stephanie	Smedley
St.	Smeets
Mari	Smet
Laurie	Smida
Isabel	Smirnoff
Isabelle	Smirnoff
Angela	Smith
Aubury	Smith
Barbara	Smith
Bette	Smith
Charlotte	Smith
Claud	Smith
Deanna	Smith
Denise	Smith
Donna	Smith
Elena	Smith
J.P.	Smith
Janet	Smith
Jen	Smith
Joyce	Smith
Judith	Smith
Kathleen	Smith
Katrina	Smith
Kellie	Smith
Kristin	Smith
Laura	Smith
Lea	Smith
M.K.	Smith
Madeleine	Smith
Marsha	Smith
Noah	Smith
Pat	Smith
Randy	Smith
Shanti	Smith
Shiela	Smith
Stephanie	Smith
Sue	Smith
Teresa	Smith
Vickie	Smith
Joan	Smith
Kathe	Smothers
Linda	Smyth
Daniel	Sneed
Madelaine	Snell
Jay	Snider
April	Snyder
Cheryl	Snyder
Gloria	Snyder
Lori	Snyder
Margaret	Snyder
Marilyn	Snyder
Sandy	Snyder
Tina	Snyder
Jan	Soares
Susana	Soares
Michael	Sobel
Patricia	Sobel
Michael	Sodos
John	Sodrel
Diane	Sohn
Robin	Solari
Lisa	Soldavini
Cynthia	Solomon
Donna	Sommers
JoAnna	Sonnier
Cindy	Sooy
Elaine	Sorensen
Dawn	Sorenson
Julie	Sorenson
Sally	Sorenson
L.	Sorkin
Mary Ann	Sorokie
Kari	Sorrenti

Shirley	Sostman
Patricia	Sottile
Teresa	Soufas
Lisa	Soulliere
Margaret	Southwell
Morgan	Sowell
Bob	Sowers
Theodore	Spachidakis
Tracy	Spader
Deb	Spanhake
Diana	Sparks
Donita	Sparks
Michelle	Sparks
Rick	Sparks
Louise	Spartali
Judy	Spaulding
Dennis	Spears
Christina	Spence
Maribeth	Spence
Carole	Spencer
Dawn	Spencer
Deborah	Spencer
Emily	Spencer
Joanne	Spencer
Sandra	Spencer
Shawna	Spencer
Steph	Spencer
Linda	Sperber
George	Speros
Dawn	Spilman
Herman	Spinelli
Joseph	Spinelli
Connie	Spinks
May	Spiridon
Dawn	Spivey
Richard	Spratley
Linda	Springer
Laurel	Spsiak
Amy	Squires
Andrea	Sreiber
Irene	Sriboonwong
Suneet	Srivastava
Pauline	St. Denis
Diana	St. Gaudens
Dan	Stabel
Dorothy	Staby
Linda	Staelens
Peggy	Staffort
Faith	Staggs
Jane	Stahl
Ilsa	Stai
Megan	Stalker
Rachael	Stalker
Sharon	Stamm
Periel	Stanfield
Janice	Stanger
Cathy	Staniunas
Sandra	Stanley
Sharon	Stanley
Jack	Stansfield
Mary	Stanton
Sue	Stanton
Daniel	Staples
Laura	Staples
Megan	Staples
Lucy	Starbuck
Sheila	Starcevich
Carolyn	Stark
Pamela	Stark
Richard	Stark
Tom	Stark
Dennis	Starkins
Lynn	Starner
Maryann	Staron
Josine	Starrels
Traci	Starsinic
Lori	Staten
Carol	Statton
Roberta	Stauffacher
Cynthia	Stave
Brian	Stearns
Dorrie	Stebbins
Linda	Steck
Matt	Stedman
Nanci	Steeb
Carlene	Steel
Lisa	Steele
Nichelle	Steele
Karen	Steen
Catherine	Steer
Jacqueline	Stehr
Cheryl	Stein
Kim	Steinbach
Rebeca	Steinberg
A.L.	Steiner
Catherine	Steinher
Loreny	Steininger
Diane	Steitz
Monica	Stella
Laurie	Sten
Dusty	Stepanski
Ron	Stepchuk
Dorothea	Stephan
Kathryn	Sterngold
Ed	Stetson
Hella	Steurbaut
Allondra	Stevens
Denise	Stevens
Hilary	Stevens
John	Stevens
Kathleen	Stevens
Melody	Stevens
Richard	Stevens
Julia	Stevenson
Ashley	Stewart
Christine	Stewart
Courtney	Stewart
Jenny	Stewart
Maggie	Stewart
Mara	Stewart
Patricia	Stewart
Sharron	Stewart
Susan	Stewart
William	Stewart
Ann	Stickel
Sheila	Stickel
Jeanne	Stidham
Lorelei	Stierlen
Denise	Stiewel

Deanne	Stiff
Lee	Stiff
Tonya	Stiffler
Donna	Stillabower
Elizabeth	Stillman
Sonja	Stimmer
Susan	Stiver
Elaine	Stockley
Lorri	Stockowski
Emil	Stockton
Carolyn	Stoeber
Kimberley	Stoecklein
Lynne	Stokes
Gina	Stoll
Maria	Stoll
Frank	Stolp
Bella	Stolz
A.	Stone
Betty	Stone
Deborah	Stone
Gwenyth	Stone
Lauren	Stone
Ronald	Stone
Stephanie	Stone
Valerie	Stone
Martha	Stopa
Michelle	Storace
Lada	Storer
Connie	Storie
Bobbi	Stout
Darlene	Stover
Veda	Stram
Susanne	Strasen
Kris	Strate
Gerald	Stratman
Patricia	Strecker
Anne	Streeter
Jeanie	Streit
Boel	Stridbeck
Lise	Strieder
Susan	Stringfellow
Hagit	Strnfeld
Katherine	Stroh
Kirsten	Strom
Carolyn	Strong
Dianne	Struse
J.	Stufflebeam
Sandy	Stuhaan
Melya	Stylos
Astrid	Suchanek
Jan	Suche
Peggy	Sufall
Cassandra	Sullivan
Gail	Sullivan
Gayle	Sullivan
Jay	Sullivan
Kate	Sullivan
Michele	Sullivan
Susan	Sullivan
Tanya	Sullivan
Authur	Summers
Laurie	Summers
Mary	Summitt
Minde	Sunde
Barbara	Sundholm
Natalie	Sunflower
Janet	Supar
Dawn	Surges
Margaret	Surmiak
Jennifer	Suther
Cheryl	Sutherland
Glenn	Sutherland
Apurvo	Sutherland
Susan	Sutherland
John	Sutkowski
Ellyn	Sutton
Sandy	Sutton
Per	Svenningsen
Maria	Svorenova
Lauren	Swaim
Gerard	Swainson
Gabrielle	Swanberg
J.	Swanson
Robyn	Swanson
Sandra	Swanson
Autumn	Sweeley
Ann	Sweeten
Jean	Sweezey
Michelle	Sweigart
Alexendra	Sweitzer
Constance	Sweitzer
John	Swiencicki
Joe	Swierkosz
Gina	Swift
Lisa	Swift
Sandra	Swift
Robin	Swindle
Wretha	Swinehart
Terry	Swisse
Pam	Sydney
Sally	Symanski
Michele	Symington
Sonja	Syne
Kenneth	Synnott
Janice	Szalaj
Beatka	Szkop
Denise	Szyszlo
Diane	Tabbott
Paige	Tabor
Jaycel	Tacchi
Barbara	Tacker
Carol	Taggart
Marie-Claire	Tagnati
Albert	Tahhan
Cat	Tailer
Hikari	Taiyono
Morgan	Takach
Roya	Talezadeh
Valerie	Tan
Binh	Tang
Donna	Tanner
Martha	Tanner
Rachelle	Tanner
Carol	Tao
Yvette	Tapptico
Elaine	Tarango
Patricia	Tarantino
Sharon	Tarantino
Stephen	Tassell

Debra	Tate
Kathy	Tate
Jessica	Tatton
Cynthia	Tawil
Alison	Taylor
Cathy	Taylor
Charlot	Taylor
Chriistine	Taylor
Daphne	Taylor
Debbie	Taylor
Derek	Taylor
Donna	Taylor
Elaine	Taylor
Emily	Taylor
Felicity	Taylor
Jean	Taylor
Jennifer	Taylor
Lauren	Taylor
Lauren	Taylor
Llew	Taylor
Patty	Taylor
Peggy	Taylor
Shawn	Tays
Lisa	Teal
Terry	Tedesco-Kerrick
John	Teevan
Raquel	Tejeda
Bonnie	Templeton
Joyce	TenEyck
Tanya	Teneyuque
Allie	Tennant
Nancee	Tepley
Lee	Terbot
Thomas	Terreault
Marilyn	Terry
Marga	Terstal
Barbara	Tetro
Hope	Thacker
Marie Ann	Thaler Shenk
Paul	Thandi
Carol	Thatcher
Jessica	Thatcher
Joseph	The
Zette	Thierry
Mary	Thoma
Laura	Thomae
Bob	Thomas
Cynthia	Thomas
Danny	Thomas
Debbie	Thomas
Denise	Thomas
Irene	Thomas
Joan	Thomas
Mary	Thomas
Patricia	Thomas
Randy	Thomas
Sandy	Thomas
Angel	Thomason
Teresa	Thomason
Carol	Thompson
Chris	Thompson
Deborah	Thompson
Paula	Thompson
Astrid	Thomsen
Barbars	Thomson
Susie	Thomson
Tricia	Thomson
Cathy	Thornburn
Colleen	Thorne
Marie	Thorne-Thomsen
Michael	Thornton
Mary	Thorpe
Michelle	Thrower
Susan	Thurairatnam
Anna	Thurman
Mary	Tibbetts
Jake	Tibbitts
Catherine	Tierney
Cindy	Tierney
Audrey	Tillinghast
Liza	Timmers
Eugene	Timpe
Sue	Tinder
Carolyn	Tinus
Rebecca	Tippins
Shereen	Tippss
Lori	Tishgart
Rita	Tobachnik
Mary	Tobey
Martha	Tocco
Kathleen	Todd
Kris	Tohm
Helen	Tollefson
Suzan	Toma
Larry	Toman
Melissa	Tomaszewski
Bartlomiej	Tomczak
Lisa	Tomlin
William	Toner
Michael	Tonne
Claudette	Tooley
Isabel	Torisi
Debora	Toro
Susan	Torres
Tatiana	Torres
Cindy	Torrey
Camilla	Torsander
Jennifer	Toth
Liliana	Toth
Nan	Towle
Erline	Towner
Patricia	Townsend
Debra	Tracy
Kerstin	Tracy
Jeannette	Trajan
Danielle	Tran
Lynn	Traub
Barb	Travis
Terry	Travis
Carol	Treacy
James	Treanor
Jessica	Treece
Valerie	Treichel
Carol	Treloar
Dale	Trethaway
Valerie	Trimarco
Federica	Trimboli
Tia	Triplett
Sheena	Troite

Roxanne Trombly
Alessandra Tromboni
Jacquie Trontell
Rosemary Trosper
Shirley Trottier
Sharon Truax
Priscilla Trudeau
Barbara Trudell
Kathy Truders
Kathleen True
Donna Trueblood
Mary Truelove
Stormey Trujillo
Lee Trujillo-Lopez
Ramon Trumbull
Sandra Trushel
Jen Trusty
Jackie Tryggeseth
Barbara Trypaluk
Sauwah Tsang
Grigoria Tsiakmaki
Cheryl Tuchbreiter
Catherine Tucher
Nancy Tucher
Debbie Tucker
Dena Tucker
Kathleen Tucker
Meredith Tucker
Veronica Tucker
Sophia Tuckman
Mary Tulloch
Gabriella Turek
Donna Turiano
M.J. Turick
P. Turick
Barbara Turner
Julie Turner
Kathleen Turner
Keith Turner
Lynne Turner
Robert Turner
Marilyn Turney
Ilya Turov
Kat Turro
Joe Tutt
Valerie Tuttle
Karen Tweedy-Holmes
Anne Twine
Nya Tyan
Jeanne Tyler
Theresa Tyler
Tobi Tyler
Margaret Tyska
Mary Tytko
Judy Uhing
Lucia Uihlein
M. Uitendaal
The Unger
Candace Unzueta
DeAne Urban
Lesa Urban
S. Urton
Jan Usher
Missy Utegirl
Rebecca Uurtamo
Susan Uustal
Irena Vacikova
Damir Val
Margo Val
Helen Valborg
Anne Valdez
Lorraine Valdez
Nina Valecic
Sanja Valecic
Rio Valencia
Jennifer Valentine
Tonya Valentine
David Valentino
Jan Valentino
Michelle Vallee
Adriana Vallese
Victoria Vallis
Jim Valluzzi
Gail Van
Christine Van Boening
Berinda Van Cleave
Patricia Van dee Poel
Michiel Van Den Bussche
Milca Van Den Steene
Holland Van Dieren
Piet Van Gils
Valrey Van Gundy
Valerie Van Haltern
Ineke Van Huyck
Natalie Van Leekwijck
Doraine Van Lew
Keaven Van Lom
Julie Van Ness
Linda Van Singel
Ce Van Tassell
Gerard Van Tol
Maud Van Tol
Betty Van Wicklen
Cheryl Vana
Phil Vanasse
Corinne Vanbegin
Theodora Vance
Susan Vanden Bos
Jill Vanderbyl
Janet Vandergrift
Diane Vandiver
Gail Vangelist
Aimee Van-Goey
John VanKleef
Dolores VanKluyve
Serena Vann
Myriam Vanstalle
Serge Vantalon
Robin VanTassell
Beth VanWicklin
Teresa VanZeller
Donna Varcoe
Carolina Varga
Brenda Vargas
Eve Vargas
Karin Vargas
Pascale Vargiu
Elaine Vario
Madhulika Varma

Veronica	Varner	Dolores	Vinson	Charlotte	Walker
Bonnie	Varnum	Carlene	Visperas	David	Walker
Tuba	Varol	Lisa	Vitale	Deborah	Walker
Fabiola	Vasquez	Micele	Vitaliano	Fern	Walker
Cheryl	Vaugh	Theresa	Vittorini	Kathy	Walker
Jeanna	Vaughn	Nervo	Viviane	Latonya	Walker
Theresa	Vaughn	Valerie	Vlasaty	Margaret	Walker
Ilona	Vaupel	Andreas	Vlasiadis	Susan	Walker
Claudia	Vazquez	Ralph	Vobroski	Kelly	Wall
Patricia	Vazquez	Marion	Vogel	Amber	Wallace
June	Vearling	Patricia	Vogel	Lu	Wallace
Ordell	Vee	Jutta	Vogelbacher	Aleta	Wallach
Ashley	Veil	Alex	Vollmer	Lorna	Wallach
Veronica	Velasquez	Anne	Voloshin	Violet	Wallach
Venkatesh	Velayutham	Mary	Von	Deborah	Wallen
Kent	Vella	Kelly	Von Borstel	Lawrence	Wallen
Rebecca	Velthoen	Kay	Von Tress	James	Walls
Jet	Venbeek	Ronald	Von Wagner	Sabrina	Walser
Sherrie	Venezia	Serge	VonDuvillard	Kathy	Walsh
Thalia	Ventouris	Vicki	Voss	Sharon	Walsh
Marlene	Venture	Pamela	VourosCallahan	Bryan	Walston
Robert	Veralli	Stavroula	Voutsiotis	Marilyn	Waltasti
Tara	Verbridge	Janice	VrMeer	Alison	Walter
Alexis	Verdugo	Thuan	Vu	Dixie	Walter
Sheri	Verges	Mario	Vuotto	Jennifer	Walter
Nadine	Vergilia	Lillian	Wachtstetter	Elizabeth	Walters
Carol	Vergot	Felicia	Wade	Jo	Walters
Cathy	Verret	Lauren	Wade	Michelle	Walters
Oda	Vervoort	Maur	Wade	David	Walther
Tracy	Vetter	Vicki	Wadler	Margrethe	Walther
William	Vickers	Joan	Wager	Helen	Walton
Melinda	Vickrey	Lisa	Wager	Linda	Walzer
Phoenix	Vie	Cate	Wagner	Lynn	Wancata
Merri	Vieira	Melanie	Wagner	Hope	Wang
Angela	Viera	Natalie	Wagner	Steve	Wanninger
Paul	Vilches	Roberta	Wagner	Leslie	Wantz
Beatriz	Villa	Sienna	Wagner	Caroline	Ward
Cristina	Villanueva	Jani	Wagter	Diana	Ward
Linda	Viloria	Jamie	Walbeck	Lyn	Ward
Courtney	Vincent	Andrea	Walbert	Ralph	Ward
Peter	Vincent	Richard	Waldo	Rosemary	Ward
Renee	Vincent	Aurea	Walker	Susan	Ward
Olga	Vinogradova	Carol	Walker	Terrence	Ward

Alicia	Warden
Natalie	Ware
Shari	Warlick
Christina	Warlm
Barbara	Warner
Kay	Warner
Donna	Warnick
Doris	Warnstedt
Deborah	Warot
Elodie	Warren
Lucinda	Warren
Brandy	Warsavage
Scott	Warwick
Jonathan	Washburn
Natalie	Washburn
Leslie	Washington
Andrea	Wasserman
Gisele	Wasylyszyn
Hiroe	Watanabe
Terry	Wataszko
Kristin	Water
Glenna	Waterman
Michelle	Waters
Billie	Watkins
Liz	Watkins
Carolyn	Watkinson
Danuta	Watola
Anne	Watson
Bonnie	Watson
Carol	Watson
Celena	Watson
Courtney	Watson
Donna	Watson
Jackie	Watson
Laura	Watson
Steve	Watson
Cheryl	Watters
Tammy	Watters
Whitney	Watters
Gary	Wattles
Teckla	Wattman
Chris	Watts
Elizabeth	Watts
Susan	Watts
Elizabeth	Watzke
Susan	Wayne
Margaret	Weatherbee
BethAnne	Weatherford
Laurie	Weaver
Shirley	Weaver
Verba	Weaver
Christine	Webb
Davida	Weber
Helen	Weber
K.	Weber
Marissa	Weber
Nicole	Weber
Zorina	Weber
Nicole	Weber
Donna	Webster
Sandra	Webster
Allison	Weideman
Emily	Weil
J.	Weil
Krystal	Weilage
D.	Weiler
Henry	Weinberg
Nona	Weiner
Diane	Weinstein
Dora	Weinstein
David	Weinstock
Christina	Weinzieri
Wanda	Weir
Deb	Weise
Ron	Weise
Sharon	Weishaar
Gasrry	Weisman
Cheryl	Weiss
Lori	Welch
Melody	Welch
Deborah	Wellington
Donna	Wells
Elizabeth	Wells
Linda	Wells
Thomas	Welton
M. J.	Welz
Bobbie	Wendelken
Karolin	Wenkman
Robert	Wentzell
Jennifer	Wenzel
Shell	Wenzel
Kenneth	Wenzer
Hillary	Werhane
Jackie	Werner
Lynda	Wesch
Friederike	Wesendahl
Dona	Wesley
Diane	Wesson
Pam	West
Doug	Westerndorp
Benjamin	Westervelt
Lynn	Westlake
Mel	Westlund
Amanda	Wetherill
Sherry	Weyandt
Kimberly	Whalen
Patrick	Whalen
Denise	Wheatley
Beth	Wheeler
Carla	Wheeler
Cleveland	Wheeler
Dorothy	Wheeler
Kelcia	Wheeler
Norma	Wheeler
Dawn	Whelan
Jane	Whitaker
Corinne	White
Deborah	White
Denise	White
Janet	White
John	White
Joseph	White
Karen	White
Kathleen	White
Kim	White
Margie	White
Marlene	White
Nathanael	White
Shirley	White

Tim	White
Tina	White
Vic	White
Sally	White
Deirdre	Whitehead
H.	Whitehead
Carol	Whitehurst
Penelope	Whiting
Regina	Whitman
Carol	Whitmore
Erica	Whitney
Elin	Whittier
Marty	Whittle
Wendy	Whyko
Lisa	Wiater
Jodi	Wick
Rhonda	Wickline
Christopher	Widby
Jeff	Widmer
Jill	Wiechman
Anna	Wieder
Tamara	Wiesmann
Gaye	Wiesner
Lynn	Wilbur
Mary	Wilcox
Betty	Wilde
Klaus	Wilde
Teena	Wildman
Lisa	Wiles
Kimberly	Wiley
Sandra	Wiley
Cheryl	Wilhite
April	Wilk
Gail	Wilke
Sandy	Wilkey
Daniel	Wilkinson
Linda	Wilkinson
Ma	Wilkinson
Nancy	Wilkinson
Trista	Wilkinson
Debra	Wilks
Brigitte	Williams
Carole	Williams
Chris	Williams
Deirdre	Williams
Heather	Williams
Jane	Williams
Janet	Williams
Jesse	Williams
Joseph	Williams
Kendra	Williams
Marcus	Williams
Robert	Williams
Sara	Williams
Stephania	Williams
Terrie	Williams
Trudy	Williams
Vicki	Williams
Bridget	Williamson
Carol	Williamson
Debbie	Williamson
Alana	Willroth
Christine	Wills
Frank	Wilsey
Beth	Wilson
Christi	Wilson
Jennifer	Wilson
Mary	Wilson
Roger	Wilson
Ronald	Wilson
Ryan	Wilson
Sharon	Wilson
Susan	Wilson
Sybille	Wilson
Tamar	Wilson
Tina	Wilson
Tracy	Wilson
Jane	Wilson
Terri	Wilson-Torres
Yvette	Wiltcher
Virginia	Winckel
Steph	Windsor
Karin	Winegar
Mark	Winfrey
Sherri	Winfrey
Julie	Wingate
Crystal	Winger
Elke	Winkler
Jackie	Winn
Karen	Winnick
Jess	Winstanley
Cody	Winstead
Ellen	Winston
Gail	Winter
Judith	Winters
Edward	Wintraecken
Gordon	Wirth
Anita	Wisch
Louisa	Wistos
Eleanor	Witherite
Ann	Witkowski
Marcia	Witte
Jason	Wittenbrader
Katharina	Wittig
Chris	Witting
Penny	Wittmann
Ursula	Woelcken
Marc	Woerschling
Michael	Wohlleb
Barbara	Wojtas
James	Wolcott
Leslie	Wolcott
Aleta	Wolf
Betsy	Wolf
Karin	Wolf
Rachel	Wolf
Valarie	Wolf
Faith	Wolf
Cathy	Wolfe
Cynthia	Wolfe
Ellen	Wolfe
Alcinda	Wolff
Dennis	Wolff
Pat	Wolph
Manuela	Wolter
Leila	Wolvinya
Ann	Womack
Barbara	Wood
Becky	Wood

Charles	Wood
Judy	Wood
Margaret	Wood
Peter	Wood
Shelva	Wood
Virginia	Wood
Barbara	Wood
Judy	Wood
Sandra	Woodall
Sharon	Woodlief
Billy	Woods
Frances	Woods
Gary	Woods
Lynn	Woods
Stacie	Wooley
Ivan	Woolf
Clair	Woolley
Colette	Woolley
Kimberly	Worman
Mary	Wormell
Kathleen	Worobey
Courtney	Worrall
Patricia	Wrex
Holli	Wright
Ken	Wright
Rene	Wright
Sheila	Wright
Trigg	Wright
Vivienne	Wulff
Lisa	Wyatt
Mia	Wyatt
Nancy	Wyatt
Denise	Wycoff
Kimberly	Wyke
Annoula	Wylderich
Shelley	Wyndham
Brenda	Wyrick
I.	Yaco
Robert	Yancey
Renee	Yank
Bridget	Yankowitz
Alexandr	Yantselovskiy
Jan	Yarker
Erin	Yarrobino
Gayla	Yates
Serineh	Yeghikian
Edith	Yelland
Crystal	Yengich
Bonnie	Yenney
Rob	Yers
Cassandra	Yinger
Anna	Yona
Deborah	Yoo
Allan	Yorkowitz
Brandy	Younce
Barbara	Young
Bonita	Young
David	Young
Kyle	Young
Lance	Young
Marjorie	Young
Mary	Young
Mike	Young
Jeneal	Young
Spencer	Young
Stephanie	Zaccagnini
Solvejg	Zaferes
Iva	Zafirovska
Deanna	Zagin
Fran	Zahler
Anna	Zalewski
Aslan	Zamazal
Esther	Zamora
Marla	Zanelli
Rosi	Zang
Sandra	Zaninovich
Jan	Zanoni
Sandra	Zastrow
Stephanie	Zeerip
Pam	Zeidman
Sandra	Zelasko
Julie	Zelenka
Cheryl	Zellmer
Daniel	Zelter
Sherry	Zendel
Joan	Zentarski
Robin	Zeplin
Debi	Zickefoose
Penny	Zielstorf
Laura	Ziemba
Lorraine	Zigman
Gediminas	Zilinskas
Janet	Zimmerman
Jerry	Zimmerman
Andrea	Zinn
Carole	Zirk
Carol	Zorn
Sandy	Zouzaneas
C.	Zub
Renee	Zuba
Sandra	Zuckerman
E.	Zuniga
Carly	Zurla
Randi	Zwaduk

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D.8 Comment Letters

The following are comment letters with substantive comments

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

November 26, 2013

Mr. Chad Lewis
EIS Project Manager
Bureau of Land Management
Mount Lewis Field Office
Battle Mountain District
50 Bastian Road
Battle Mountain, Nevada 89820

DOCUMENT #1

Subject: Draft Environmental Impact Statement for the 3 Bars Ecosystem and Landscape Restoration Project, Eureka County, Nevada (CEQ # 20130280)

Dear Mr. Lewis:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the 3 Bars Ecosystem and Landscape Restoration Project (3 Bars Project) pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

The EPA strongly supports the objectives of the 3 Bars Project. The land restoration treatments proposed should, when implemented in conjunction with the standard operating procedures outlined in Appendix C, help to achieve objectives—including to restore riparian, aspen, and sagebrush habitats, slow singleleaf pinyon pine and Utah juniper encroachment, and thin pinyon-juniper communities—identified by the BLM as central to the 3 Bars Project.

Based on our review of the subject DEIS, we have rated the Preferred Alternative and the document as LO-1, Lack of Objections – Adequate (see the enclosed "Summary of EPA Rating Definitions"). The EPA recognizes the need for the use of mechanical thinning and prescribed fire and wildfire to achieve long-term restoration objectives. We commend the BLM for committing, in the Preferred Alternative, to strong best management practices and soil and water conservation measures to protect sensitive resources during mechanical harvest and fire treatments. We would also like to acknowledge the description, in the DEIS, of the possible effects of climate change on the 3 Bars planning area. We recommend that the Final EIS and Record of Decision include a commitment to mitigate such effects, and to adapt management strategies accordingly, over the life of the 3 Bars Project.

We are also pleased with the riparian area restoration goals proposed in the 3Bars Project. These goals, including plans to "restore 31 miles of perennial streams, 17 miles of intermittent streams, and 40 springs that are within the riparian treatment zone" should aid efforts to protect sensitive riparian and aquatic species. We recommend, however, that the FEIS provide additional information on the potential interface between the stream restoration work planned for the 3Bars Project and Section 404 of the Clean Water Act (CWA); such restoration work could result in impacts to waters of the U.S. The DEIS states that no formal delineation of wetlands has been done for the project area, but that based on the USFS National Wetlands Inventory, the project area contains approximately 2,363 acres of wetlands.
[Standard Operating Procedures - 1-1]

The FEIS should describe how jurisdictional waters will be identified over the life of the 3 Bars Project, and how the BLM will coordinate with the U.S. Army Corps of Engineers to ensure that any stream restoration activities comply with the permit requirements of Section 404 of the CWA.

[Standard Operating Procedures - 1-2]

We recognize the challenge the BLM faces by implementing a restoration plan that will rely heavily on prescribed burns and wildfire to achieve project objectives. Though the 3 Bars planning area has good air quality, and meets all federal ambient air quality standards, the fine particulate matter generated during wildland fire does present a human health risk. We recommend that the BLM implement BMPs and work with local and State of Nevada air quality officials to reduce emissions from prescribed burns and wildfires to the greatest possible extent. We also recommend that the BLM analyze and include a description, in the FEIS, of the potential for further reductions in air emissions, in proposed forest treatments, by lessening or eliminating pile burning of residual fuels in favor of biomass energy production.

[Standard Operating Procedures - 1-3]

We appreciate the opportunity to review this DEIS, and are available to discuss our comments. When the FEIS is released, please send one CD copy to this office (specify Mail Code CED-2). If you have any questions, please contact me at 415-972-3521, or contact Jason Gerdes, the lead reviewer for this project. Mr. Gerdes can be reached at 415-947-4221 or gerdes.jason@epa.gov.

Sincerely,

FOR

Kathleen Martyn Goforth, Manager
Environmental Review Office

Enclosure: Summary of EPA Rating Definitions

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment

---------- Forwarded message ----------
From: **PWR Regional Director, NPS** <pwr_regional_director@nps.gov>
Date: Fri, Nov 15, 2013 at 11:00 AM
Subject: ER 13\0208 Draft EIS for 3-Bars Ecosystem and Landscape Restoration Project
To: 3Bars_Project@blm.gov
Cc: Alan Schmierer <alan_schmierer@nps.gov>, Lee Kreutzer <lee_kreutzer@nps.gov>, NPS WASO EQD ExtRev <waso_eqd_extrev@nps.gov>

OFFICIAL CORRESPONDENCE BY ELECTRONIC MAIL
NO HARD COPY TO FOLLOW

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Pacific West Regional Office
333 Bush Street, Suite 500
San Francisco, California, 94104-2828

L7619 (PWR)

November 13, 2013

DOCUMENT #2

Chad Lewis, Project Lead
BLM Battle Mountain District
50 Bastian Road
Battle Mountain, NV 89820
3Bars_Project@blm.gov

Dear Mr. Lewis:

Re: ER 13\0208 Draft EIS for 3-Bars Ecosystem and Landscape Restoration Project

Thank you for the opportunity to review the 3-Bars Ecosystem and Landscape Restoration Project Draft Environmental Impact Statement (DEIS). Overall, the National Park Service (NPS) anticipates that the proposed landscape restoration activities will largely benefit the historic corridor and setting of the Pony Express National Historic Trail (NHT), which is administered by the NPS through its historic trails office headquartered in Santa Fe, New Mexico.

As noted in the DEIS, however, the surface-disturbing nature of some of the planned activities do have the potential to disturb the NHT's setting, as well as any intact trail remnants and associated sites or station ruins that may exist within the project area. The Bureau of Land Management's (BLM) planned approach to conduct further field survey and evaluation of historic properties before initiating restoration activities, and to implement site avoidance strategies specified in the 2012 Protocol and Programmatic agreements between the BLM and the Nevada State Historic Preservation Officer, will help minimize that potential.

The NPS welcomes the BLM's engagement with our trails office and consulting to establish appropriate protective boundaries to buffer trail properties from project impacts. If, however, adverse impacts to specific NHT-related properties are later found to be unavoidable or are inadvertently incurred while implementing this or future undertakings, NPS asks to further participate in NHPA §106 consultations to help identify appropriate mitigation.

Secondarily, an erroneous statement is contained in the DEIS analysis of impacts to recreation, section 3.20.3.3.1 on page 3-420, which says "*There are no recreation resources of regional and/or national importance*" within the project's Area of Potential Effect. As noted elsewhere in the DEIS, the congressionally designated Pony Express National Historic Trail is a recreation resource of national significance. A correction should be provided in the Final EIS. [Recreation – Environmental Consequences – 2-1]

The willingness to consult NPS as a cooperating agency in this environmental review process over the past several years is much appreciated, and we thank the Mount Lewis Field Office personnel and consultants for their thoughtful consideration and integration of our comments on an earlier version of this document.

For any further assistance, please continue to coordinate with Ms. Lee Kreutzer, Cultural Resource Specialist, National Trails Intermountain Region, Santa Fe, New Mexico (801) 741-1012 x118.

Sincerely,

Christine Lehnertz

(signed original on file)

Christine S. Lehnertz
Regional Director, Pacific West Region

cc:
NPS NTIR *lee_kreutzer@nps.gov*
NPS EQD *waso_eqd_extrev@nps.gov*

Paulus, Stuart

Subject:

From: c1lewis@blm.gov [mailto:c1lewis@blm.gov] **On Behalf Of** BMDO3BarsProject, BLM_NV DOCUMENT #3
Sent: Wednesday, December 04, 2013 10:45 AM
To: Paulus, Stuart
Subject: Fwd: 3 Bars Ecosystem and Landscape Restoration Project Draft EIS

---------- Forwarded message ----------
From: **Stephen Foree** <sforee@ndow.org>
Date: Fri, Nov 29, 2013 at 4:16 PM
Subject: 3 Bars Ecosystem and Landscape Restoration Project Draft EIS
To: "3bars_project@blm.gov" <3bars_project@blm.gov>
Cc: "c1lewis@blm.gov" <c1lewis@blm.gov>, Mike Podborny <mpodborny@ndow.org>, John Elliott <jelliott@ndow.org>, Michael Starr <mstarr@ndow.org>

The Nevada Department of Wildlife continues to appreciate the opportunity to work with BLM on this important landscape restoration project. We remain committed to work with BLM in an effort to improve habitats for a myriad of wildlife species within the 3 Bars Project area. While projects of this magnitude and the acres potentially effected by subsequent treatments can be concerning, we feel that the safeguards in place via identified protective measures will mitigate most of our concerns. Based on our comments relative to the PDEIS we did not see that BLM had adequately address two previous concerns. [Vegetation Treatments Planning and Management – Treatment Areas – Sagebrush – 3-1] 1. It was our recommendation that within mid and lower elevation sagebrush communities treatment test plots be conducted (several hundred acres or less) in an effort to ensure that we can effect positive change in these drier sites. We recommended that these tests be conducted prior to identified large scale treatments. At present knowledge concerning the reestablishment of native herbaceous species within a sagebrush over story is not well known. It is thought that before BLM initiates treatment in these vegetation communities on a large scale that we should have a good idea that the treatment applied will be successful. [Proposed Action and Purpose and Need – Relationship to Statutes, Regulations, and Policies – 3-2] 2. We were unable to determine how BLM would apply NRS 528.053 which sets a 200-foot buffer from stream channels for any impacting activity unless a variance is authorized by NDF, NDOW and NDWR.

NDOW is hopeful that BLM will afford those, who will implement the actions analyzed in this EIS, the greatest array of methods and tools to enhance habitat important to key wildlife species such as sage-grouse and Lahontan cutthroat trout when a decision is finally rendered. To exclude key methods such as fire or various forms of machinery will only increase treatment costs and compromise the potential benefits of this habitat enhancement project. We look forward to continuing to work with BLM on project planning and implementation. We compliment Battle Mountain BLM for the foresight to initiate restoration planning on a scale such as this.

Steve Foree

Eastern Region Habitat Supervisor

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Elko, NV 89801

775.777.2306

sforee@ndow.org

EUREKA COUNTY BOARD OF COMMISSIONERS

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November 25, 2013

Chad Lewis, Project Manager
Bureau of Land Management
Battle Mountain District
50 Bastian Road
Battle Mountain, Nevada 89820

RE: 3 Bars Ecosystem and Landscape Restoration Project

Dear Mr. Lewis:

We are in receipt of and have reviewed the 3 Bars Ecosystem and Landscape Restoration Project Draft EIS. As a cooperating agency on the Project, we submitted substantive comment on the Administrative DEIS. We are pleased that many of Eureka County's comments resulted in changes to the DEIS. We appreciate this.

Based on our review of the DEIS, we have no additional comments to make. However, we wish to make it clear that there are some outstanding concerns we have related to the document and analysis. These remaining concerns are all based on previous input by the County and we will not belabor the items we have already provided to BLM.

Based on our conversations with BLM, we understand that after BLM receives and reviews the comments on the DEIS that a meeting will be scheduled to review, clarify, address, and resolve outstanding conflicts or inconsistencies with Eureka County. We are eager to participate in that meeting as a Cooperating Agency, and have been assured by your staff that we will be involved and consulted regarding scheduling prior to setting the date for the meeting.

We appreciate BLM's willingness to work with Eureka County to strike a balance between the needs of current and future Eureka County citizens and the needs for sustainable resource management on BLM administered lands.

Sincerely,

J.J. Goicoechea DVM, Chairman

Western Watersheds Project
Boise, Idaho Office
PO Box 2863
Boise, ID 83701
Tel: (208) 429-1679
Fax: (208) 342-8286
Email: Katie@WesternWatersheds.org
web site: www.WesternWatersheds.org
Working to protect and restore Western Watersheds

November 29, 2013

Document #4

Mr. Chad Lewis
EIS Project Manager
Mount Lewis Field Office
Battle Mountain District
50 Bastian Road
Battle Mountain, NV 89820

Email: 3Bars_Project@blm.gov. *Fax:* 775-635-4034 Attn: Chad Lewis, 3 Bars Project.

Comments on Battle Mountain BLM Three Bars EIS

Here are comments of Western Watersheds Project and the American Wild horse Preservation Campaign on the 3 Bars Ecosystem and Landscape Restoration Draft Environmental Impact Statement (DEIS).

Massive ¾ Million Acre Project Area and Public Lands Resources Are Impacted – Yet the EIS Lacks A Hard Look at Baseline Environmental Conditions

The Three Bars landscape in the arid Great Basin is an immense area of nearly ¾ million acres. This region is facing grave threats to its perennial waters, water quality and quantity, watershed function, integrity of native vegetation communities, habitat quality and quantity for viable populations of sensitive and imperiled species, and preservation of special management areas including Wild Horse Herd Areas, Wilderness Study Areas, and Lands with Wilderness Characteristics. There are serious questions about long-term persistence of sage-grouse, pygmy rabbit, ferruginous hawk, pinyon jay, flammulated owl, migratory songbirds, aquatic biota and other rare species.

BLM manages four wild horse Herd Management Areas in Three Bars that are impacted by the Project. These areas must be managed to protect and preserve their specific values and the free roaming wild horses, and ameliorate and minimize conflicts with other uses.

There are also many threatened cultural sites in this landscape, from Native American sites suitable for inclusion in the National Register but where BLM has not acted to register and protect them, to historic

mining era sites that aid in understanding the natural historical presence of pinyon-juniper across much of the Three Bars project area. See Zeier 1985. This historical pinyon-juniper information contradicts the entire basis for much of the Three Bars project, including its modeling of fire return intervals, disturbance intervals, the AECOM/ENLC range "health" assessments, and assumptions made about the extent and prominence of historic forested vegetation at middle and higher elevations across the region.

An Environmental Impact Statement is supposed to minimize uncertainty. Instead, BLM has produced a voluminous muddle of self-serving and biased analysis - 500 pages of the EIS alone, plus several hundred pages of Reports (AECOM, ENLC). The EIS's Report underpinnings are based on flawed and incorrect models of "ideal" vegetation types that do not accurately reflect historical information, current science on both sagebrush and pinyon-juniper disturbance intervals, fire frequency, composition of vegetation communities, risks of cheatgrass and other flammable weed invasion and expansion, sensitive species habitat and population needs, etc. It is based on the same flawed claims and disregard for natural landscapes as a series of recent disastrous Ely BLM projects.
The EIS even involves many of the same parties who were responsible for the disastrous Ely Lincoln County Sage-Grouse treatments and other wildly expensive projects that have destroyed and fragmented sage-grouse and pygmy rabbit, and pinyon jay habitats, and caused the dominance of and expansion of cheatgrass in the treatments where Ely BLM destroyed the woody plants (sage and trees). See WWP Ely BLM Lincoln County and Cave-Lake documents submitted on cd.

The EIS Preferred Alternative is a horrow show of aggressive highly destructive and very expensive "treatments". It represents irrational agency hubris that disregards the sensitivity of the landscape, and the fragility and complexity of the animal, plant and other resources that are found in Three Bars and surrounding areas. The EIS serves to produce more questions and environmental uncertainty about all components of the environment – and these are all unaddressed and unmitigated.

BLM proposes to spend what in reality will be tens of millions of tax dollars to tear this landscape to pieces and "**bioengineer"** it. The agency references the term bioengineer dozens of times in the EIS. BLM has apparently not learned anything from all of its past efforts to "treat" arid wild landscapes subject to temperature and weather extremes - from drought to thunderstorm deluges and snowmelt runoff erosion, and treats Three Bars as if it were a flat irrigated farm field where all factors can be controlled. The problem is – that is not the case, and there are so many direct, indirect and cumulative and synergistic adverse effects of the proposals - and so many things that can go wrong.

Not the least of this is BLM could kill remaining areas of perennial flow in the already highly depleted streams, springs, and springbrooks by its treatment denuding of the landscape and bulldozing of the stream channels themselves. With the scale of these projects, and the heavy equipment that will be imposed across rugged, wild, weed prone terrain – ranging from D-9 cats with ship's anchor chains strung between them uprooting and tearing pinyon pine, juniper and sagebrush out of the ground – to dump trucks driving crosscountry hauling wood chips for biomass incineration, to giant chipper machines that turn pinyon jay nesting sites to piles of chips on the forest floor (and crushing and destroying the sage as collateral damage) to BLM's proposals to burn large areas of trees growing in higher elevations in persistent PJ sites where all current science shows the trees are supposed to be growing, there can be no doubt that the risks are great. The outcomes are highly uncertain, and undue degradation of the public lands in violation of FLPMA is certain.

In reality, projects gone awry will be beyond the BLM's ability to control, or fix the land, once the treatments tear it apart. BLM cannot even figure out how to address the effects of grazing in its series

of Ecoregional assessments http://www.peer.org/news/news-releases/2011/11/30/-grazing-punted-from-federal-study-of-land-changes-in-west-/

BLM ignores or inadequately addresses the large body of threats it admitted to in the topics that were covered in the Ecoregional assessments:
http://www.blm.gov/wo/st/en/prog/more/Landscape_Approach/reas.html

For example, the latest Great Basin assessment shows grave concern for sage-grouse and pygmy rabbit due to loss of sage habitats. This project destroys sage habitats. The REA also shows retraction of pinyon-juniper and many other adverse effects of climate change, that show how flawed the massive PJ destroying treatments of the Preferred Alternative really are.

BLM cannot even count and be accountable for how many wild horses are in its pens – yet it proposes massive disruption of ¾ million acres.

No amount of bioengineering is going to replace the 400 year old trees that are killed as "collateral" damage from prescribed fire or injured by masticators. Or the fragile Wyoming big sage and black sage sites that will become choked with cheatgrass when the sage is thinned, crushed, smashed, chopped, mowed, and otherwise destroyed - including in "targeted grazing".

We understand that this EIS may have already cost almost a million dollars. How much has been spent so far? [Socioeconomics - Environmental Consequences - 4-1] How much would all of the projects and **bioengineering** cost if implemented? How much would it cost to try to "fix" rampant weed invasions, erosion, etc.?] [Vegetation Treatment Planning and Management - Methods - Herbicides 4-2] What toxic herbicides would this involve, and what would their effects be?] How successful has BLM ever been at controlling cheatgrass, medusahead, annual bromes or other weeds across large landscapes?

BLM fearmongers. A reader of the EIS is told, essentially, that if BLM does not kill the trees and sage, "catastrophic" fire will.

The EIS appears to be an effort to implement the massive vegetation manipulation schemes of the BLM Weed EIS and the NEPA-less PER Report. In the mid-2000s, BLM developed a highly controversial programmatic Weed EIS - *Vegetation Treatment in 17 Western States.* This EIS expanded the arsenal of chemical herbicides that BLM was allowed to use across the public lands, and was a boon to the herbicide purveyors. This is despite BLM having had disastrous outcomes of previous weed treatments, such as the cheatgrass herbicide Oust drift debacle in Idaho. See

http://www.claimsjournal.com/news/west/2009/08/25/103289.htm

We incorporate by reference into these Three Bars comments all comments and information at the Sagebrush Sea site below. WWP is also attaching our comments on the Weed/17 states process for this record.

http://www.sagebrushsea.org/mn_BLM_weeds.htm

Despite a broad range of environmental concerns about the BLM's failure to address causes of weeds, BLM was in reality adopting a Spray and Walk Away approach. It refused to address passive restoration and minimizing aggressive management.

BLM in the middle of the Weed EIS process issued a parallel but NEPA-less Report – The PER report. Dozens if not hundreds of pages in the current Three Bars EIS reference this PER report and/or the **bioengineering** heavy equipment bulldozing, chopping, chaining, crushing, mashing and burning of the public lands, wildlife habitat, HMAs, watersheds – that the PER report endorsed under the claim that these "treatments" were "restoration".

When environmentalists concerned about the both EIS and the PER Report asked BLM where was the NEPA analysis and environmental review for the PER Report, BLM said there was none – that the Weed EIS would only focus on herbicides. And not the causes of the disturbance to soils, microbiotic crusts, waters, watersheds – that generated the weeds – that resulted in BLM's claimed "need" for herbicides. And not the adverse effects of the battery of treatments laid out in the PER. So in reality, BLM chose to ignore the colossal chronic livestock grazing disturbance, excessive road networks often linked to livestock facilities or livestock management, and its past treatments that had caused weeds – and would not concern itself with scrutinizing the PER under NEPA The Weed EIS NEPA Review only addressed allowing many harmful herbicides, including new ones, to be sprayed across public lands and waters. Integrated weed management was ignored.

Environmentalists requested that BLM consider the following alternative:

The Restore Native Ecosystems Coalition (RNEC) was created to develop an alternative for the proposed BLM vegetation management EIS that identifies the causes of weed spread and fire fuel build-up and prescribes measures to prevent conditions that favor invasive species and hazardous forest fuel loads, and restore sites that would be sprayed, burned, chained, or logged by BLM to reduce invasive species and fuel loads on public lands. RNEC's scoping letter described why the Restore Native Ecosystems Alternative (RNEA) was within the scope of the EIS and was a "reasonable" alternative under NEPA. An outline of the RNEA was attached to the letter, which was signed by twenty-six organizations.

BLM ignored this.

So what this process in reality did was to ignore the current causes of the weeds, only look at imposing more harmful expensive chemical herbicides, and try to legitimize the massive disturbance and destruction of sage, PJ, other woody vegetation under the PER.

BLM's flawed and uncertain Three Bars EIS is a direct derivative of the Weed EIS and PER. BLM twists itself in knots trying to justify spending tens of millions of dollars on "treating" and manipulating native vegetation communities. These vegetation treatments have a long history in Nevada of just leading to further ecological ruin. The most recent of which are the tragically degrading cheatgrass-spawning Ely BLM projects, as described in WWP's Lincoln County sage, Cave-Lake and other comments, photo essays and appeals submitted on cd.

High levels of injurious domestic livestock grazing are occurring across this landscape and surrounding BLM lands (where BLM has not adequately assessed the full range of cumulative impacts of habitat loss, weed invasion risk, disturbance during sensitive breeding and other periods, etc.). Under this Three Bars EIS, large-scale livestock grazing would still persist at high levels, during harmful periods of the year for sage-grouse and other sensitive species, and there is no certainty that it would be adequately controlled, or harms not shifted into untreated areas.

[Livestock Grazing – Environmental Consequences - 4-3] BLM fails to take a hard look at the severe ecological damage and irreversible weed invasions, water loss, and loss of sensitive species habitats and populations that will result from continued livestock grazing being imposed across all of these areas over the next couple of decades. This will be amplified by the adverse impacts of climate change. See Belsky and Gelbard 2000, Beschta et al. 2012, Reisner Dissertation, Reisner et al. 2013, Briske et al. 2013.

How desertifed are lands and watersheds at present? See Sheridan CEQ 1986, describing desertification symptoms and impacts. See USDI BLM Great Basin Ecoregional Assessment. How much of the potential of riparian areas has already been lost? Can these systems tolerate any more disturbance – let alone massive bulldozing, herbiciding, fencing, and being converted to bare dirt in a drought-plagued landscape? We note that at the same time that the agency is issuing the DEIS (after it languished for several years getting more and more expensive all the while), Battle Mountain BLM is issuing a series of drought closure decisions. Every time BLM in Nevada wants to round up wild horses, it claims there is a drought.

The severity and intensity of drought is highly unpredictable in the arid and desertified Great Basin. This makes any of the ground and soil disturbing treatments even more risky and uncertain. Once the bulldozers rips up the stream and obliterates the former banks that reveal how much the system and water flows have been reduced (by grazing, ag pumping and mines), or once the 300 year old trees are burned up or the trees and sage are ripped out of the ground by bulldozers and chained, mashed, shredded, cupped, chipped, slash burned, or hauled off in dump trucks as biomass, any recovery of the site is highly uncertain.

All of the Three Bars EIS treatments, plus the inter-twined and connected very large and likely very expensive herbicide dousing of the lands made vulnerable to weeds by the treatments and continued large-scale grazing disturbance across the landscape, plus expanding mining geothermal and other exploration and development, will greatly stress this ecosystem and the ecological balance within this landscape.

[Vegetation Treatment Planning and Management - Methods - Bioengineering - 4-4] It is clear that a Supplemental EIS must be prepared (if BLM chooses any treatment action other than selective hand cutting of younger trees) to take a current, science-based look at the need for, and impacts of, a massive and massively expensive bioengineering scheme in the heart of the Great Basin Ecosystem that faces unprecedented climate change, cheatgrass/brome flammable weed invasion, and other disturbance risks. See Connelly et al. 2004, Knick and Connelly 2009.2011, USFWS WBP Finding for GSG, USDI BLM Great Basin REA.

[Vegetation Treatment Planning and Management - Literature 4-5] A large body of recent current Literature shows the battery of aggressive very expensive BLM treatments are not effective, and will likely lead to ruin. See Beck and Mitchell 2012, Jones et al. 2103 review, for example.

[Vegetation Treatment Planning and Management - Methods - Herbicides 4-6] This Supplemental Three Bars EIS must also take a current, fresh and hard look at the use of any and all herbicides, the amount of herbicide that will be used, the specific herbicides that will be used – alone or in combination, their breakdown products and degradates, their persistence in the soils, and drift in wind, soil, or water.

[Assessment - Risk Assessments - 4-7] In this process, BLM must also conduct comprehensive Risk Assessments, not only of the chemicals and treatment methods to be applied, but also fully and fairly take NEPA's required "hard look" at risks of all kinds - to air quality, dust transport and depletion linked to early snowmelt and climate change, a broad body of climate change effects, soils, native vegetation, sensitive species, WSA impairment, HMA impacts, migratory birds, water quality and quantity, viability of sensitive species populations and quality and quantity of habitat.

[Vegetation Treatment Planning and Management - General - 4-8] BLM must review the failures of herbicides to control weeds (especially in the face of continued chronic livestock grazing disturbance) –based on the agencies own experience with its many failed fire rehab efforts, and other treatments where 5 or 6 years after fire, chipping, mowing, roatbeating, etc. – cheatgrass chokes the treated areas. It must critically exmaine the failures of the actions never assessed under NEPA in the PER _ i.e. all the Bioengineering and treatment disturbance methods proposed under the Preferred Alternative to tear apart the landscape.

[Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences - 4-9] How much will cheatgrass increase in 10 years with and without the projects? In 20 years? How much herbicide will be used, and what kinds, and where – under the various alternatives? What non-target vegetation or habitats will be impaired?

This is particularly necessary, because the EIS engages in the worst kind of circular reasoning that appears to be designed to make its own Preferred Alternative appear perfectly normal, routine, palatable, and having no impacts that cannot be magically bioengineered away. This circular reasoning is just like Ely BLM NEPA and data influenced by the same actors that have brought about disastrous proposals in Ely (like Lincoln County Sage-grouse 'restoration" EA, Cave-Lake EA, etc.) based on the same shoddy models that find virtually every square inch of the Three Bars area that has any native woody vegetation remaining to be unhealthy. This elevates the risk and uncertainty even further.

So does the fact, discussed below --- that the very same chipping, chopping, shredding, burning, rotobeating, etc. that has been conducted in recent years does not bring about the glowing habitat and species recovery results that BLM has promised time after time after time. Instead, it leads to worse problems that the agency cannot fix. And further species loss and endangerment.

Failures of Three Bars Type Treatments

We are attaching a series of recent scientific articles and reports on the failures or adverse impacts of treatments like BLM is proposing. See Beck and Mitchell 2012, Jones et al. 2013, Bristow, 2012, Erickson, North Schell Prescribed Fire report.

If BLM had wanted to address the impacts and take NEPA's required hard look in the EIS, it would have fully and fairly considered all of the information below, and looked out the window at the BLM office in Battle Mountain to see the disastrous consequences of too much livestock grazing and other disturbance imposed on landscapes, like Argenta and Carico Lake areas. In many of these areas, livestock grazed out the shrubs – just plain ate them on of existence on depleted range The shrubs have not come back. So what makes BLM think that – once it destroys the woody vegetation here by mashing, crushing chopping, chipping– things will be miraculously different? These arid systems can only withstand so much stress, and livestock grazing and climate change are amplifying the effects of the stresses on the landscape. The Argentas of yesterday are going to be the Three Bars sage

destruction projects of this EIS. BLM is planning to allow continued livestock grazing (with some undetermined period of 'rest") across the treatments, and plans to have the livestock eat a large amount of the shrub vegetation! It is also planning to shift, alter, and intensify impacts "temporarily" by building fences so that virtually every untreated acre can continue to suffer intensive grazing disturbance.

There is great uncertainty with the nebulous fencing schemes, failed treatments, shifted, altered and intensified impacts, etc. The claimed grazing changes are also highly uncertain and are inadequate to protect resources in a landscape torn to pieces under the Preferred Alternative.

[Livestock Grazing - Environmental Consequences -4-10] DEIS at ES-3 claims the need for the EIS is to address the "long recognized" resource conflicts in the Three Bars area.There is no certainty that the grazing changes will be made. Grazing decisions may be appealed, and appeals upheld.

Mining and geothermal or other resource or energy activity may expand – rendering all remaining forested habitat essential for security of beleaguered big game and wild horse populations, or all remaining undeveloped sage habitats crucial for sage sparrow, loggerhead shrike, pygmy rabbit, and impairing water or other resources necessary for any Thriving Natural Balance in the HMAs.

The grazing changes, besides the uncertainty that they will be implemented, are also very inadequate. The upland components are particularly meager and ineffective in a landscape suffering many current problems as well as new and extensive habitat fragmentation from the project.

They do not address many necessary components of the environment that need protection.

They continue to inflict large-scale grazing disturbance across the landscape. This is despite the fact that BLM in its Purpose and Need admitted that Three Bars was rife with conflicts. [Livestock Grazing - Environmental Consequences -4-11] BLM fails to conduct the necessary capability, suitability, and sustainability analysis to determine if it is necessary to remove livestock disturbance conflicts from at least some significant and stressed habitat areas of the landscape.

BLM is supposed to be protecting sensitive species, forestry values, waters, etc. The wild horse HMAs wild horse needs are supposed to be protected and sustained. FLPMA specifically states that not all public lands must be subjected to all uses. That, at its heart, is what "multiple use" really means - not that every single acre needs to be ground to dust by livestock disturbance, or developed for livestock.

Ever-Increasing Scientific Evidence of Aggressive Vegetation Treatments Being Bad for the Land and Wildlife

Western land management agencies have caused tremendous damage in decades past by inflicting the very same severe disturbance and "management" to sagebrush and pinyon-juniper landscapes that BLM is proposing in Alt.

Examples include the Vale project in eastern Oregon, where massive treatments and exotic seedings took a devastating toll on wildlife habitats. No there are the whole series of studies, complied in Beck and Mitchell 2012, Jones et al. 2013, and other sources.

Instead of acting to remove and reduce disturbances, and put in place significant passive restoration measures as well, BLM is still contemplating a battery of weed-promoting habitat –destroying actions.

Critical Issues Are Unaddressed

The EIS raises many questions that are unanswered, or it answered the actions taken are not sufficient, or properly mitigated.

How much sage-grouse habitat is at considerable risk of cheatgrass/flammable annual grass and other weed invasion with continued livestock grazing disturbance imposed on it?

With continued chronic grazing and treatments in the same landscape?

[Vegetation Treatment Planning and Management - General - 4-12] How much high quality habitat will remain undisturbed by treatments? For example, BLM seeks to destroy critical blocks of pygmy rabbit, sage sparrow, sage thrasher, and Brewer's sparrow nesting habitat by mowing, chopping, crushing, seeding for livestock grass. After BLM gets done with all of these treatments, how much habitat will remain across the landscape? How fragmented will it be? [Cumulative Effects - General - 4-13] What populations were previously supported? What will now survive, and will they be viable? How will expanding mine development and al the human footprint associated with that further eat into and threaten these sensitive species habitats? How will mine development and the increased human footprint in the landscape stress or affect the wild horse herds and their use of the HMAs? Even though the current mine proposed is not the HMAs, there will be a greatly increased human presence in the landscape.]

[Wildlife Resources - Environmental Consequences 4-14] How will the treatments affect the sustainability of the pinyon jay population, including drought years like 2013, when birds had to travel over large areas to find food? We stress that the 2013 pine nut crop in Nevada was very low, and this is very likely to have significant long=-term adverse effects on this social, relatively long-lived species, as well as other wildlife dependent on pine nuts. Clark's nutcrackers are of great concern – as the population in the northern Rockies has crashed due to the loss of the large-seeded whitebark pine (whitebark now proposed for ESA listing, and nutcrackers should be, as well). Whitebark pine in Nevada (found at higher elevation in some Nevada ranges) have also suffered die-off.

[Wildlife - Analysis Methodology - Baseline Studies - 4-15] BLM has not conducted the necessary baseline surveys across the Three Bars area to determine the status of local habitats and populations, the habitat quality and quantity, areas of seemingly suitable habitat that may be unoccupied, etc. This must be done prior to finalization of the EIS if the EIS chooses any alternative other than selective hand cutting, as its Decision.

[Wildlife Resources - Affected Environment - 4-16] Where are areas of remaining higher quality sage-grouse, pygmy rabbit, Brewer's sparrow, loggerhead shrike and other habitats? Please map and identify these, and develop a solid plan to remove livestock disturbance from them, and conduct any treatment with minimal disturbance to soils, native vegetation, microbiotic crusts, etc.

[Cumulative Effects - General - 4-17] What is the intensity of the current conflicts of livestock, mining etc. with the HMAs, the TNEB in the HMAs, etc.

[Wild Horses - Affected Environment - 4-18] Where are the areas of the HMAs with less disturbance and intrusion? How do the big game species use the landscape, and how do the horses use the HMAs,

and how does protective tree cover play into the use of the landscape, and minimization of human harassment?

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-19] Where are forest areas producing pine nut seeds for pinyon jays?

[Wildlife Resources - Affected Environment - 4-20] How has the 2013 collapse of the pine nut crop in Nevada impacted pinyon jay, Clark's nutcrackers, and other species that rely on large-seeded pines?

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-21] Where have trees been treated, removed, cut, chained, burned, etc. in the past for all periods for which records have been kept?

[Native Wildlife Resources - Affected Environment - 4-22] How has loss of whitebark pine impacted Clarks' nutcracker across the species range?

[Livestock Grazing - Environmental Consequences -4-23] Will continuing to graze severely depleted lands as well as lands at high risk of flammable cheatgrass invasion render any supposed benefits of "improvement" from massive treatment intervention moot?

The 3 Bars Project … spans approximately 750,000 acres (3/4 million acres) and includes all or portions of three major mountain ranges (Roberts Mountain, Simpson Park Range, and Sulphur Spring Range).

BLM claims: *Many factors are contributing to an overall downward trend in land condition within this area, including an increasing incidence and severity of wildfire, increasing expansion of downy brome (cheatgrass), increasing expansion and densification of pinyon pine and Utah juniper woodlands, and increasing human impacts.*

[Alternatives - 4-24]This demonstrates the complexity of the situation, the grave risk of severe losses under the massive disturbance of the Preferred Alternative, and the need for BLM to do a Supplemental EIS that analyzes a range of greatly modified alternatives that minimize disturbance and harm – not anything like the Preferred Alternative – which pretty much declares all out War on natural ecological processes across the public lands.

What Do Historical Records Show?

[Native and Non-invasive Vegetation Resources - Affected Environment – Pinyon-juniper - 4-25]We have repeatedly asked BLM to consult its own historical survey records in order to understand the naturally occurring native vegetation across the Battle Mountain District and central Nevada. When were the original General Land Office surveys conducted for this region? Which areas had early survey records? What does cross-walking the info on occurrence of pinyon-juniper vegetation (and also water in drainages/springs) show about the elevations and other conditions where pinyon-juniper is the naturally occurring historical plant community? We discuss this further in specific comments on the EIS sections below.

Systematic Baseline Biological and Ecological Inventories Are Lacking

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Baseline Studies - 4-26] BLM has not conducted the systematic baseline species, resource and habitat use inventories necessary to understand how severe the impacts will be, and if there is enough population or habitat or perennial water flow to absorb the habitat destruction and bioengineering bulldozing blows the projects will unleash. This is all necessary to understand the sustainability of the resources affected and/or threatened by the project. These are ALL the resources and values of the public lands BLM discusses in EIS These inventories must be conducted across the entire project area and surrounding lands. BLM cannot rely on the severely flawed AECOM ENLC vegetation info in this at all- which finds nearly all lands unhealthy, and where almost the only way an areas would be considered healthy would be to destroy all the woody vegetation structure that the sensitive sage and PJ species rely upon, and that serves to protect watersheds.

BLM Use of Highly Flawed Modeled and Inaccurate NRCS Ecosites and Soils Descriptions Renders Whole Expensive Treatment Scheme Invalid

WWP commented in Scoping after we reviewed the vegetation mapping:

BLM can't really be serious in its veg mapping – claiming that not a single acre is Potential Pinyon-Juniper? We remind you there is substantial historical info on deforestation of nearly ALL trees within a 50 miles radius of Eureka during the mining boom.

[Native and Non-invasive Vegetation Resources - Analysis Methodology - Modeling - 4-27] So just how does this current DEIS mapping and info differ from Scoping info? Wasn't that the basic information that was used (at least in part) in developing the treatments? The agency, still bound at the hip with the livestock industry, continues to rely on flawed livestock forage-biased NRCS Ecosite and Soil Survey models, and severely flawed FRCC and other schemes. These models claim, essentially, that pinyon-juniper should not occur across vast areas of this landscape - including right here in the very elevation and precipitation range where plant ecologists have long recognized they naturally occur. This is also the same elevation and precipitation range where General Land Office Records from the original land surveys conducted across Nevada show that pinyon-juniper was historically the naturally occurring natural climax vegetation type.

[Native and Non-invasive Vegetation Resources - Analysis Methodology - Modeling - 4-28]And, where the trees do occur, and where there is any mature or old growth sage (i.e. sensitive species habitat), the models claim the sage and trees are 'unhealthy" "decadent", and only killing a lot of it to foster forage grasses can result in a "healthy" (based on the flawed models) landscape. In essence, BLM's twisted reasoning is that only by killing/thinning/chopping/re-seeding with exotic grasses or hybridized cultivars that bear little resemblance to native grasses and forbs, can lands and species be somehow "saved".

[Native and Non-invasive Vegetation Resources - Analysis Methodology - Modeling - 4-29] This flawed reasoning must be set aside by BLM. You can't save this landscape by the equivalent of waging war on it and killing off the woody vegetation as the "enemy". The NRCS Ecosites are modeled, not based on reality. In Nevada, many of the recent soil surveys were done based on only the vegetation that was currently growing on the sites, with no effort to examine the site history, historical natural vegetation, (like wood stumps, burned wood, etc.) etc. They were also conducted long after BLM's massive "treatment" wave that started in the 1950s, which was preceded of course by massive mining era deforestation (see Dr. Ron Lanner's book The Pinyon Pine), and chronic promiscuous burning by sheepherders and others in the late 1800s and early 1900s.

They are based on incorrect assumptions about the natural woody vegetation occurrence, woody vegetation density, and incorrect claims about fire return intervals as well.

They are also strikingly biased towards grass (vs. sage and trees and critical microbiotic crusts). They rely upon inaccurate fire disturbance and historical range of variability information.

Some land grant college extension and other researchers who make claims that the livestock industry likes are treated as irrefutable experts on sage and PJ and other vegetation community characteristics, disturbance and fire return intervals. These same researchers have been wrong time, after time, after time. Examples:

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Sagebrush - 4-30] Miller and Rose claimed astonishingly short sagebrush disturbance intervals, despite a large body of evidence available even at the time that this was wrong.

Given the preponderance of evidence that these researchers whose slanted work forms the basis of Ecosites and models that BLM and its contractors use, but who are so often wrong, BLM must issue a Supplemental DEIS that actually takes a careful and hard look at the historical record that refutes Miller, Perryman and others.

These parties apparently keep getting funded and published because they produce what industry wants to hear to justify a continued war on sage and trees, and this also distracts from consideration of from grazing, and mining development and other significant harms occurring in this landscape.

EIS Has Not Taken a Hard look at the Mammoth Ecological Toll Caused By Mining

Large-scale cyanide heap leach gold mining, new proposed molybdenum and other mining, are taking a devastating toll on ground and surface waters, and loss, degradation and fragmentation of wildlife habitats, impacts to WSAs, impacts to the HMAs, and many other uses of the public lands. A huge new foreign-owned molybdenum mine that will further deplete aquifers and drop water tables is planned at Mount Hope. It appears that the Three Bars EIS is, in part, a way to spend a lot of mitigation funds linked to the mining or geothermal development.

The mining entity purchased base properties with public lands grazing permits associated with them as part of acquiring water rights and deflecting rancher concerns.

[Alternatives - 4-31] A very viable alternative treatment method here, that can be coupled with selective active restoration such as hand cutting, is retirement of the public lands grazing permits the mine acquired. Please provide mapping and analysis of these permits. What allotments are these? How much land area do they cover? What are the values, sensitive species, HMAs etc. in lands grazed under these permits? BLM should prepare a Supplemental EIS to assess a new and greatly expanded range of alternatives, including this.

Climate Change Impacts Amplify Adverse Impacts of BLM's Deforestation and Sagebrush Killing Schemes

Livestock grazing disturbance amplifies the adverse impacts of climate change.

Any possible recovery or rehab of this massive battery of treatments is threatened by climate change impacts. Hotter temperatures favor cheatgrass. Stream water flows are likely to be reduced by a combination of hotter temperatures causing earlier snow melt and more rapid and earlier runoff and erosion, with lower flows later in the year.

Treatments will result in hotter, drier more weed prone and erosion and climate-change vulnerable sites. This will increase stress on depleted waters, watersheds, and animal and plant habitats and populations.

[Fish and Other Aquatic Resources - Environmental Consequences -4-32] In this context, no reasonable scientist would propose anything remotely resembling the Preferred Alternative – for example –killing all PJ within 200 feet of streams. The water is likely to reach lethal temperatures for aquatic biota as all shade is removed, and deforestation of the lands near the stream – which in grazed arid lands are typically the most highly degraded - will result in significantly decreased watershed stability and erosion, as well.

A reasonable person would look at this situation and say Gee, we first need to address the livestock degradation and get willows and other trees growing again – rather than destroy the only woody vegetation whose roots are stabilizing the watershed, and whose trunks and foliage are shading the water.

The areas that BLM seeks to deforest and bulldoze are the areas that are considered Riparian Habitat Conservation Areas elsewhere on public lands. The sensitivity of these areas is so well recognized and well understood that there are a host of limitations to ANY disturbance in the RHAs.

[Wetlands, Floodplains, and Riparian Areas - Environmental Consequences - 4-33] Much more detailed analysis that must be conducted that avoids disturbance in RHCAs.
Excerpt from USDI BLM's own analysis using RHCAs in other contexts:

RHCA Widths:

RHCA widths are defined for fish-bearing streams, permanently flowing non-fish bearing streams, ponds/lakes/reservoirs greater than 1 acre in size, wetlands, intermittent streams, landslides, and landslide-prone areas. *See PACFISH (page C8-C9) or INFISH (page E5-E6) for specific definitions of RHCA widths.*

The Following was excerpted from : *Quigley, Thomas M.; Arbelbide, Sylvia J., tech. eds. 1997. An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great Basins. Gen. Tech. Rep. PNW-GTR-405. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 4 vol. (Quigley, Thomas M.,tech. ed.; The Interior Columbia Basin Ecosystem Management Project: Scientific Assessment), Volume 3, pp 1365-1369.*

Riparian Area Management*—Four biophysical principles underlie any evaluation of a riparian management strategy: 1) a stream requires predictable and near-natural energy and nutrient inputs; 2) many plant and animal communities rely on streamside forests and vegetation; 3) small streams are generally more affected by hill-slope activities than are larger streams; and 4) as adjacent slopes become steeper, the likelihood of disturbance resulting in discernable in-stream effects increases.*

Basic information on the protective nature of woody vegetation and natural ecological processes is absent from the EIS. Instead, it relies on the worst of the backwards land grant college range department claims that seek to scapegoat trees and other woody vegetation for landscape damage caused by the BLM's chronic failure to properly manage domestic livestock grazing.

The EIS, by scapegoating trees for all manner of problems caused in large part by livestock grazing, tries to bio-engineer away foundational principles of watershed and forest ecology. This is the same kind of false and flawed scheming that pervade the Ely BLM processes, and that has caused so much degradation across portions of the Great Basin landscape already.

Killing all the PJ within 200 feet of the stream is like shooting the messenger, and in this case the messenger is also essential for BLM to keep the watersheds from unraveling and the LCT and other aquatic biota from baking in the sun or being smothered in sediment. BLM ignores that fact that similar processes operate in the natural world across many forested types, and that the harms of the treatments have been well documented in logging and other studies in western North America. We have attached some RHCA information on cd.

BLM Has Failed to Consider An Adequate Range of Restoration Alternative Actions

[Alternatives - 4-34] BLM has failed to assess a broad range of alternatives under NEPA.

[Livestock Grazing - Environmental Consequences - 4-35] BLM has failed to identify large blocks of lands where continued livestock grazing disturbance conflicts with passive restoration, and with active restoration as well.

[Livestock Grazing - Environmental Consequences - 4-36] The EIS lacks necessary solid baseline data, and a hard look at magnitude of historical and ongoing livestock degradation.

BLM in the Federal Register stated:

In order to implement the proposed 3 Bars Project, the BLM has developed the All Available Methods Alternative, which is the preferred alternative, with treatments and treatment objectives that meet previously identified resource management goals. These goals are consistent with the 1986 Shoshone-Eureka Resource Management Plan which currently guides land management activities within the 3 Bars Project area. These goals pertain to wildlife and habitat enhancement, fire and fuels management, control of weeds, woodland and rangeland values, wetland and riparian restoration, wild horse protection, Native American concerns, and cultural resources. The BLM has identified site-specific treatment projects that it would like to implement to restore and manage the 3 Bars Project Area. Treatment projects were identified through an iterative process involving the BLM and other Federal and State agencies. Treatments would focus on four priority vegetation management concerns:

- *Riparian—treatments in riparian habitats would focus on restoring functionality in areas where structural integrity (incised channel, headcuts, knickpoints, developments, and diversions) and/or appropriate species composition are compromised.*

- *Aspen—treatments in quaking aspen management habitats would focus on improving the health of aspen stands by stimulating aspen stand suckering and sucker survival.*
- *Pinyon-juniper—treatments in singleleaf pinyon pine and Utah juniper habitats would focus on thinning historic pinyon-juniper communities to promote woodland health and removing pinyon-juniper where it encroaches into riparian areas and upland habitats, including sagebrush habitat.*
- *Sagebrush—treatments in sagebrush habitats would focus on restoring the sagebrush community by removing encroaching pinyon-juniper, promoting the reestablishment of native forbs and grasses in sagebrush communities, and promoting the development of sagebrush in areas where it occurred historically.*

BLM states:

The 3 Bars Project Draft EIS identifies and evaluates treatment alternatives to implement the proposed project to meet resource management goals. In addition to the All Available Methods Alternative, three other alternatives are analyzed in the Draft EIS.

The No Fire Use Alternative would target the same treatment areas, but the methods of treatment would not include prescribed fire or wildland fire for resource benefit.

The Minimal Land Disturbance Alternative also targets the same areas for treatment, but further limits the methods of treatment to exclude fire use, mechanical treatments, and non-classical biological controls.

The BLM anticipates that more acres would be treated under the preferred alternative due to the lower cost of some of the treatment methods that would not be available under the other alternatives. A No Action alternative has also been included for comparison purposes with existing management conditions.

[Vegetation Treatment Planning and Management - Treatment Costs- 4-37] BLM has not adequately revealed how extraordinarily expensive the Preferred Alt. actions are, and how much all linked and connected actions, including massive seeding, herbiciding, etc. as weeds invade – would be. [Vegetation Treatment Planning and Management - Treatment Costs - 4-38] It has also not quantified the scenic, cultural, natural historic, wildlife and wild horse viewing, water sustainability loss and other treatment-related costs and losses values. [Alternatives - 4-39] It has not considered a reasonable range of passive and some active restoration actions.

Three additional alternatives were considered but eliminated from detailed analysis.

… Based on written and oral comments given during the scoping period, 637 catalogued individual comments were recorded during scoping for the 3 Bars Project EIS.

Vegetation treatment planning and management and vegetation treatment methods were the primary topics of concern to the public. Respondents were also concerned with the impacts that treatment actions would have on the spread of invasive species, the viability of wild horses and livestock, preservation of old growth woodlands, and protection of habitat for wildlife and special status species.

Well, this is because this project was billed from the start as a massive vegetation treatment scheme. Instead of paying attention to the public comment and removing land areas and watersheds from treatment destruction that involves large-scale killing of trees and sage as collateral damage, the BLM persisted in this sprawling destructive scheme under its Preferred Alternative.

[Proposed Project and Purpose and Need - Public Involvement - Scoping Issues and Concerns - 4-40] A large majority of the comments expressed serious concerns about the harms caused by aggressive vegetation-destroying treatments, impacts to wild horses, etc. These were downplayed or largely ignored in the EIS.

In reality, the persistence of the sensitive species (and any appreciable number of big game animals, too) is doomed in this landscape BLM claims to want to help out sensitive and important species with an aggressive battery of highly invasive and extremely expensive treatments.

[Proposed Project and Purpose and Need - Public Involvement - Scoping Issues and Concerns - 4-41] BLM claims: *All relevant issues identified through public scoping have been analyzed in this EIS to the extent practicable*. BLM uses "to the extent practicable" to cast aside any concerns that do not fit with its biased circular reasoning that is used to justify the Proposed Alternative. This violates NEPA's hard look requirement. BLM also fails to consider a broad range of current ecological science that shows the very high and extreme risk associated with this tens of million of dollars bio-engineering scheme.

We incorporate by reference all our Scoping Comments and Literature submitted as well as concerns raised by the public - into these comments.

DEIS REVIEW

[Glossary - 4-42] The DEIS needs to be drastically revised. First and foremost **BLM needs to carefully define restoration**. Because what BLM is calling restoration in Three Bars is just the same old senseless destruction of sage and pinyon-juniper that the agency has been conducting for over 50 years now. The results of all the past treatments have been ruinous. From the Vale Project in eastern Oregon that destroyed millions of acres of sagebrush to the Ely sage and PJ treatments that are choking sage-grouse habitats with cheatgrass.

[Wildlife Resources - Environmental Consequences - 4-43] BLM claims a mosaic will be good. A mosaic represents **habitat fragmentation of a vegetation community**. Imposing an artificial mosaic in a complex wild landscape result in extensive edges and disturbed areas that **promote invasive species**, livestock concentration in disturbed open "treated" sites, favor mesopredators that rely on disturbed habitats, causes a loss of security and hiding cover, and represents overall habitat loss and fragmentation. In fact, a "mosaic" represents fragmentation – for sage-grouse, Brewer's sparrow, sage thrasher, sage sparrow, loggerhead shrike, pygmy rabbit and other important, rare and sensitive sagebrush species. This is especially the case because the habitats are already often frequently broken up and disrupted by roads, past treatments, cattle salting sites, cattle fences, water troughs, mine exploration damage, etc.

Likewise, treatment of PJ in a mosaic represents the same thing – and it increases vulnerability of big game to poaching, hunting mortality, etc. and wild horses to human disturbances.

Creating a vast network of mosaics in a landscape is akin to allowing proliferation of a vast new road network – as the blocks, lines, whatever patterns, will all increase weeds and human disturbance – just like roads do. See the review of Veg treatment failures and WWP Ely treatment information.

[Wildlife Resources - Environmental Consequences - 4-44] BLM ignores the basic biology of species needs – for example, Steve Knick's work in the Snake River Birds of Prey Area found that sage sparrows are area-dependent and require large continuous blocks of sagebrush for nesting. Pygmy rabbits require dense sagebrush – which agencies always try to destroy in treatments – because of the long-standing range biases against any denser woody vegetation. This is precisely the habitat the "mosaic" treatment destruction will seriously alter. We have observed Ely BLM's vegetation mosaics from mowing, beating, crushing, and herbiciding. They selectively target the taller more structurally complex dense sage – i.e. – the exact kind of sties where pygmy rabbits live, or sage-grouse may nest – and selectively destroy those areas in a claimed "mosaic".

[Native and Non-invasive Vegetation Resources - Environmental Consequences - 4-45] "Mosaic" treatment is also the perfect recipe for maximizing rapid-fire cheatgrass and other invasive species spread across the landscape. Instead of doing what BLM used to do – essentially level a square section of land – the very harmful mosaic scheme will maximize acreage of native vegetation exposed to increased weed risk will be spread out over much larger areas – thus making weed risk exponentially greater and exponentially harder to deal with. Weeds will result form this destruction of protective woody vegetation that moderates site conditions and protects sites from trampling, from producing hundreds or thousands of hotter, drier, weed-prone sites, from transport of weeds all over the place in crosscountry travel, etc. See WWP Ely treatment report, comments, appeals.

The use of the term 'mosaic" represents the agency trying to use a catchy phrase to cover up attempts to farm public lands for livestock forage. A mosaic disturbance is in fact, the treatment equivalent of "sprawl".

BLM states:

…. when restoring sagebrush habitats. These include using a mosaic design where treated areas have a width of no greater than 200 feet between untreated areas, avoiding treatments near greater sage-grouse leks that results in a decrease in canopy cover of greater than 15 percent, and avoiding treatments in breeding, brood-rearing, and wintering habitats during those times of the year when greater sage-grouse are using these habitats. The BLM, as mitigation for the 3 Bars Project, may also manage livestock where necessary to meet greater sage-grouse habitat goals. These goals include having suitable sagebrush cover in greater sage-grouse nesting, brood-rearing, and wintering areas and ensuring that allowable use levels for livestock for herbaceous species are appropriate within greater sage-grouse habitat.

The adverse impacts of the mosaic and other treatments and bio-engineering would be amplified because BLM will use them to drastically alter the better condition remaining habitats in the landscape. All that will be left for the wildlife, wild horses, recreational uses and enjoyment are the areas in the worst condition. The previously better condition ares will be treated to bare dirt ad piles of chips or crushed sage.

ALL of the above is highly uncertain, and made even worse by the lack of certainty and opaque wording of the EIS; Examples:

[Livestock Grazing - Environmental Consequences - 4-46] DEIS at 3-7: "*Open range livestock operations are expected to continue … short-term (typically 2 to 4 year) temporary suspensions of AUMs would be expected in response to prescribed fires and the temporary loss of forage ...*". This time period is greatly inadequate to recover the understories, microbiotic crusts, hiding cover, shrubs to promote site stability, shade the ground surface, slow snowmelt, block wind, and overall site recovery. etc. It also represents a view of these lands that pervades the EIS – that "forage" is what really matters, and everything else is expendable.

This is precisely the failed mentality that has resulted in the disastrous outcomes of BLM fire rehabs across the West.

BLM then, alarmingly, states:

In order to ensure long-term success, restoration projects would not be conducted in areas with moderate to severe forage utilization until mitigation measures associated with grazing management, as discussed in Section 3.17.4, are implemented through agreements or decisions subsequent to the 3 Bars Project Record of Decision to ensure proper utilization levels during the appropriate season of use. The BLM would work with permittees on a permit by permit …

[Livestock Grazing - Environmental Consequences - 4-47] This shows that BLM has not prepared the necessary up-front grazing analyses with full public involvement that would allow it to understand where these areas are. Where is a map showing the highly degraded areas that BLM plans to avoid like the plague? How was this determined? Why is BLM not planning to issue Full Force and Effect decisions to address the chronic grazing abuse that is occurring, and try to heal the lands before tearing them to pieces? Why is there a large "dis-connect" between action on grazing (which promotes flammable exotic species and altered fire cycles, and causes habitat degradation and loss) and any "treatments"?

In fact, these are precisely the areas, where sage or PJ is present and weeds have not yet choked the understories - where Battle Mountain BLM should be focusing its efforts on for removal of livestock so that passive restoration actions can occur before it is too late, and cheatgrass sweeps the understories. This is a highly likely outcome unless BLM removes this very significant chronic grazing disturbance threat, and reduces grazing competition with wildlife and horses.

[Cumulative Effects - General - 4-48] BLM plans to focus on ripping apart the best remaining communities – dealing a double blow to sage-grouse and other sensitive species. First, BLM will allow serious degradation to continue indefinitely – and with lands on a downward trajectory, plus the large-scale mining geothermal, powerline and other impacts. The combined adverse effects of the battery of treatment disturbance and continued livestock grazing of degraded lands is (as well as all the treated lands, too) are highly likely to doom sage-grouse, pygmy rabbit, pinyon jay and other sensitive species persistence and population viability in the Three Bars Ecosystem.

BLM states:

To reduce the cost of treatments to the taxpayer, the BLM would seek outside funding partnerships with other resource agencies, non-governmental organizations, or private industries that are interested in resource management within the 3 Bars ecosystem. Additionally, it is anticipated that habitat enhancement activities authorized with the 3 Bars Project decision would provide opportunities to utilize off site mitigation funds …

This shows that in reality this whole EIS is an effort to find somewhere to readily apply (and likely waste) millions of dollars mine, geothermal or other mitigation funding. BLM refuses to deny applications like McGinness Hills, or limit Mount Hope to any significant degree – i.e. the agency has abandoned a basic consideration in mitigation, i.e. mitigation by avoidance. This also shows that BLM appears to understand that mining destruction is likely to occur to an even greater scale than already planned. So, in order to cover up on paper the magnitude of the mining, geothermal and other habitat destruction that is underway or foreseeable, BLM will just throw stacks of "mitigation" funds at killing trees and sage somewhere. BLM forgets about another basic consideration in mitigation, i.e. effective protection of other areas to increase habitat quality and integrity.

This also shows there is no urgency, and really no need for the scale of the project's destruction – other than to spend mitigation dollars under the façade that BLM allowing large-scale development in this landscape can be effectively mitigated. We also note the serious failures of the EIS to properly and effectively mitigate impacts of any and all of the proposed treatments.

Sage-grouse are a landscape bird. Some of the areas with recalcitrant permittees or that are in degraded conditions are located in lower elevations and thus are critical winter range or have other very important habitat attributes that BLM is refusing to protect. Some of these areas suffer severe cattle degradation, with cattle standing out eating the equivalent of dirt – yet leks cling to existence in the areas because they are snow-free in spring and still have a little sage left. But instead of undertaking passive restoration actions to actually remove grazing or greatly decrease it in this landscape and heal understories as well as expand the sagebrush itself in burned areas– BLM focuses on cutting down trees, because of the resistance of the livestock industry to change.

BLM must scrap the flawed and inaccurate "modeled" NRCS Ecosites. Use of the NRCS Ecosites is a big problem. They are models, based on erroneous historical disturbance and fire information. They are heavily biased towards promoting livestock forage grass at the expense of ALL woody vegetation and microbiotic crusts. There appears to be no area that ever meets the ideal Ecosite conditions – so all areas are selected for potential treatment because they are all unhealthy. And the more important the areas are to sensitive species (older and mature woody veg) the sicker the models portray them to be. This warped Veg assessment scheme underlies the AECOM ENLC range health assessments. [Native and Non-invasive Vegetation Resources - Assessment Methodology - Baseline Studies - 4-49] We stress that the interested public was not informed of these assessments, even though they greatly impact the fate of grazing allotments and HMAs.

[Native and Non-invasive Vegetation Resources - Affected Environment - Sagebrush - 4-50] Try figuring out just how little sage the Ecosites claim should be present - not enough to hide a sagebrush vole, let alone a pygmy rabbit. A Supplemental EIS must be prepared t examine this factor alone.

What is the basis for the definitions in the EIS? For example, "encroachment". These are an example of arbitrary and circular reasoning – with ever-malleable definitions concocted to justify whatever BLM wants to do to destroy native vegetation communities all the while spending huge sums of federal tax dollars.

[Native and Non-invasive Vegetation Resources - Environmental Consequences - 4-51] Natural succession is natural succession, it is not "encroachment". In order to understand succession, BLM must first determine the natural historical vegetation community on the site. The use of the Nevada NRCS Ecosites and ENLC's models will not enable the BLM to do this. BLM must examine the

historical information, and the elevation, aspect, precipitation patterns, etc.

[Glossary - 4-52] Where did the new silly term "densification" come from? How was the so-called "densification" on all sites determined? BLM ignores the inherent natural complexity of native shrub and tree communities. Complex changes in woody vegetation composition, structure, density, etc. occur based on subtle changes in soil moisture due to snow deposition, slope, etc.

[Native and Non-invasive Vegetation Resources - Affected Environment - Sagebrush –4-53] BLM and the false Ecosites ignore the recent work by Bukowski and Baker and others that show naturally dense sagebrush was historically commonplace across the Great Basin. They ignore the work by Romme et al., Lanner and Frazier 2012, and the classic work on Nevada's PJ communities – Dr. Ron Lanner's *The Pinyon Pine*.

Use of a generic one-size-fits-all description will destroy the inherent biodiversity of the sagebrush communities, and the specific attributes that sensitive species require.

What is the potential natural community? The Scoping maps were wildly incorrect.

What is the scientific basis for the following definitions?

Restoration *is the implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term …Resilience is the ability to recover from or adjust easily to change.*

Why did BLM involve a contractor who does biomass plants and co-gen plants and also mine EIS's - who then used Eastern Nevada Landscape Coalition - if you wanted an accurate and unbiased assessment of the Three Bars landscape*? See WWP e-mail of 11/18 to BLM Manager Furtado describing contractor AECOM developing biomass plants, involvement in geothermal facilities, etc.* The end result of all ENLC assessment we have seen agencies use is contrivance used to find everything unhealthy so that widespread destruction of native communities can be justifiedWe are submitting our various Appeal filings for the Cave-Lake Vegetation Treatment project for the record in the Three Bars EIS project.

[Vegetation Treatment Planning and Management – Methods - Planting and Seeding - 4-54] Why is BLM planning to destroy the Three Bars landscape by planting species like crested wheatgrass or forage kochia, at the same time it is removing them?

[Soil Resources - Environmental Consequences - 4-55] BLM states: *Key concerns identified in the AECC for range resources are that one or more key perennial grass species are absent*. Why is the absence or reduction and degradation of microbiotic crusts not a key concern?

BLM states: *The composition and/or production of key species are below the potential for the natural community.*

[Glossary - 4-56] How has BLM defined key species – this whole section sounds like a plan to try to get some more cattle use in depleted lands – while destroying sage, crusts, and PJ;

BLM states: *Invasive or non-native species are dominant in certain areas.* Shouldn't this be a cause

for alarm at the effects the massive treatments disturbance may have – i.e. invasive species???

[Livestock Management - Environmental Consequences - 4-57] WHAT role has livestock grazing disturbance had in this: *Sagebrush monocultures are present.* Sagebrush "monocultures" are naturally occurring vegetation communities – and there is often considerable structural diversity and age class diversity as well as well-developed microbiotic crusts present. What will the effects of removing livestock grazing for decades be in turning this around? What is preferable?` The EIS also states: Some streams, springs, and meadows are functioning at less than their proper condition. WHERE are these, and what role has livestock grazing had in this?

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-58] *Other key vegetation concerns identified in the AECC included the expansion of the pinyon-juniper plant community onto adjacent range sites and encroachment into the interspaces within woodland sites.* WHERE specifically is there expansion, and how has BLM determined this is expansion and not re-occupation and/or natural succession? ;

… deterioration in the condition of native plant communities in some areas.

[Livestock Management - Environmental Consequences - 4-59] What will BLM actually do about livestock grazing as a cause of deterioration? How will you ensure the lands will heal prior to massive bioengineering disturbance?

… degradation of range conditions

[Livestock Grazing - Environmental Consequences - 4-60] What will BLM do about livestock grazing as a cause of deterioration?

[Native and Non-invasive Vegetation Resources - Cumulative Effects - 4-61] *… decrease in pine nut production and tree vigor*

What role has drought had in this, or impacts of livestock compacting soils and otherwise influencing ecological processes?

How has BLM determined what causal factors may be pine nut production changes;

decrease in the occurrence and health of traditional, edible, and medicinal plants used by Native Americans;
What role has livestock grazing had in this decrease?

[Native and Non-invasive Vegetation Resources - Cumulative Effects - 4-62] *... decline in woodland species and health*

What role does livestock grazing and climate change play in this? What role has past BLM treatment played in this?

[Wildland Fire and Fire Management - Environmental Consequences -4-63] *... excessive buildup of hazardous fuels.*

What is the basis for saying fuels are "excessive"? Under the FRCC Models (which are based on

inaccurate historical and disturbance regimes completely unsupported by current science) pretty much anything other than bare dirt and an occasional grass plants are categorized as “excessive”. This is just like the Ecosite and ENLC models finding any older vegetation is fit only for treatment destruction

Weeds categorized by the State of Nevada as “noxious” and invasive, and non-native annual grasses, occur sporadically throughout the 3 Bars ecosystem, ***particularly on wildfire burn scars,*** *near roads and streams, and on disturbed areas. The key concerns from the AECC for noxious weeds and other undesirable invasive non-native species is the potential for the establishment and spread of noxious weeds and cheatgrass monocultures resulting from past wildfires and in areas of high soil disturbance.*

[Alternatives - 4-64] Why is BLM not then addressing all livestock grazing disturbance across this landscape up front, long before issuing a massive treatment EIS with a bioengineering Preferred Alternative?–instead of avoiding dealing with problem grazing areas? [Vegetation Treatment Planning and Management - General - 4-65] Why are you then promoting aggressive weed-spreading treatments of naturally dense sagebrush and sage sites with few weeds currently present? The focus of treatments would be to control the spread of noxious weeds and invasive annual grasses found within the 3 Bars ecosystem and to encourage the establishment of native and desirable non-native species. [Vegetation Treatment Planning and Management - Methods - Planting and Seeding - 4-66] Why are you **encouraging the establishment of desirable non-native species**? This reinforces that this EIS is aimed at promoting livestock forage grass – at the expense of all other values of the public lands and all other components of the Three Bars sagebrush and PJ ecosystems and watersheds.

BLM states:

Key stream components, such as stream channel sinuosity, streambank stability, and occurrence of woody and rock debris in stream channels that help to dissipate flood energy, are lacking in many streams. Pinyon-juniper woodlands have encroached into wetland and riparian areas. Wetland and riparian habitat is declining and plant vigor and density are deteriorating. In addition, upland perennial deep-rooted herbaceous species are being lost, resulting in decreased infiltration rates and increased run-off and surface erosion and thus contributing to reduced water quality.

It is often the trees that are the only thing holding watersheds together. The only thing shading streams, the only vegetation that can withstand the chronic annual onslaught of cattle and sheep across the landscape. See Riparian HCA documents.

[Native and Non-invasive Vegetation Resources - Affected Environment - 4-67] What is all the underlying information used in compiling Map 1? BLM lumps many different factors together, and colors in areas to massively disturb and promote weeds in, and greatly alter, fragment and destroy PJ communities and sagebrush communities, as well. We note the underlying contours show that BLM in particular targets naturally occurring PJ communities in steep, rugged mountainous terrain at higher elevations –which is precisely where PJ is the naturally occurring native vegetation community across the region. Is this derived in some part from the Scoping Mapping? If so, that showed there should be no PJ present in the landscape – at all – which is incorrect and false.

[Native and Non-invasive Vegetation Resources - Affected Environment - 4-68] So, is the Scoping mapping part of the basis for the DEIS? What vegetation community baseline information was used in developing Map 1, and all the findings of deficiencies lumped in various categories?

The EIS states:

Surveys and monitoring have shown that some sagebrush-steppe, wetland, riparian, and mountain shrub habitats in the 3 Bars ecosystem are deteriorating, while pinyon-juniper woodlands are expanding and encroaching into these habitats. Key concerns from the AECC include less than optimal fish and wildlife habitat; expansion of pinyon-juniper into important habitats; reduction in key habitats due to degraded range conditions in some areas; invasion of undesirable species into habitats; decline in the health of native plant communities; and high, very high, or extreme risk of catastrophic wildfire in greater sage-grouse habitats.

The EIS states:

1.2.5 Wild Horses
The key concern from the AECC for wild horses is rangeland degradation from multiple factors, as indicated by limited key plant species abundance and recruitment within the understory.

The Project includes Fish Creek North (appears to be part of the larger Fish Creek HMA), Whistler Mountain, Roberts Mountain (which is adjacent to Whistler Mountain), and Rocky Hills. [Wild Horses - Environmental Consequences - 4-69] How has BLM systematically and methodically separated wild horse impacts from livestock impacts? How has BLM taken livestock trespass and non-compliance into account in this? Please provide all the monitoring and other data this claim is based on in a Supplemental EIS.

[Livestock Management - Affected Environment - 4-70] What systematic methods were used in monitoring? How closely did livestock monitoring actually track livestock use periods?

[Wild Horses - Environmental Consequences -4-71] What reference areas is BLM using to separate livestock vs. wild horse impacts? Are there any? Where? What size? What do they show? This Project spans 4 HMAs, and Fish Creek extends beyond the Project area. What is the condition of lands outside the Project area? What are the threats to those areas – from mines, weeds, energy, grazing, roads, etc.?

[Wild Horses - Affected Environment - 4-72] Where are all foaling areas, winter habitats, etc. and how do the horses and individual horse bands use this landscape? Detailed site-specific information must be provided in a supplemental EIS so that the full effects of the treatments can be understood, and so that a range of reasonable alternatives can be developed.

1.2.6 Livestock
Key concerns identified in the AECC for range resources are that one or more key perennial grass species are scarce; the composition and/or production of key species are below the potential for the natural community; invasive non-native vegetation is dominant in certain areas; sagebrush monocultures are present; and some streams, springs, and meadows are functioning at less than their proper functioning condition.

[Livestock Grazing - Environmental Consequences - 4-73] Why does BLM consistently obsess over livestock forage grass, and not degradation of microbiotic crusts, or simplification of sagebrush structural complexity due to livestock that renders areas less suitable for many sagebrush species like pygmy rabbit, and for migratory birds and sage-grouse that require complex overhead shrub cover to hide nests? Or livestock degradation of understories and microbiotic crusts - which promotes increased tree densities?

1.2.7 Fire Management

[Wildland Fire and Fire Management - Affected Environment -4-74] *Key concerns from the AECC for fire include excessive hazardous fuel loads and fuel situations, and declining ecosystem health in some areas, which are contributing to high wildfire potential and threats to resource values.* Then WHY haven't there been immense and large-scale fires here, like so many other places? The largest sage lands fires occur in large stands of grass, and particularly with cheatgrass in the interspaces.

BLM states:

The BLM proposes to treat vegetation using manual and mechanical methods, biological controls, and fire (both prescribed and wild land fire for resource benefit). Treatments would address multiple resource issues and aid in restoring functionality to key elements of the 3 Bars ecosystem.

The BLM has identified site-specific treatment projects that it proposes to implement to restore and manage the 3 Bars ecosystem. Treatment projects were identified through an iterative process involving the BLM and other federal and state agencies. Treatments would focus on four priority vegetation management concerns …

□□*Riparian—treatments in riparian habitats would focus on restoring functionality in areas where stream structural integrity (incised channel, headcuts, knickpoints, developments, and diversions) and/or appropriate plant species composition are compromised.*

We are very concerned that instead of restoring functionality, erosion, weed, and water and habitat loss will be worsened. Fencing would also shift and intensify impacts in unknown ways. A Supplemental EIS must be prepared to alleviate this uncertainty.

• *Aspen—treatments in quaking aspen (aspen) habitats would focus on improving the health of aspen stands by stimulating aspen stand suckering and sucker survival. Battle Mountain knows full week how to do this – control livestock impacts.*

Please see Charles Kay's Battle Mountain aspen studies. In fact, WWP's Fite recalls participating in a Charles Kay aspen tour in the Simpson Park Range – where a livestock exclosure drastically showed the severe adverse impacts that livestock grazing was having on aspen regeneration and clone health and viability within the Three Bars EIS project area. Please review the series of reports that BLM paid for showing the dramatic need to address livestock grazing impacts on aspen. [Native and Non-invasive Vegetation Resources - Environmental Consequences - Aspen -4-75] So why is BLM not focusing on removing livestock browse pressure and pressure o sensitive watersheds, and/or applying mandatory measurable use standards that sharply limit aspen browse? These must be conservative standards of 5 to 10% or less of readily accessible aspen suckers can show any browsing impacts.

• *Pinyon-juniper—treatments in pinyon-juniper habitats would focus on thinning historic pinyon-juniper communities to promote woodland health and removing pinyon-juniper where it encroaches into riparian zones and upland habitats, including sagebrush habitat, or outside of proper ecological state.*

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper -4-76] WHERE are all historic Pinyon-juniper communities, and how did you identify them? What is a "proper ecological state", and how was it defined, descried, and what scientific studies and site-specific information is this based on?

• Sagebrush—treatments in sagebrush habitats would focus on restoring the sagebrush community by removing encroaching pinyon-juniper, promoting the reestablishment of native forbs and grasses in sagebrush communities, and promoting the development of sagebrush in areas where it should occur based on ecological site description reference, desired state, or management objective.

The last line obviously refers to BLM using flawed NRCS/AECOM/ENLC models or their ilk to claim that nearly all lands that currently are occupied by trees of any age should not have any trees present. This is shown to be false by BLM's own General Land Office Survey Records across Nevada, and a broad body of other current research.

The DEIS Purpose and Need is claimed to be:

[Assessment Methodology - Baseline Studies - 4-77] *Improve woodland, rangeland, and riparian health, productivity, and functionality.* Then where is the baseline data on to what degree is livestock grazing impairing these values? Mining? Geothermal activity?

• *Increase stream flows and restore channel morphology in degraded streams*. Killing off all the trees will not do this – in fact, it is likely to cause large-scale new erosion, gullying, headcutting and loss of perennial flows. This is especially the case during summer thunderstorm or winter/spring snowmelt runoff events in these highly damaged watersheds. In fact, we have just seen these very effects play out in the Owyhee Canyonlands in an area where BLM extolled a "controlled" wildfire turned run-away wildfire over 45,000 acres in 2007. BLM claimed the fire was greatly beneficial – as it had burned off juniper (along with killing significant sagebrush). BLM then rested the area for a mere 2 or 3 years – and allowed livestock grazing to resume. Then in 2013 there was a summer rainstorm event on the combination fire and cattle-ravaged redband trout habitat, and the streams blew out. Burning and/or clearing of trees on steep slopes in mountainous watersheds had highly predictable results.

The lesson of this fire event, and BLM's glowing claims of how beneficial it was – based solely on the fact that it killed trees, shows there are grave risks with fire in livestock-degraded habitats. BLM had "rested" the lands for periods similar to those proposed in this EIS.

• *Improve stream habitat for fish and wildlife by implementing physical treatments that include installing large woody debris, rock clusters, and check dams, and other measures that support regrowth of riparian vegetation.*

• *Improve the health of aspen, mountain mahogany, and other mountain tree and shrub stands to benefit wildlife, and Native Americans that use these plants for medicinal purposes.*

• *Manage pinyon-juniper woodlands to promote healthy, diverse stands within persistent woodlands.*

• *Slow the expansion of pinyon-juniper into sagebrush and riparian plant communities.*

• *Slow the spread of noxious weeds and other invasive non-native vegetation, including cheatgrass.*

• *Protect and enhance habitat for fish and wildlife, including species of concern such as raptors, greater sage-grouse, and Lahontan cutthroat trout.*
The BLM has also identified project purposes that are specific to fire use and improving ecosystem management through the use of fire. These include:

• *Restore fire as an integral part of the ecosystem; reduce the risk of large-scale wildfire; reduce extreme, very high, and high wildfire risks to moderate risk or less; and develop fuel breaks within the treatment and adjacent areas*

□□*Protect life, property, and community infrastructure, and protect fish and wildlife habitat from devastating wildfire effects.*
Treatment purposes would be met by implementing land restoration treatments in areas where resource management goals are not being met, and the likelihood of treatments improving resource conditions is great. The proposed treatments would range from several acres to several thousand acres, depending on specific treatment and management goals and desired outcomes for each resource area.
1.5 Need for the Project

The 3 Bars ecosystem has long been recognized ***as an area in resource conflict due to the many and competing uses …***

Well, then conduct a proper capability and suitability analysis, figure out the levels of sustainable use, Then undertake the necessary action to make significant changes in livestock grazing management, and alleviate livestock conflicts in areas at risk of weed expansion, with reduced microbiotic crusts, with reduced grass understories, etc. BEFORE imposing bioengineering schemes. You might find out you do not need to spend tens of millions of dollars tearing the landscape apart.

[Assessment Methodology - General - 4-78] What was all baseline information used to identify **Potential Natural Vegetation Communities** across the project area. Was this based on NRCS Ecosites? How did you vet the NRCS Ecosites?Do the NRCS Ecosites contain any PJ across the Three Bars Project area? If so, where?Where are all persistent pinyon-juniper sites, as defined by Foresters? Please provide us with a map of these areas?
Please provide the vegetation communities that were used as the ideals in the DEIS mapping - such as Map 1 that identifies all kinds of problems - especially in the areas w**here junipers are supposed to be growing - rugged mountainous terrain.**

WHAT were the Ecosites/ideal communities/models used in the ENLC and other Veg info in the EIS? Did these claim that junipers were not supposed to be present anywhere?

Use of non-natives is nonsense. Use Sandberg bluegrass, if "nothing" will grow. Is BLM still proposing to use aggressive non-natives because they provide the tall "forage" that the hazardous fuel cwg does? AND if there is such a risk that nothing but cwg could possibly survive – then you should not be doing the project in the first place, and especially not destroying shrubs and trees.

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper -4-79] **BLM proposes to remove ALL Phase I and Phase II Pinyon-juniper** – this is disastrous. Why in the world would you propose this? Many areas of Phase I and Phase II PJ are actually trees re-

occupying sites in which they naturally occur. Like sites where BLM purposefully destroyed them in the past. How were all Phase I and Phase II sites identified? Was ENLC involved in this?

How were trees aged? Was there evidence of old burned wood, or stumps on the ground? What did Historical survey and mining era records show?

In the DEIS TABLE of Goals and Objectives, the Goals and Objectives are often greatly at odds with one another. Sensitive PJ species will be greatly harmed by the massive deforestation that is proposed So will the forestry values, the watershed values, the riparian values, and all aspects of the environment It is patently insane to propose removing all the PJ in sites BLM claims are "Phase I" and "Phase 2".

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper –4-80] BLM claims it plans to keep old growth trees greater than 150 years in Phase I and Phase II elimination zones. Where are all such trees? How were they inventoried and identified? Doesn't the presence of the old growth trees show you that they are the naturally occurring native vegetation communities on these sites, or at a minimum – a very important component of the native vegetation community and biodiversity?

[Proposed Action and Purpose and Need -4-81] WHAT in the world does this mean?
The focus of the EIS is not to restrict, limit, or eliminate Federal Land Policy and Management Act-authorized activities as a means to restore ecosystem health. These types of management actions are defined and considered under land use planning regulations (43 Code of Federal Regulations [CFR] § 1610) and are outside the scope of this EIS.

Does this mean that BLM will not act in any way to remove cattle and sheep from even a single acre of treated land – no matter if the public has invested millions of dollars in treatment, and no matter if the grazing 5 or 10 years down the line will cause a proliferation of cheatgrass. This is typically what happens in sites that had little cheatgrass present before treatment. Once BLM destroys the protective woody vegetation by aggressive mechanical treatment and/or fire, cheatgrass increases over time – especially starting 5-6 years down the line.

Plus – if this is indeed what this confusing statement means – does that mean the promises that livestock will be properly dealt with in the EIS false?

This is precisely the type of action (closing lands to grazing for decades to allow recovery and protect the public's investment in very expensive treatments and very expensive EISs) that BLM must be contemplating. [Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-82] BLM must assess where the significant impacts of continued grazing disturbance are: RETARDING passive restoration and failing to allow native understories and microbiotic crusts to recover, and/or CONFLICTS with the recovery of treated lands and also with the needs of sensitive species. A recent Ninth Circuit decision specifically said that at the Project level, BLM needed to consider livestock allocations. In order to address the livestock grazing conflicts with restoration, biodiversity, HMAs, etc. and the degree to which continued livestock grazing will promote hazardous flammable fuels, this EIS is the appropriate and proper place to do so. [Alternatives –4-83] It is critical in a restoration EIS to address and take a science-based hard look at passive as well as active restoration measures.

BLM claims that it: … *Solicits input from national and local conservation and environmental groups with an interest in land management activities on public lands, such as The Nature Conservancy, Eastern Nevada Landscape Coalition, Western Watersheds Project.*

BLM did far more than solicit input from ENLC – it allowed ENLC to handle the underlying basic vegetation information used to develop this massive bioengineering and vegetation destruction EIS. The EIS specifically states ENLC was involved in the baseline reports. This is a serious concern, due to frequent livestock industry bent of ENLC, and the fact that the entity often takes a cut off the top of funding for veg work. Moreover, the vegetation analyses that we have seen ENLC involvement in significant data collection and analyses in Ely have used long-outdated and flawed models and erroneous disturbance intervals that find nearly all vegetation communities to need treatment. We are not certain how BLM plans to conduct these "treatments", but in the Ely situation it also appears that - after collecting and analyzing information using flawed models, ENLC may then also become a pass-through entity (again taking a cut off the top for administration) for contracting extremely expensive vegetation contractors. Is that what BLM is proposing here, too? It also appears that this entity has been involved in biomass proposals that are extremely controversial. [Vegetation Treatments Planning and Management - Methods - Activity Fuels - 4-84] We stress that the EIS greatly fails to assess potential deforestation, nutrient loss and export, loss of critical habitat components with biomass schemes. The EIS also specifically discusses "biochar".

The Preferred Alternative also imposes profligate use of highly unselective and destructive fire. Besides causing cheatgrass and other highly flammable exotic weeds to explode across the landscape, prescribed fire in Nevada causes uncontrollable weeds, large-scale habitat loss and fragmentation for forest dependent species like northern goshawk, flammulated owl, pinyon jay, and nesting and wintering migratory songbirds and raptors. This use of fire may be an initial part of biomass schemes. Fire kills trees, and they die and dry out. This makes them lighter to haul if harvested for a destructive biomass scheme. [Vegetation Treatments Planning and Management – Methods - Activity Fuels - 4-85] A SEIS must be prepared just to address the biomass concerns alone – as the often oblique and uncertain wording of the EIS appears to be in part covering up significant potential biomass actions as the EIS plays out. Is this what the odd references to dump trucks are about? Exporting nutrients and essential small mammal habitat components form the site –to burn in an incinerator and pollute the air? Further, biomass schemes are really often just a front for getting the facility built, then the it burns through the wood, then the plant becomes used for toxic waste incineration, polluting the air and harming human health.

Prescribed fires in Nevada also escape. See for example, North Schell prescribed fire report, where agencies lit a fire on a hot summer day, and predictably it escaped and burned sage-grouse habitats.

There are a tremendous number of multiple disturbances that may be inflected on the same land area over time. First, heavy equipment destroying woody vegetation in a multitude of ways. The crosscountry travel hauling wood chips around, dragging slash, then burning slash. Then the weeds appear. Then there is crosscountry ATV spraying or drift-prone aerial herbiciding. Then seeding with tractors and grass drills. All of this will disturb, displace and stress native wildlife and wild horses, and increase pressures on remaining undisturbed habitats, as well as conflicts with livestock in those areas.

[Vegetation Treatments Planning and Management - Roads - 4-86] We stress that BLM never addresses very likely road upgrades associated with all parts of this project. Small two tracks will be

smoothed out into roads, Trees will be cleared and sage crushed and destroyed- opening up wildlife habitats.

[Proposed Action and Purpose and Need - Public Involvement - Scoping Issues and Concerns - 4-87] Table 4-5 lists a very large number of concerns and issues raised in comments on this proposal. Yet, the underpinnings of the entire scheme largely ignored these comments. The DEIS ignores fully and fairly assessing scientific information in light of the comments and scientific literature that has been provided to BLM. Instead, BLM relies on the NEPA-less, outdated PER as cover for its bioengineering scheme.

BLM appears to be unwavering in its course to impose massive and expensive weed-promoting deforestation schemes. In the process, BLM will also be killing sagebrush as collateral damage and infesting disturbed lands with flammable weeds. [Wildland Fire and Fire Management - Affected Environment - 4-88] The underlying vegetation information (and DFC/"Desired" Condition) used to justify this are based on models that use wildly inaccurate fire return and disturbance intervals, and fundamentally ignore the natural historical vegetation community across much of the project area and broader landscape in the Great Basin.

[Cumulative Effects - General - 4-89] BLM has failed to adequately evaluate land uses (grazing, fire suppression, mining) – as we described in Scoping and throughout these DEIS comments. Moreover, many other issues were raised – like transmission lines, roading, and addressing the direct, indirect and cumulative adverse impacts of infrastructure and development, and the adverse impacts of these in the region are glossed over. BLM ignores livestock facility and forage and other vegetation treatments adverse impacts and degree and severity of degradation.

[Assessment Methodology - General - 4-90] Where are the baseline assessments of pygmy rabbit, loggerhead shrike, sage sparrow, pinyon jay, ferruginous hawk, etc.? We can not find them.

BLM failed to update the RMP.

[Cumulative Effects - General - 4-91] By failing to take a hard look at the adverse impacts of livestock grazing, livestock facilities, often linked road networks, the colossal footprint of large gold, molybdenum and other mines, the adverse impacts of a battery of livestock facilities, etc. – BLM avoids addressing causes of degradation and cumulative impacts and threats. Instead, the DEIS flails around scapegoating native trees that provide crucial habitat for many sensitive species, for wild horses, for big game, and that are also crucial for watershed protection in this grazing-depleted and mining-depleted landscape (historical, ongoing mining). Trees help moderate local weather and climate and result in cooler more moderate conditions in the face of welter of adverse impacts of climate change that are raining down on the Great Basin, that have tremendous aesthetic value, and that are a crucial element of native biodiversity in the Great Basin.

[Wild Horses - Environmental Consequences - 4-92] The DEIS fails to ensure viable wild horse herds, because it lacks necessary detailed information and analysis of the projects that will be conducted, how grazing will be dealt with, the many stresses on the HMAs and herds, and many other serious concerns. Typically in Nevada, when BLM conducts vegetation treatments, it rounds up the horses. [Wild Horses - Environmental Consequences - 4-93] How will these treatments increase likelihood of gathers? How will these treatments, fencing, and all kinds of disturbance impact wild and free roaming herds, family bands, use of important seasonal habitats?

[Native and Non-invasive Vegetation Resources - Environmental Consequences - Pinyon-juniper - 4-94] The DEIS Preferred Alt. will thin (or completely wipe out) reforesting persistent woodland sites (Phase I and II), does not protect old growth through its profligate use of fire, aggressive mechanical methods are likely to injure old growth and/or cause insect infestations due to attraction of pinyon insects to pitch in tree wounds. Wood chips attract insects as well. Thus, tree mortality will ultimately be much greater than the just the trees killed outright in the treatments. promote and actually specifically targets old growth and mature sagebrush communities for varies forms of mechanical destruction, fails to adequately analyze and provide necessary passive restoration efforts, etc.

The DEIS, while making many promises about livestock grazing, helping sensitive species and waters, and about helping wild horses, fails to provide a clear baseline and analysis of existing ecological conditions, and stresses on the landscape. It greatly fails to balance uses and provide for sustainable habitats, waters, and a TNEB.

[Meteorology and Climate Change - Cumulative Effects - 4-95] It greatly fails to address significant impacts of drought in adding to current stresses on the landscape. It fails to assess the adverse impacts of inflicting large-scale treatment disturbances on a perennially drought-stricken landscape. How can BLM proposes this massive destruction – at the same time it is issuing a series of drought closure decisions for livestock? This just shows how out of touch with the real world the entire Three Bars exorbitantly expensive bioengineering scheme is.

BLM has developed circular reasoning definitions and concepts – cherry-picking only what justifies its massive treatment disturbance scheme.

We have many other concerns about the failure of the DEIS to address the issues raised by commenters, and to fully and fairly examine a broad range of opposing scientific viewpoints.

[Livestock Grazing - Environmental Consequences - 4-96] BLM wrongly cut out consideration of a new AML, and addressing the serious adverse ecological footprint of the livestock facility network – not only on wild horses, but also on a broad range of important and sensitive species and other uses of the public lands. This action involves serious disruption and disturbance to HMAs, a high risk of a proliferation of exotic weeds that provide minimal forage, dousing the lands with chemical herbicides as weeds proliferate (resulting in likely drift into soils, water, and non-target vegetation), destruction of ALL Phase I and Phase II PJ that currently provide hiding, thermal and other cover for wild horses and wildlife, as well as crucial habitat for important and sensitive species. Fences kill and injure wildlife and wild horses, promote weeds, and artificially concentrate cattle and horses so that weed problems are intensified. Fences cut off horse and big game access to seasonal ranges. The disturbance is likely to displace wildlife and wild horses into sub-optimal habitats. BLM may impose temporary fences, the EIS references permanent fencing, use of a slew of unassessed harmful herbicides, etc. BLM is also highly likely to shift and intensify livestock use in unknown and unassessed ways (including allowing use above actual use levels) as it tries to keep cheatgrass and weeds from dominating its massive disturbance zones.

[Assessment Methodology - Baseline Studies - 4-97] BLM fails to provide necessary site-specific information on wild horse and wildlife use of this landscape so that the differential impacts of the massive habitat loss and disturbance to be imposed can be understood. [Cumulative Effects - General - 4-98] How will grazing degradation, grazing disturbance, mining disturbance, geothermal or other energy development and explo activities impact wildlife use of the landscape and the viability of

populations, wild horse use and herd viability, wildfire habitats and populations, recreational uses and enjoyment, etc.? ALL of these concerns are unanswered.

[Livestock Management - Affected Environment - 4-99] What has livestock actual use been over the past two decades? During the past decade? This is critical information, because the current damage being caused by livestock is due to the actual use stocking levels. Further, has BLM ever verified the accuracy of actual use reports by ranchers? If so, when and where? Also, has there been non-compliance in this landscape? If so, when and where? What sensitive species habitats and populations, wild horse bands, recreational uses, watersheds and streams, springs and seeps have been impacted? Aren't some of the recent drought closure decisions Battle Mountain is issuing a result of permittees failing to abide by agreements the ranchers violated that were to limit use during drought? Example: Bates Mountain area/Dry Creek? In a landscape with a history of non-compliance, BLM's ability to live up to promises to control livestock use after treatments/bioengineering is highly uncertain. And this just further illustrates the hubris of this bioengineering scheme. How can BLM possibly hope to flawlessy bioengineer a wild landscape, when it can not get the livestock operations under control yet?

[Mitigation and Monitoring - 4-100] How has BLM monitoring separated out relative impacts to soils, crusts, vegetation, watersheds, riparian areas, etc. of wild horse use vs. cattle/sheep impacts? Where are all monitoring sites? When and how fairly were they established? Please provide all monitoring data for the past decade. Has BLM conducted compliance checks to make sure livestock were not grazing when not authorized in these areas?

We stress that existing degree and severity of livestock degradation is likely to be caused by grazing at actual use levels much below active/allowable use. This means that the livestock are having a per-head much greater degree of impact than BLM had assumed back when setting the AML. We are greatly concerned that in allotments where livestock grazing has been at lower levels, BLM will allow ranchers to shift and intensify impacts into untreated areas – resulting in significantly higher stocking per acre than has been the norm during the period when the damage is being caused.

It is also essential that BLM balance uses and resolve conflicts before finalizing this action (including in relation to treatments and any outcomes). [Vegetation Treatments Planning and Management - Methods - Planting and Seeding - 4-101] It appears since BLM refuses to use native plant species in any seedings and is promoting massive vegetation disturbance in a cheatgrass-prone landscape – it will end up with a coarse grass and weedland. First, weeds represent a loss of sustainable perennial forage for horses and livestock, and even less stability during Nevada's never-ending drought years. Second, seeding exotics just results in even worse grazing problems –as range cons stock lands based on coarse unpalatable grasses that get eaten less than native species. So native grasses, forbs, and even shrubs bear the brunt of the grazing pressures. Also, mapping shows some exiting cwg areas already. WHY is BLM not focusing its bioengineering energy on these – and acting to restore them, and recover biodiversity including seeding sage, bitterbrush, or other shrubs?

Further, significant rest from livestock grazing is a fundamental need for any recovery from the loss of protective woody vegetation, disturbed and disrupted soils, and heavy equipment torn and broken or burned microbiotic crusts, and to promote recovery of native understory grasses and forbs, as well. It is also essential to conduct passive restoration, which is essential both to prevent weeds as well as recover understories across the spectrum of treated as well as untreated lands. This need is made even greater by the agency's planned use of mosaics that will maximize disturbance and infestation across the most possible acres. This greatly increases the likelihood of doom for the native vegetation

communities. Aquifer decline (regional and local mining depletion, irrigation, SNWA or other water export schemes, plus the added adverse impacts of climate change and aftermath of BLM treatments all amplify adverse climate change effects. Killing trees and shrubs will result in hotter, drier , windier sites which retain less water and have longer fire seasons. Local weather and precipitation patterns may also be altered. All of these adverse effects must be examined intensively. In reality, fire risk is likely to increase significantly, and not decrease.

BLM has failed to use best available science and fully and fairly consider a broad and ever-increasing range of scientific information that contradicts, what BLM and its contractors such as AECOM (does mining and biomass and other energy development proposals) and ENLC relied upon - in the alarming EIS Rangeland "health" and other reports.

[Proposed Action and Purpose and Need - Public Involvement - Scoping Issues and Concerns - 4-102]Thus, all of the concerns listed under Environmental Comments of Table 1-5 are not adequately assessed, examined on the basis of flawed and limited outdated information, fail to take a hard look at cumulative impacts (such as treatment disturbance coupled with continue imposition of gazing disturbance, or the role of mine and irrigation aquifer drawdown on deteriorating riparian conditions and habitat loss for sage grouse brood rearing for aquatic species, for migratory birds, and loss of recreational uses and enjoyment.

[Proposed Action and Purpose and Need - Decisions to be Made - 4-103] BLM must commit to preparing an EA and/or EIS for all projects tiered to this loose and highly uncertain massive landscape denuding scheme.

We again note that killing off the woody vegetation greatly aids the ease of mining or energy exploration –in what is appearing increasingly to be a mining-doomed landscape.

[Cumulative Effects - General - 4-104] We are greatly concerned that this EIS package of bioengineering projects is aimed at enabling BLM to more speedily ok more mining, geothermal and other development by having an already packaged scheme to spend mitigation dollars. So lands will be bared in treatments – easy mining explo will occur and/or the sensitive species of concern will have been wiped out by the treatment and continued grazing schemes. So down the road, neither the woody vegetation or the rare species will be any impediment at all to massive mining destruction across the Three Bars landscape.

The DEIS states:

Once treatment areas and management concerns were identified, the BLM identified site-specific projects that could occur for each vegetation management concern. In addition to considering the current and desired health of the landscape, the team also considered several other factors when developing site-specific projects, including: 1) how the projects would comply with statutory guidance; 2) BLM program guidance, including the Healthy Lands Initiative and the Great Basin Restoration Initiative; 3) land use of the project area; 4) likelihood of success; 5) effectiveness and cost of the treatments; 6) proximity of the treatment area to sensitive areas, such as wetlands, streams, or habitat for plant or animal species of concern; 7) potential impacts to humans and fish and wildlife, including non-game species; and 8) need for subsequent revegetation and/or restoration.

[Proposed Action and Purpose and Need - Public Involvement - Development of the Alternatives - 4-105] BLM cut the public out from identification of treatments, and this process. BLM must discard the flawed AECOM/ENLC range health assessment that found nearly all lands unhealthy. BLM needs to start over, with the public fully engaged. All the rest of the above paragraph elevates the uncertainty of the projects and the EIS, because none of this is adequately addressed –including the many resounding failures of the "healthy land initiative" and GBRI.

The DEIS then states:

Once the BLM refined site-specific projects, the Mount Lewis Field Office met with the tribes, NDOW, Eureka County, and non-government organizations to discuss the approach, identify project priorities, and to seek advice on the development of individual site-specific projects.

BLM never once met with WWP to discuss the approach, identify project priorities, and to seek advice – despite knowing full well of WWP's intense interest in vegetation treatment projects and their serious adverse effects on native vegetation, hazardous fuels, and sensitive species habitat quality and quantity, as well as population viability.

The DEIS states:

Manual, mechanical, and biological control methods, and prescribed fire and wildland fire for resource benefit, could be used by the BLM to restore the 3 Bars ecosystem …

The word restore could readily be replaced with destroy – as there is highly significant risk involved in all aspects of this scheme.

The EIS states it relies on the following:

PEIS and PER (USDOI BLM 2007b, c), BLM Handbook H-1740-2, Integrated Vegetation Management (USDOI BLM 2008b), and Environmental Assessment Integrated Weed Management Plan Battle Mountain District Nevada Mt. Lewis Field Office and Tonopah Field Office (USDOI BLM 2009b). In addition, the BLM has identified other treatment activities that would be done as part of projects, and could entail multiple treatment methods. These include seeding, fencing, firewood cutting, and activity fuels disposal. Some treatment methods would not be available for use depending upon the alternative that is selected.

Restoration depends on a solid understanding of what the underlying natural historical vegetation is, and the EIS has not fully and fairly assessed this.

BLM tries to discard minimizing disturbance by making unsupported statements claiming that:

Manual techniques can be used in many areas and usually with minimal environmental impacts. Although they have limited value for vegetation control over a large area, manual techniques can be highly selective. Manual treatments can be used in sensitive habitats such as riparian zones, areas where burning would not be appropriate, and in areas that are inaccessible to ground vehicles.

Selective cutting using chainsaws may occur in specific areas …

[Vegetation Treatments Planning and Management - Methods - Manual - 4-106] It is not true that hand cutting has limited value over large areas. They cost the same as the use of highly destructive feller buncher chipper choppers, chaining, etc. BLM has hidden the massive cost of its bioengineeering scheme – and hand cutting is no more expensive that the rest of the immense battery of destruction. Plus it employs many more people – and not just BLM"s chosen heavy equipment contractors who get big contracts for choppers, shredders, bunchers, bulldozers, etc. BLM can expand its Bootstraps program, and provide job skills for young people. This whole project, instead is a bloated Contractor boondoggle, from the very expensive EIS (has it really already cost a million dollars), to the Bioengineering schemes themselves. The EIS must provide detailed information on the costs of fully implementing each and every one of the projects shown on the mapping.

When one overlays the severe water erosion map, one finds that these severely water erosion sites correspond to the vegetation communities that are targeted for massive denuding.

[Soil Resources - Environmental Consequences - 4-107] All of these soils suffer significant wind erosion when burned, churned up by livestock, etc. The mapping in the EA greatly downplays the risk. BLM must also assess the degree of erosion of remaining topsoil and soil nutrients that are likely to occur. Windblown dust from grazing disturbance and fire harms ecosystems far away. It amplifies the adverse impacts of climate change on early/premature snowmelt. Thus, it is likely to INCREASE fire risk in other sites – as they become hotter, drier, more cheatgrass prone and with longer fire seasons due to windblown BLM treatment and grazing dust deposition.

[Assessment Methodology - Mapping - 4-108] All of the DEIS soils, veg and other mapping is much too general to use at the site-specific scale. In fact, important rare and sensitive species like pygmy rabbit rely on deep soil sites which are often small inclusions in larger expanses of shallow soils. These inclusions support taller sage that is critical for loggerhead shrike, sage thrasher, gray flycatcher.

[Soil Resources - Affected Environment - 4-109] BLM claims to map "shredder susceptibility". We are greatly concerned that the EIS lacks necessary site-specific detail and integration of slope, topography and other information essential to understand the severity of soils displacement, compaction, etc.

[Soil Resources - Affected Environment - 4-110] Table 3-13 provides meaningless information for site-specific and even overall understanding. It is based on generalizations that fail to take into account operation of equipment when wet or muddy, slope, aspect, number of turns and slopes where turns would occur (masticators really tear up soils when turning on any significant slope area), etc. It also fails to take into account the degree and severity of denuding that will occur.

[Vegetation Treatments Planning and Management - Methods - Activity Fuels - 4-111] Spewing wood chips all over the ground surface smothers native vegetation and microbiotic crusts, promotes weeds, reduces potential "forage" production, destroys habitat for ground nesting bees and other native pollinators of rare plants, simplifies logs and woody debris essential for many small mammals and decomposition processes that return nutrients to the soil, and also smothers the forbs that sage-grouse require. Plus sage-grouse chicks eat insects – and a sea of wood chips is a sterile, dead understory. Smothering the ground surface makes a uniform chip bed - with little to no diversity for the native microfauana. It also creates a layer of continuous fine fuel. Who vetted the NRCS 2012 document cited here?

BLM (and the USDA) arbitrarily used different factors in looking at chaining "susceptibility" vs. shredder susceptibility. Similar concerns apply to this entire section of the EIS.

Serious Concern About Contractor Biases and Setting Stage for Biomass, and Actions to Benefit Energy Developers, Mines and Ranchers

We are concerned with the Contractors involved. AECOM contracted with ENLC, which has a long involvement in finding lands unhealthy, and in need of very expensive treatment. The ENLC Website says it was hired by AECOM.

From http://www.aecom.com/What+We+Do/Energy/Thermal,+Geothermal+and+Nuclear

AECOM plays a major role in the thermal and geothermal power engineering market, by providing our clients with a broad range of services for steam cycle, gas and hydraulic turbines, and internal combustion engine power plants. We offer clients traditional engineering services as well as comprehensive advisory services relating to generation planning and financing, private participation, and client risk mitigation. …

The website continues:

Thermal, Geothermal and Nuclear services include:

- *Combined and open cycle power plants*
- ***Geothermal power plants***
- ***Industrial cogeneration***
- ***Biomass** and biogas*
- *Clean coal technologies*
- *Nuclear power plants*

This elevates concerns that this EIS is aimed at allowing implementation of a large-scale biomass scheme that has long been sought in Nevada.

Also:
http://www.aecom.com/What+We+Do/Energy/_news/Siemens+partners+with+AECOM+and+Bechtel+for+the+U.S.+Army%E2%80%99s+$7+Billion+Renewable+and+Alternative+Energy+Power+Production+Program

http://www.linkedin.com/in/hicksmatthewj

http://www.ijonline.com/Articles/59299/Preview

Other Contractor Conflicts

There appears to be another contractor conflict of interest, as AECOM has also done an EIS for a mine in Battle Mountain (and googling shows other recent NV mine work, too):

http://aecom.com/What+We+Do/Environment/Practice+Areas/Impact+Assesment+and+Permitting/_carousel/EIA+for+Mine+and+Copper+Leaching+Facilities+-+Nevada+USA

Under a third-party contract to the Bureau of Land Management (BLM), assessed the impacts associated with the proposed expansion of a gold mining and processing facility and prepared two EISs in compliance with the National Environmental Policy Act (NEPA). mine, which is in the Battle Mountain Mining District in Lander County, Nevada, lies within a historic mining district that has been actively mined for gold and copper for more than 100 years. More than 2,473 acres of the proposed expansion fall on public lands administered by the BLM.

Right now, with the Regional Sage-grouse EIS processes underway, the mining industry in Nevada is trying to distract from its own damage to watersheds and sage-grouse and other wildlife habitats as the sage-grouse EIS and listing process plays out. This includes ignoring damage by livestock grazing conducted under the many large public lands grazing permits spanning millions of acres that are held by mines in Nevada. Mines buy out ranchers in order to acquire water rights and to quell complaints about the aquifer drawdown impacts to private lands that these immense mines cause. The mining industry points to things other than mining and grazing as being major problems for sage-grouse. Grazing also provides a further political "in" with local county commissions that are often dominated by ranching interests.

So BLM hired an engineering and mining contractor to do an EIS promoting large-scale destruction of habitats provided by trees and sage in the red hot Three Bars mining and geothermal area landscape.

Given this background, it makes perfect sense, why the Three Bars EIS in Section 1.12.4 claims the following are **beyond the scope** of this supposed landscape restoration EIS (all the while elsewhere bemoaning water and riparian problems):

I*ssues Not Addressed in the Draft EIS*
Less than 4 percent of comments received were not addressed in the EIS because they were beyond the scope of the document or were not relevant to the basic purpose and need of the project. The following represent the comments not addressed in the EIS:

• Complete a new inventory of public lands and associated RMP.

• Provide a new Appropriate Management Level for wild horses that examines the relative impacts of horses versus livestock and remove livestock competition and set new Appropriate Management Levels based on the findings. This request included detailed mapping that shows where and how livestock facilities have proliferated into, and disrupted, wild horse Herd Management Areas.

• Provide an analysis of all demands on, and alteration of, the aquifer including the effects of all the mining activity near Cortez-Beowawe and other areas, and the proposed Mount Hope molybdenum mine.

• Establish a series of Areas of Critical Environmental Concern or reserves as part of this process and act to leave large areas undisturbed.

• Include use of federal fire funds to purchase grazing permits and permanently remove livestock from degraded lands.

• Prepare a full analysis of the worst case scenario for mining and energy development in the 3 Bars Project area.

A reasonable person would assume that a federal agency would want to know the full scale of problems (like aquifer drawdown that might make the springs it seeks to "bioengineer" dry up) facing a landscape that it sought to restore. In fact, it is essential to understand the magnitude of many of the summarily rejected concerns above so that BLM **identify a sound and reasonable range of alternatives, conduct credible scientific analysis of threats to species like sage-grouse in this landscape, and develop sound mitigation actions.**

A reasonable person would also assume that a federal agency would want to know the footprint of mining and energy impacts in the landscape targeted for "restoration" - including to see if in fact the wildlife in the area were largely doomed, and massive funds spent on supposed restoration would not make a whit of difference.

A reasonable person would want to understand livestock actual use, competition, have valid rangeland health assessments (not the AECOM/ENLC veg info based on flawed Ecosites and erroneous disturbance intervals), and have undertaken necessary measures to allow lands to heal before authorizing a massive bioengineering scheme. These treatments are certain to impact animal distribution in the landscape, and access to food, water, cover, as well as the use of space.

The contractor and BLM, instead, have proceeded blindly, ignoring critical information necessary to understand the feasibility of the bioengineering scheme, how it will impact sustainability of resources and values of the public lands, and understand the magnitude of things like aquifer declines in order to understand the agency's ability (or inability) to minimize or mitigate adverse EIS bioengineering impacts.

Alternatives Deficiency

BLM appears to be setting the stage for biomassing and exporting vital nutrients and protective woody vegetation from this vast area of public lands (or at least its contractor AECOM is). The DEIS Chap 2 states:

Mechanical treatment involves the use of vehicles such as wheeled tractors, crawler-type tractors, specially designed vehicles with attached implements designed to cut, uproot, or chop existing vegetation, and bulldozers, **dump trucks**, pickup trucks, and trailers for moving and hauling materials.

The adverse direct, indirect and cumulative impacts of the battery of methods of destruction of native vegetation in this EIS are mind-boggling. [Vegetation Treatments Planning and Management - Methods - Activity Fuels - 4-112] BLM even mentions dump trucks – which can only mean it is contemplating massive export of wood for biomass. Just some of the litany of "treatments" includes: chaining, mowing, mulching, shredding, tilling, feller buncher, tree shearer, targeted grazing (there is no such thing, as livestock preferentially eat desirable native plants and cannot make any difference in fuel loads under the conditions when wildfires actually burn and/or if the site is anything but grass). Plus cheatgrass has a remarkable ability to produce seeds no matter how low it is grazed – so beating an area to death one year will only mean more cheatgrass in following years). BLM also lists "classic" biological control.

So – in its supposed "restoration" EIS treatments, BLM includes a long, long list of actions that maximize environmental disturbance and damage. Yet, at the same time, it ignores careful and detailed

analysis of a long list of other active restoration actions that would actually help to heal the land and prevent weeds and cut down flammable cheatgrass risk. [Alternatives - 4-113] BLM ignores a full and fair analysis of passive restoration. As we earlier described, BLM claims that larger acres just cant be treated by hand cutting. This is simply not the case. There are millions of people needing jobs in this country. So instead of paying wealthy contractors for feller bunchers, crushers, tree shearers, choppers, bulldozers, etc. BLM can readily and feasibly hire crews to hand cut trees – greatly minimizing weed risk, damage to habitats, damage to sagebrush, damage to mature and old growth trees, etc.

Fire, prescribed fire, use of wildland fire discussion:

BLM tries to rely on a long-outdated 2004 fire plan that relies on outdated and inaccurate fire return and disturbance intervals/inaccurate Historical ranges of variability. [Wildland Fire and Fire Management - Affected Environment - 4-114] WHAT are the fire return and disturbance intervals that the 2004 Plan was based on? How do these compare to information in Knick and Connelly 2009, 2011 *Studies in Avian Biology* Baker and other Chapters, Bukowski and Baker 2013n? Note that Bukowski and Baker is based on actual review of the historical survey records that found that dense sagebrush is a naturally occurring component of the Great Basin sagebrush landscape – in sharp contrast to the flawed Ecosites used by AECOM/ENLC in the "health" assessment, that junipers were fond interfacing and interspersed with sage, and other vegetation information that runs counter to the EIS claims. [Wildland Fire and Fire Management - Affected Environment - 4-115] See also Romme et al. 2009, Lanner *The Pinyon Pine*, describing much longer fire return/disturbance intervals for pinyon juniper, and PJ naturally burns very infrequently (every 200 years or much longer) in what BLM fearmongering jargon terms "catastrophic" fires. A very large body of current information and science on fires – that simply di not exist at the time of the old 2004 Fire Plan and was ignored in the Veg PEIS and NEPA-less PER shows that large fires are climate-driven –i.e very hot, dry, windy conditions, and that that thinning and other efforts to fire-proof large wild landscapes are not effective under the conditions when the big fires, burn.

In fact, the science and understanding of fire has changed dramatically in recent years. Some western state leaders are demonstrating this – for example, in Colorado, the concept of a fire plain is being recognized, and that homes built interfacing with wild areas will be at risk, no matter how much thinning is done. This shows growing understanding that wild fires often cannot be readily controlled.

Doesn't this 2004 BLM fire plan, of the exact same vintage as the Ely Fire plan used in Cave-Lake, actually show that of the thousands of ignitions in pinyon-juniper, nearly all fires are of minimal size, with many naturally being extinguished. That is what the mapping shows – so there appears to be no need for treatment – as the best case scenario would be for lightning to hit trees, rather than grass.

[Wildland Fire and Fire Management – Affected Environment - 4-116] In fact, the "hazardous fuel" pinyon-juniper are the landscape areas that are actually the least likely to burn. They burn primarily in large-scale wind and dry conditions fire events – where no amount of very expensive chipping, chopping crushing, etc. will make much difference. Please provide much more detailed analysis of how fire proof these systems really NATURALLY are.

Further, BLM is attempting to make these systems become UNNATURAL and out of balance. This is the dead opposite of "restoration". PJ naturally burned very infrequently. And when it did burn, it burns in large-stand-replacing fires. That is what is natural. Accepting this, and managing lands for

recovery of forested stands in many area is what true restoration of ecological processes in the Great Basin ecosystem entails.

Nearly all the PJ systems of Nevada - and particularly the Roberts Mountain- Three Bars area that is situated so close to Eureka and other areas of massive historical deforestation for use of wood in processing mine ore, have suffered far **too much disturbance**. See Lanner *The Pinyon Pine*. See also Zeier paper, on the carbonari and historical charcoal kilns within the three Bars Roberts Mountain area.

There was a massive large-scale disturbance event associated with historical late 1800s mining in Nevada – and Eureka was at its epicenter. THIS is why there are a lot of younger trees in Three Bars.

Then, from the 1950s on, there was the massive purposeful BLM treatment and deforestation using fire, chaining seeding, chopping, chipping, etc. to promote livestock forage grasses.

Over top of all this wood cutting and removal– since the mid-1800s, highly unnatural damaging domestic livestock grazing disturbance (Mack and Thompson 1982) has drastically altered site conditions and ecological processes – ranging from massive erosion of topsoil resulting in harsher, rockier sites to grazing causing large-scale highly flammable weed invasions (Whisenant 1991, Billings 1996, Belsky and Gelbard 2000, Reisner Dissertation, Reisner et al. 2013). See also USFWS WBP Finding for GSG, Knick and Connelly 2009/2011 studies in Avian Biology.

And all of this radical unnatural ecosystem disturbance has been further influenced by the development of a large network of roads and roading, mining activity with a now modern day mines having a drastic impact on the aquifer, geothermal plant and road development, frequent cross country exploration for minerals/geothermal - and perhaps oil and gas, transmission lines and other energy infrastructure, etc.. Roading and extensive crosscountry travel spawns flammable weeds, and this is worsened by livestock disturbance. See Gelbard and Belsky describing how roads spread weeds.

Seeding and planting. There is a dramatic difference between seeding with a giant Amazon drill ripping and crushing vegetation, and hand planting. Harrow seeding is very destructive, drag, drill, etc. are all akin to farming wild lands, and the more aggressive the treatment, and then any seeding message on top of treatment, the more risk is involved.

Riparian/wetland

BLM proposes a battery of riparian structural fixes that will do nothing to address the large-scale desertification processes caused by livestock grazing and past deforestation, and that will be radically amplified by imposing highly destructive veg "treatment" disturbances across this landscape.

The BLM proposes to restore streams by removing, or reducing the effects of, causative factors that have led to stream degradation, and implementing bioengineering and other streambank stabilization methods to restore stream functionality. Several approaches would be used to restore streams. Because a large number of the incised gully type channels in the project area need to erode further before they can form new floodplains, the BLM would use techniques to induce meandering (Zeedyk and Van Clothier 2009). These include the use of deflectors and vanes to create lateral erosion of a streambank in order to widen the channel and alter the meander geometry along the opposite bank while decreasing velocity along the adjacent bank. The result would be accelerated erosion on the opposite bank, with an increase in sedimentation along the adjacent bank, causing the formation of a

point bar that becomes colonized by riparian vegetation that helps to reduce erosion.
A rock channel liner, which is a long, narrow, one-rock dam, and much longer than it is wide, could be built into a recently incised gully bottom and used to armor the bed and/or reconnect bankfull flow with the recently abandoned floodplain.
The BLM could improve stream functionality through channel fill (i.e., roughened channel bed) to raise the bed, and installation of large wood, boulder clusters, or other roughness elements that promote predictable patterns of scour, deposition, and local energy dissipation.

Weirs can be used to control the grade of a stream, while log and fabric step falls, step pools and rock rundowns, and Zuni bowls could be used to control and repair headcut advance, dissipate the energy of the falling water, and modify streamflow. Several of these structures may be needed to stabilize the headcut. The BLM may also stabilize channels by raising the elevation of an existing culvert to achieve streambed stabilization, and hardening road or animal crossings to reduce the impacts of vehicles and hooved animals on the stream channel.

[Vegetation Treatments Planning and Management - Methods - Riparian – 4-117] Or alternatively but not considered, BLM could control the livestock sufficiently to allow willows to recover, and re-introduce beavers – Nature's Bioengineer! Are any beavers currently present in the project area?

It appears to us that BLM plans to tear apart entire wild land watersheds, destroying vegetation destroying what remains of natural riparian function, destroying wilderness values and values of lands with Wilderness Characteristics in a massive bioengineering scheme. Bioengineering at a grand scale will be a path to ecological ruin. There are too many unknowns and unpredictable variables.

This project appears to be a very convenient way to waste millions and millions of supposed mine/geothermal development "mitigation" dollars – as "cover" for BLM allowing massive new and harmful mining/geothermal and other development to be imposed in this area. It would rip and tear apart watersheds without ever addressing the fundamental underlying problems of large-scale desertification, reductions and losses of flows due to over a century of livestock grazing which continues to this day, aquifer drawdown due to irrigation pumping and mining aquifer drawdown across the region.

This will be the Three Bars ecological equivalent of a bridge to nowhere. What difference will it make if there are gabions and "bioengineered" structures galore – if the water dries up from relentless aquifer depletion?

Plus, in deforested treated hotter, drier, windier, less moisture retaining watersheds facing climate change stress that amplifies ALL of these treatment effects (as well as the battery of adverse effects of inflicting continued livestock grazing disturbance across these watersheds, gabions and other quick structural fixes are highly likely to blow out in runoff in steep, rugged terrain. The violence of storm and runoff events is expected to be amplified by climate change impacts. Deforestation, including all the trees within 200 feet of the streams, will make matters even worse and blow-out prone. All of this will have devastating effects on fisheries and aquatic biota.

[Fish and Other Aquatic Resources - Environmental Consequences -4-118] Lahontan Cutthroat trout or other rare species eggs will be choked with sediment spilling from the treated, grazed slopes and bioengineered, clearcut artificial stream. BLM cannot conduct ESA consultation with USFWS

based on the self-serving and inaccurate analysis of the EIS. A SEIS that honestly addresses the serious risks and uncertainties with this proposal must be prepared as the basis for consultation.

While this energy, biomass and mining contractor AECOM EIS is full of long lists of multi-million dollar bioengineering schemes, it conveniently forgets about the [Vegetation Treatments Planning and Management - Methods - Riparian – 4-119] one thing might actually fix these watersheds, stabilize headcuts, store water naturally in systems, and increase sustainable perennial flows – i.e. nature's own living, breathing, chewing dam building, water-retaining engineer – the beaver.

Not only would beaver reintroduction save massive amounts of federal funds (or mine mitigation funds that agencies appear desperate to squander), this would also entail dealing with livestock in watersheds so that aspen, willows, etc. could recover. It would save taxpayers great expense - due to the huge cost of just administering federal public lands grazing permits – let alone administering them. See Moskowitz and Romaniello (2002).

BLM clearly states that it will be using Biomass:

2.2.1.3.8 Activity Fuels Disposal
Manual and mechanical methods may result in fuels that need to be removed from the treatment site. Woody debris and dead material left on site after treatment (activity fuels) would be disposed of through various methods. All of the following methods would be available under Alternative A, however, under Alternatives B and C, available methods to dispose of activity fuels would depend on the specific authorizations allowed under each alternative. Pile and slash burning would be based on environmental conditions and guidance in a developed burn plan.
Biomass Utilization
Pinyon and juniper activity fuels larger than 3 inches in diameter could be made available for firewood, fence posts, biochar, pellets, etc. Coarse and large wood could be placed in-stream to reduce vertical incisement and shear stresses in riparian restoration projects. ***Additionally, activity fuel could be removed by commercial entities through contracts.***
Pile Burning
Activity fuels would be selectively piled on site and burned under appropriate conditions. Piles should not exceed 10 feet long by 10 feet wide by 6 feet high. Burn piles would be piled with fine fuels and slash in the interior and larger fuels on the exterior. Burn piles may be covered with wax paper or other similar material (no plastic) to promote burning. Piles would generally be burned during the spring, fall, or winter.
Slash Burning
Activity fuels would be scattered on the treatment site to create a slash Fire Behavior Fuel Model. Slash units should not exceed 100 acres in size. Slash would be burned during the spring, fall, or winter.
Chipping
Activity fuels would be turned into wood chips with the use of a mechanized chipper. This activity could take place on-site or material could be transported off-site to a staging area for chipping.
Broadcast Burning
Activity fuels could be scattered within the treatment area and incinerated using the broadcast burning method. This would be done in areas where impacts to shrubby vegetation would be minimal.
Leave on Site

[Wildlife Resources - Environmental Consequences – 4-120] *Material generated – will be left on site in piles for wildlife.* Why in the world won't BLM just let the woody material naturally de-compose on-site, and not drag it into a pile –further tearing up the landscape with skidders and heavy equipment ? A wide variety of native wildlife require complex woody structure and understory composition as essential habitat components. The piles are likely to enourage mesopredators like skunks.

[Air Quality - Environmental Consequences – 4-121] Contrary to BLM's Three Bars claims - This all represents a massive release of carbon dioxide now naturally stored in woody and other vegetation into the atmosphere. It represents significant loss and destruction of soils (that will erode in wind and spur early snowmelt and other adverse climate change amplifying impacts, microbiotic crusts (that sequester carbon, stabilize soils, and help retain moisture on-site).

Wildfires typically do not burn up all the vegetation in the landscape – but are patchy, depending on the direction of the wind and other weather conditions. These treatments and use of wood export are highly unnatural.

BLM states:

The BLM will comply with SOPs identified in the 17-States PEIS (USDOI BLM 2007b:2-22 to 2-38), and PER (USDOI BLM 2007c:2-31 to 2-44). These SOPs have been identified to reduce adverse effects to environmental and human resources from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard agency and industry practices. In addition to these SOPs, the Mount Lewis Field Office has identified additional SOPs that would apply to the 3 Bars Project. Standard Operating Procedures that will be used for …

[Standard Operating Procedures - 4-122] The list of SOPS is entirely inadequate and highly uncertain, including the combination that may or may not be applied. The PER never underwent any NEPA at all. Thus, there is no valid assessment of the efficacy of the long scattershot lists of BMPs and SOPs. Plus there is no valid assessment of the potentially massive and costly amounts of toxic herbicides that may be used.

Monitoring is Highly Uncertain, Limited, and Does Not Continue for Long Enough to Understand Weed Invasions, Flammable Fuels Problems, Erosional Events as Weeds Incrementally Colonize Disturbed Areas and De-stabilize watersheds, etc.

[Mitigation and Monitoring - 4-123] The BLM proposed monitoring methods and limited periods are greatly inadequate. The DEIS states:

The BLM will comply with SOPs identified in the 17-States PEIS (USDOI BLM 2007b:2-22 to 2-38), and PER (USDOI BLM 2007c:2-31 to 2-44). These SOPs have been identified to reduce adverse effects to environmental and human resources from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard agency and industry practices. In addition to these SOPs, the Mount Lewis Field Office has identified additional SOPs that would apply to the 3 Bars Project. Standard Operating Procedures that will be used for ...

BLM also states:

Post-restoration monitoring of stream stabilizing treatments will be performed for at least 5 years to identify maintenance needs, evaluate performance of structures and channel response, provide a basis to modify treatments that are not performing as planned (if needed), measure effects on ecologic, hydrologic, and geomorphic processes, and meet reporting and Clean Water Act 404/401 permitting requirements. Photo monitoring will be used to document general changes that take place between retakes

This proposal is the equivalent of strip mining the landscape for an extraordinarily meager amount of biomass energy. It will greatly increase wildlife risks and impacts, as well as

The contractor EIS shows a gross and fundamental misunderstanding of natural ecological processes in the arid landscape of the American West, and the many unpredictable outcomes of disturbance in arid lands. In landscapes with minimal cheatgrass present pre-treatment, after the treatments, the cheatgrass gradually increases – and often it takes longer than 5 years for the full blown weed explosion across the landscape to be present. Plus, if BLM provides its typical minimal rest from livestock grazing, the effects of continued grazing disturbance will only just be beginning to kick in then.

[Mitigation and Monitoring - 4-124] The DEIS is lacking certainty about effectiveness in monitoring and adequate mitigation for this massive cumulative disturbance across this landscape.

More Riparian Concerns

[Vegetation Treatments Planning and Management - Riparian Treatments – 4-125] BLM claims it will undertake 3885 acres of riparian treatment. How many actual riparian acres are currently present? How many were historically present? How much of this area is has wet soils at present? How will this be altered by the project? How many miles of perennial flows? Where? Please provide detailed mapping? How has 2013 drought affected this? What types of springs are providing flows? Are they dependent on snowmelt?

[Wetlands, Floodplains, and Riparian Areas - Affected Environment – 4-126] BLM here refers to PFC. PFC provides no valid assessment of aquatic habitat components. Who conducted PFC? When? Why was no assessment of aquatic habitat composition conducted? What biases are associated with PFC? Sites are located in:

BLM identifies sites including Grass Valley [site of McGinness Hills massive geothermal development and factory in the desert], JD, Lucky C, Roberts Mountains, and Romano allotments, which are within the Simpson Park Range and Kobeh and Denay Valleys.

This involves large-scale bulldozing, crosscountry driving, *"Track-hoes, back-hoes, and dump trucks would be used for dirt work and to haul rock"*. [Wilderness Study Areas and other Special Management Areas -Environmental Consequences – 4-127] Where is a current survey for Lands with Wilderness Characteristics? Please provide us with this document. How will this affect and impair the values of both WSAs and LWC?

This heavy equipment use in streams amplifies the risk of adverse outcomes of vegetation treatments by many orders of magnitude. The uplands will be also be de-stabailized, and treated to pieces. The riparian areas and heart of the watershed will be destroyed.

It also displays a fundamental misunderstanding of the fragility of the tiny areas with perennial flow in the streams, springs, springbrooks, etc.

With the clear-cutting of riparian habitats and their bulldozing also comes extensive use of harmful fencing that will shift, intensify and increase damage being done by livestock into other areas, will increase conflicts and completion with wildlife and wild horses and recreational uses, as well lead to erosion-caused large-scale and destruction of Native American cultural sites.

[Water Resources - Environmental Consequences – 4-128] *Track-hoes, back-hoes, and dump trucks would be used for dirt work and to haul rock.* BLM is highly likely to puncture and destroy the underlying clay layers where spring waters seep out, or impact areas of snowmelt deposition. See Sada et al. 2001, *BLM Technical Bulletin*. This will result in killing all surface flows – which instead of "improving" wildlife habitat and aquatic species habitat, will destroy it.

Many important wild land springs will be ripped and torn apart:

The BLM would conduct treatments similar to those identified in the previous paragraph on about 78 acres at Hash Spring, Garden Spring, McCloud Spring, Railroad Spring, Roberts Mountains Spring, Stinking Spring, Tall Spring, and Trap Corral Spring (Garden Spring Group). Treatment methods include manual and mechanical methods and use of prescribed fire. Treatments would include the use of track-hoes, back-hoes, and dump trucks for dirt work and to haul rock, and grade stabilization structures, streambank bioengineering, and vegetation plantings. A pickup truck and trailer would be used to haul protective fencing. The BLM would also remove pinyon-juniper from riparian habitats using manual and mechanical methods and prescribed fire. Treatment units range in size from about 3 to 18 acres.

The BLM has also identified an additional 3,262 acres of riparian habitat enhancement treatments that would meet the …

The BLM would use grade stabilization structures, streambank bioengineering, and vegetation plantings on Henderson above Vinini Confluence, Lower Henderson 1, Lower Henderson 2, Lower Henderson 3, Lower Vinini Creek, Upper Vinini Creek, and Upper Willow units (Henderson above Vinini Confluence Group). At the Frazier Creek, Roberts Creek, Upper Henderson, Vinini Creek, and Willow Creek units (Frazier Creek Group), the BLM would use grade stabilization structures, streambank bioengineering, and vegetation plantings, and would also remove pinyon-juniper from riparian habitats using manual and mechanical methods and prescribed fire. Treatment units range in size from about 35 to 1,390 acres.

[Vegetation Treatments Planning and Management -Methods - Fencing – 4-129] *At Denay Pond, Lone Spring, and Treasure Well, the BLM would use protective fencing, but no other treatments …* **Is this permanent fencing? Many of these projects are livestock projects and are wrongfully bundled in with this Three Bars bioengineering scheme.** All of these projects must be subject to the OHA Appeals regulations.

BLM plans to destroy the only thing holding any semblance of riparian watersheds together across the region – i.e. the trees.

So – after BLM strips and destroys and de-forests the watersheds, will it then bring in giant air conditioners to cool the hot dying streams baking in the sun?

Will it then install giant filters to filter out the large-scale sediment influxes that will smother habitats for aquatic biota?

Biomass – Typically A Cover for Toxic Waste Incineration Down The Road

Any biomass activity would be massively subsidized, or used to fritter away vast sums of mine sprawl, geothermal development aquifer and habitat disruption, or other mitigation funds. But soon the funds would run out, and the wood would run out. What then? Elsewhere, biomass plants have been built as initial cover for later bringing in toxic waste to incinerate.

[Vegetation Treatments Planning and Management -Methods – Activity Fuels - 4-130] This is a very foreseeable outcome of any biomass/biochar proposal in this landscape, and full and detailed analysis of air and water pollution and human health risks of this must be assessed. Along with the human health risks of drift of the likely massive amounts of herbicide that would end up being used in the treatment and bioengineering-desolated Three Bars landscape.

http://www.saveamericasforests.org/Forests%20-%20Incinerators%20-%20Biomass/Documents/Briefing/Presentations/Dioxin%20Narrative.pdf

When hydrocarbons like trees, railroad ties, tires, poultry litter, grass trash, garbage, etc. are burned in the presence of chlorine, dioxins are created. Almost all biomass contains chlorine. Creation is the operative word since dioxins do not exist in these fuels before burning.

[Air Quality - Environmental Consequences – 4-131] Dioxins are an insidious risk. The DEIS does not assess potential dioxin pollution from burning biomass.

Unassessed and unmitigated damage will be done to watersheds by the combined effects of this battery of aggressive highly disturbing treatments, will mask and obscure any baseline upon which to determine the severe adverse impacts of the aquifer drawdown and other serious environmental disturbances caused by the massive mining operation.

The potential air pollution effects of the various ad sundry mining activities, geothermal plant releases of toxic elements in steam and vapor, etc. will be in part masked by the likely air pollution from potential and foreseeable biomass incinerator development linked to the massive deforestation scheme of the EIS.

Aspen treatments: All the tractor ripping, biomassing, burning, etc. of the aspen treatment scheme is entirely unnecessary of BLM will just get the cows/sheep out of the watershed. Please review the series of Charles Kay reports in the BLM forester's files.

On Page 2-23, BLM states:

*An estimated 47,500 to 94,000 acres of treatments involving the thinning and removal of pinyon-juniper would be conducted on Lone Mountain, Roberts Mountains, and other areas within the 3 Bars ecosystem (**Figure 2-3**). Selection of treatment areas was based on: 1) the need to remove pinyon-*

juniper to develop and enhance movement corridors for greater sage-grouse between low elevation breeding habitats and upper elevation brood rearing habitats; 2) the need to remove pinyon-juniper to slow encroachment into greater sage-grouse lekking and nesting areas; 3) the need to remove pinyon-juniper near streams to enhance habitat for Lahontan cutthroat trout; 4) the need to remove and thin pinyon-juniper to break up the continuity of fuels and reduce the risk of catastrophic wildland fire; 5) the need to improve wildlife habitat on the Sulphur Spring Wildfire Management Unit using wildland fire for resource benefit; and 6) the need to improve woodland health. ***Table 2-3*** *provides information on unit size and amount of area to be treated, project goals and objectives, and equipment and methods used for pinyon-juniper treatments.*
The BLM would enhance habitats critical to greater sage-grouse on up to 1,387 acres in the Lone Mountain area of Kobeh Valley using manual and mechanical methods. The BLM would thin pinyon-juniper stands to remove these trees from historic sagebrush habitats. The BLM would create a series of fire breaks to moderate fire behavior in treated areas and reduce the risk of loss of habitat from wildfire.

The BLM would treat pinyon-juniper to enhance habitats that are important to greater sage-grouse in several drainages on Roberts Mountains using manual, mechanical, and fire treatments. Treatment units include the Atlas, Frazier, Gable, Henderson, Upper Roberts Creek, and Vinini Corridor units (Atlas Unit Group). These drainages serve as important greater sage-grouse travel corridors between lower elevation wintering and lekking habitats and upper elevation nesting and brood-rearing habitats. Treatments would be completed in phases, with a minimum of 9,328 and …

We are alarmed at the extreme disturbance methods proposed to treat tress all over the Units in the EIS Table.

BLM proposes large-scale sagebrush destruction – both alone, and that will occur as collateral damage.

BLM states:

The BLM would reduce hazardous fuels on approximately 20,202 to 55,674 acres on the Cottonwood/Meadow Canyon, Dry Canyon, 3 Bars Ranch, Tonkin North, Tonkin South, and Whistler units (Cottonwood/Meadow Canyon Unit Group). Fuels treatments would be done in phases with approximately 1,000 to 2,000 acres of treatments conducted annually. The BLM would 1) reduce the amount of hazardous fuels and wildfire risk by ***mowing and shredding sagebrush*** *and thinning pinyon-juniper stands in 500- to 2,000-acre increments with chainsaws; 2) use mechanical methods to create fuel breaks; and 3) slow pinyon-juniper expansion into sagebrush and other plant communities on 30 to 70 percent of the units through the use of manual and mechanical methods and prescribed fire.*

BLM 2-34 states:

The BLM would remove pinyon-juniper trees infested with pathogens and/or pests by removing up to half the trees within a unit using manual and mechanical methods and prescribed fire on the Tonkin North and Tonkin South units. Up to 1,729 acres could be treated in these units. On the Lower Pete Hanson Unit, the BLM would reduce both the amount of hazardous fuels and the wildland fire risk by mowing and shredding sagebrush and thinning pinyon-juniper stands on up to 1,000 acres by using chainsaws and mechanical methods to create fuel breaks. The BLM would treat 20 to 40 percent of the Sulphur Spring Wildfire Management Unit using wildland fire for resource benefit to benefit a variety of resources and to reduce hazardous fuels. An estimated 12,482 to 24,694 acres would be treated in

the unit in increments up to 1,000 acres annually. The intent of these treatments would be to restore fire as an integral part of the ecosystem and to improve plant species diversity. By reducing fuel accumulations and creating canopy openings in the pinyon-juniper, sagebrush and other shrub species cover should increase by at least 30 percent from current levels. The BLM may allow wildland fire to burn in areas where fuel loads exceed 2 tons per acre in shrublands, and 10 tons per acre in pinyon-juniper woodlands. After fires, the BLM would promote the use of burned or downed trees for commercial or private uses. The BLM would monitor the site to limit post-fire occurrence of cheatgrass and other noxious weeds and invasive non-native vegetation.

In most instances, pinyon-juniper treatments would occur where stands are in the Phase I and II stage of development, and where soils are characteristic of those found in sagebrush communities. Phases are based on stand characteristics that differentiate between three transitional phases of woodland succession based on tree canopy, leader growth …dominant and understory trees), crown structure, potential berry production, tree recruitment, and the shrub layer. Pinyon-juniper stands on the 3 Bars Project area were characterized by phases and mapped in 2010 and 2011, and this information was used when developing pinyon-juniper treatments (AECOM 2011a). These phases, as described by Miller et al. (2008), are as follows:

***Phase I (early)** – trees are present, but shrubs and herbs are the dominant vegetation that influence ecological processes on the site.*
***Phase II (mid)** – trees are co-dominant with shrubs and herbs, and all three vegetation layers influence ecological processes on the site.*
***Phase III (late)** – trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site.*
This scheme is useful for identifying the successional stage in expansion communities that may potentially be targeted for treatment. Phase III woodlands have the greatest tree density, and the greatest amount of canopy fuels, which puts them at increased risk for loss from high intensity fires (Tausch 1999 in Miller et al. 2008). However, according to Miller et al., treatments in Phase I and II expansion woodlands to halt their succession to Phase III woodlands may be more successful and cost-effective than treatments in Phase III woodlands.

Manual and mechanical treatments would be primarily utilized to disrupt the continuity of fuels and reduce the risk of ….

The DEIS also states:

*The Mount Lewis Field Office proposes to enhance greater sage-grouse habitat within the 3 Bars ecosystem by treating approximately 31,300 acres of public lands on the 3 Bars, Flynn Parman, Grass Valley, JD, Lucky C, Roberts Mountain, and Santa Fe/Ferguson allotments (**Figure 2-4**). **Table 2-4** provides information on unit size and amount of area to be treated, project goals and objectives, and equipment and methods used for sagebrush treatments.*
These areas were selected for treatments primarily to benefit greater sage-grouse habitat and improve rangeland health. In most areas, plant communities diverge from the expected reference state vegetation based on ecological site descriptions. Treatments would be completed in phases and implemented incrementally based on monitoring, funding, and BLM priorities.
At the Alpha, Coils Creek, Kobeh East, Nichols, Roberts Mountain Pasture, and South Simpson units (Alpha Unit Group), up to 11,016 acres would be treated and treatments would focus on using mechanical methods to thin low-elevation Wyoming big sagebrush to open up the sagebrush canopy

and to seed to promote the growth of forbs and grasses.

The BLM would use mechanical methods on about 20,297 acres at the Table Mountain, Rocky Hills, Three Corners, Whistler Sage and West Simpson Park units to thin sagebrush to open up the sagebrush canopy to promote the growth of forbs and grasses, and to remove or thin pinyon-juniper to enhance or restore sagebrush communities.

[Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences – 4-132] BLM will spawn massive cheatgrass infestation by conducting this. Ely BLM treatments have already proven that this is the case.

This appears to be a massive assault not only on sage-grouse habitats, and also an effort to eliminate pygmy rabbits as well, and greatly reduce and fragment migratory bird habitats.

It shows no ecological concern for the critical values provided by mature and old growth sagebrush vegetation communities. This is worse than the worst Ely projects. Has BLM learned absolutely nothing over the years, and evaluated the weed invasions and other disasters of its previous projects?

Table 2-3 contains in nearly all cells a long litany of severe and harmful treatment disturbances. The same horror show of severe disturbance actions is listed across Alternatives A,B, C – for example. Only various tweaks in disturbance acres differ.

In all of this, [Proposed Action and Purpose and Need - Public Involvement –Development of the Alternatives - 4-133] BLM did not engage the public in site selection, has not considered a reasonable range of alternatives, and has turned a blind eye to the immense irreparable damage that will be done to habitats and populations of sensitive species, wild horses, big game, and other uses of the public lands.

Plus, the willy-nilly alternatives differences make no sense. [Alternatives - 4-134] Why is it so imperative to treat 1000 acres in Pete Hanson Creek, for example, under one alternative and 200 acres under another? WHY should two alternatives –A, and B, almost always entail the same battery of roller choppers, feller bunchers tree shearers, bull hogs, seeding, chaining mowing and activity fuel dispersal (biomass utilization, chipping, pile burn, broadcast burn and leave onsite).

This EIS is really no plan at all – just any and all methods of disturbance applied, with no rhyme or reason. It results in no valid basis for analysis of any kind. The Atlas Unit exemplifies this – with long lists of Goals, Objectives, and Method/Equipment. [Alternatives - 4-135] The only difference is acres in pre-selected land areas. These concerns apply to all Units in Table 2-3 and the EIS. BLM is merely going through the NEPA motions of shuffling some things around in order to try to pass muster on NEPA. It has not selected a reasonable range of alternatives in this fragile, arid, weed-prone landscape.

Then, on top of the long lists of potential methods of woody vegetation and riparian area destruction, BLM elsewhere (and it appears later in a ROD) will apply a long laundry list of programmatic, uncertain and often ineffective SOPs, BMPS, etc. – lacking any clarity or certainty

Thus, it is impossible to understand the magnitude of the disturbance, the risk of weed invasions, soil erosion, loss of sensitive species habitats, etc.

[Wildlife Resources - Analysis Methodology - Baseline Studies – 4-136] Why didn't BLM start by conducting necessary baseline biological surveys across the landscape _ which are essential to understand where species like ferruginous hawk sage sparrow, sage thrasher, pygmy rabbit - all currently occupy the landscape, and use of seasonal habitats, or conditions across the HMAs and identify livestock conflicts or other problems.

Instead of actually going out and looking to see areas of occupied vs. unoccupied habitats, the quality of the habitat (presence of complex mature and old growth structurally complex sage communities, i.e. not beaten up and broken by livestock), AECOM sent out ENLC to come up with vegetation measurements based on flawed models of idealized veg conditions that fail to provide the necessary habitat requirements - such as sage structural complexity and canopy cover –required by nearly all sagebrush sensitive species. See Rich (1979) for example, discussing sensitive migratory songbird needs for structurally complex mature and old growth sage cover. This is the type of site the Ecosite and ENLC info finds unhealthy and in need of treatment destruction.

Alternative B is the no fire use alternative. This merely leaves one thing out of the horrorshow of treatments, yet sites to be treated are the same lands areas, and the same BMPs. SOPS, etc. all apply.

And what about livestock grazing under the alternatives?

[Livestock Grazing - Affected Environment – 4-137] **Despite this EIS having been billed as addressing livestock grazing, the comparison of Alternatives Table fails to provide any information at all on current actual use, current active/allowable use current standards of use, current seasons of use, current degree and severity of livestock degradation, or really any meaningful information at all on livestock grazing.**

In fact, the livestock grazing part is another list of pre-ordained inadequate BMPs and SOPs of a sort. See FEIS 3-350-370. Uncertainty, as well as lack of alternatives, abounds here, too.

[Livestock Grazing – Affected Environment - 4-138] Table 3-49 lacks actual use information by pasture and allotment, and lacks breakdown of the grazing schedules by pasture, or any overlay of areas with HMAs, sage-grouse seasonal habitats, etc.

[Livestock Grazing – Affected Environment - 4-139] Are the “AUs” based on a 1000 pound cow or an 800 pound cow? Or cows with 500 lb. calves?

Table 3-50 shows there are already far too many fences and pastures here – with Roberts Mountain, for example, having 19 pastures already, and is still needing “Improvement”. Isn’t this grazed by a mining entity? [Livestock Grazing - Affected Environment – 4-140] Why is it not being retired as mitigation, and why isn’t this considered in an alternative action? There are nearly 100 pastures. How can many these fences be removed and lands combined to reduce fencing, and fencing removed to help sage-grouse, enhance free roaming wild horses, etc.? Where are fences a concern on what seasonal ranges?

[Native and Non-invasive Vegetation Resources - Analysis Methodology - Key Management Areas – 4-141] We are concerned that BLM arbitrarily cherry-picked 70 new key areas (or was it AECOM/ENLC?), but does not appear to have involved the public in this. We are concerned that there appears no rationale for why the particular allotments were selected.

BLM must start over, scrap the AECOM/ENLC flawed health assessment, and [Native and Non-invasive Vegetation Resources - Assessment Methodology - Rangeland Health – 4-142] honestly and accurately conduct valid rangeland health assessments. These are not properly selected sites or properly conducted assessments under the FRH. In fact, it is this kind of ENLC assessment that has led to the destruction of crucial sagebrush habitat in Lincoln County, and the severely flawed cave-lake assessment, and other Ely BLM assessments. In these - the problems are always found to be the woody vegetation and/or horses or "historic" grazing.

There is no valid reason for thinning sagebrush. The sage is not the problem it is the grazing pressure. FEIS at 3-362.

The entire underpinnings of this scheme are based on flawed models of "Potential Natural Community" that emphasize livestock forage at the expense of al other values of the public lands. But instead of trying to address the livestock degradation in an integrated way, in FEIS at 3-370 to 3-372, adds uncertainty. BLM applies upland utilization rates that will not provide for necessary site healing, or adequate residual nesting cove for sage-grouse.

BLM also would continue to stock these lands with livestock based on the livestock eating back the shrub cover. BLM would allow the cows and sheep to eat and break off 35% of the sage, in Wyoming and Basin big sage sites. This is crazy. Cows are not supposed to survive by eating shrubs. [Wildlife Resources - Environmental Consequences – 4-143] Here we are told that this project is to "restore" grouse habitats, and BLM allows 35% of the shrub growth to be eaten. This will also greatly impair any young sage recovery post-treatment.

[Livestock Grazing - Environmental Consequences - 4-144] Also, BLM constantly makes highly uncertain statements like "the season of use may be shifted". Thus, there is no way at all of knowing the outcome of effectiveness of the livestock grazing schemes to be imposed on this landscape. BLM fails to provide any pastures or allotments as reference areas where grazing is removed so the actual impacts of livestock vs. wildlife vs. horses can be understood. It fails to provide any significant periods of rest to jump start recovery.

The schemes also rely on an unknown number and configuration of fences and other projects that will shift, alter and intensify grazing pressure in unexamined ways – including potentially imposing livestock use at levels far above actual use on lands where use is shifted to.

[Vegetation Treatments Planning and Management -Methods - Fencing – 4-145] Why does BLM need fences - it can pull livestock use back to existing fences to aid recovery, or actually enforce conservative standards of livestock use instead.

Plus the AECOM ENLC assessments this scheme is based on are gibberish.

[Native and Non-invasive Vegetation Resources - Affected Environment – 4-146] The livestock cumulative effects analysis claims that the health studies have shown that early to mid-seral vegetation dominates the allotments. What does this mean? How was this determined? The sage communities are not early seral. How is "seral" defined by AECOM/ENLC? Is this referring to the areas that burned in fires? Won't the treatments makes there be many MORE acres in early-mid seral, not fewer? What value judgments are applied here.

We note in FEIS at 3-367, the EIS admits to what is clearly MAJOR aquifer depletion that would stem from the foreign molybdenum mine – in referring to the mined drying up springs, and new water sources for horses, wildlife and livestock being provided in new areas. This too is highly uncertain – but reveals a much larger problem that [Water Resources - Environmental Consequences – 4-147] the EIS refused to consider a significant concern – the aquifer depletion form the moly mine, the Carlin trend mines to the north, mines to the east, and from ag pumping in the valleys. It is impossible to understand how this all will affect use of the landscape by all animals, recreation, impairment of the values of the WSA, and many important components of the public lands. Is this then why BLM plans to cut down all trees within 200 ft of the stream? Hoping to reduce transpiration and magically make there be more water ---- because the mines are drying up the springs, seeps and streams across the region? And is this why the bulldozing of the streams? To obliterate any understanding of the former floodplain, and perennial areas and volume of flows? Thus masking the full impacts of the mine (and potentially the McGinness geothermal project) on the aquifer?

Thus, it is impossible to understand the changes in grazing that may or may not take place. And it is clear that the DEIS fails to take a hard look at any of the complex aspects of addressing livestock grazing degradation across the landscape. The EIS is superficial, programmatic, and it is impossible to understand direct, indirect and cumulative impacts. There is no adequate range of conservative actions, and alternatives addressed – such as removing livestock from areas where conflicts with sustainable resources are greatest, or to provide large long-term reference areas.

Other Alternatives

Alternative C is the "Minimal land disturbance alternative". Alternative D is to continue the present course. BLM would be greatly ahead and huge sums of tax dollars would have been saved if BLM would simply have addressed the rampant grazing degradation issues in this landscape in a comprehensive and upfront way. [Assessment Methodology - Baseline Studies – 4-148] BLM fails to adequately describe the present situation. It cannot rely on the ENLC information, or NRCS Ecosites and state and transition and FRCC and other models that are based on inaccurate much too abbreviated disturbance intervals and other inaccurate assumptions.

Table 2-5 contains glib generalizations that are unsupported by scientific literature and analysis. For example BLM claims that under Alt A "numerous resources" would benefit. This is highly arbitrary, and ignores a broad body of science showing that "numerous resources" would NOT benefit – for example – a wide range of sensitive species would NOT benefit from having their sagebrush habitat crushed, chopped, chipped, rollerbeaten and converted to crested wheatgrass or "biochar".

There is no justifiable rationale for claiming that Alt A should be the Preferred Alternative.

Again here, BLM claims that it is going to restore fire as an integral part of the ecosystem – well then BLM first has to drastically alter its use of baseline scientific understanding of fire return and disturbance intervals, and conduct brand new accurate and honest range "health" assessments - scrapping the flawed, inaccurate AECOM/ENLC report info. BLM must then take into full account the current science on sagebrush and PJ fire intervals, and the severe risk of cheatgrass invasion permanently and dramatically impacting fire frequency.

Throughout all the EIS charts and tables, the same glib assumptions are made that killing various plants will magically "improve" habitat.

BLM Arbitrarily Rejected Passive Restoration In Its Supposed "Restoration" EIS That Is Also Supposed to Be Addressing Livestock Grazing Damage!

[Alternatives – 4-149] BLM arbitrarily rejected the passive restoration alternative elements combined with hand cutting. Yet, BLM claims that this EIS was to address livestock grazing as well. Significantly reducing and/or removing livestock disturbance from watersheds so that weed risk can be minimized and recovery of native understories and microbiotic crusts can occur is reasonable passive restoration - especially when some permits are held by the mine that is poised to drain the aquifer further.

Instead, the EIS obsesses over uncertain disturbance methods heaped one on top of another, or one right next to another, in the same landscape and often the same watershed, BLM ignores collecting basic, fundamental information on things such as natural spring characteristics. See for example, Sada and Pohlman

While discharge rates, aquifer sources, and the presence of rare species (e.g., fishes, aquatic macroinvertebrates, rare plants, etc.) have been assessed at some springs, basic information describing physical and biological characteristics of arid land springs is very limited. This paucity of knowledge has often resulted in permitting activities that adversely affect spring aquatic and riparian biota (Shepard 1993). Management is challenged to respond to …

Springs are unique systems

WHAT ARE SPRING SYSTEMS?
Aquifer Sources
Springs are relatively small aquatic and riparian systems that are maintained by groundwater flowing onto the land surface through natural processes (Meizner 1923, Hynes 1970). They are distinct from other aquatic systems because their water temperature …

[Water Resources - Environmental Consequences – 4-150] So then why has BLM not addressed the aquifer concerns WWP raised in Scoping?

They are distinct from other aquatic systems because their water temperature is relatively constant (at least near their source), they depend on subterranean flow through aquifers, they provide the only water over vast areas and are therefore "biodiversity hotspots" (Myers and Resch 1999), and many support obligatory, spring-dwelling species (crenobiontic species) (Hynes 1970, Erman and

Erman 1995, Myers and Resch 1999)

In addition: *Springs are supported by precipitation that seeps into the soil and accumulates in aquifers where it is stored. They occur where subterranean water reaches the earth's surface through fault zones, rock cracks, or orifices that occur when water creates a passage by dissolving rock. Spring hydrology is influenced by characteristics of regional and local geology, and how water moves through an aquifer. The size of an aquifer depends on regional and local geology and climate, and water chemistry is strongly influenced by aquifer geology. Perched, local, and regional aquifers are the basic types of aquifers in the western U.S. These aquifers differ primarily in their …*

… Mountain Aquifers
In the western U.S., springs at high elevations (> 1,800 m [~6,000 ft]) and on mountain blocks are generally supplied by these aquifers. These aquifers are often perched, they are relatively small and fed by precipitation covering a small area (e.g., a drainage basin, small portion of a mountain range, or series of hills). Springs they support are cool (<10 o C) usually small, and often dry during periods of low precipitation. Seasonal and annual variability in discharge may also be large.

It appears to us that a significant number of the springs and small streams targeted for bulldozing work may be characterized as dependent on mountain aquifers. Before BLM goes bulldozing away with structural fixes, intensive studies need to be conducted, and the info and data and risk of even greater depletion or damage from the EIS actions need to be assessed in a supplemental EIS, with the public fully engaged.

Local Aquifers
Local aquifers are fed by precipitation from a larger area (e.g., a mountain range) and springs they support are located between valley floors and the base of mountains. Flow through these aquifers is generally deeper (< 500 m) and springs are usually cool (> 10oC and < 20o C), but warmer than mountain springs. Geothermal springs (> 40oC) are also supported by local aquifers that circulate near magma that heats water to temperatures that dissolve rocks to increase the concentration and number of chemicals. Discharge from springs fed by these aquifers may also change seasonally and

annually in response to precipitation, but most of these springs dry only during extended droughts …

Regional Aquifers
Springs fed by regional aquifers are warm (>20
o
C) and supplied from recharge extending over vast areas. Flow through these aquifers is complex, controlled by fractures, and may extend beneath valleys and topographic divides (Mifflin 1968, Winograd and Thordarson 1975, Thomas et al. 1996). The movement of water through these aquifers is slow compared to perched and local aquifers. Water in regional aquifer springs may also contain elevated …

Also:

Springs and seeps occur in many sizes and shapes, and the complex influences of aquifer geology, morphology, discharge rates, and regional precipitation and vegetation dictate that ***environmental characteristics of most springs are unique*** *(see Hynes 1970, Garside and Schilling 1979). They can be cold (near or below mean-annual air temperature), thermal (>5*
o
Springs may be broadly categorized by the morphology of their source. Limnocrenes are springs with water flowing from a deep pool, helocrenes are marshy and bog-like, and rheocrenes have a well-defined source that flows directly into a confined channel.

In no way, shape or form do we trust the AECOM EIS to have adequately assessed this broad array of characteristics and concerns. BLM can not merely deflect our concerns by pointing down the road to some future analysis before dozens of separate piecemeal projects are conducted under this Three Bars EIS. BLM has produced a map showing a vast array of springs and streams to bulldoze into.

[Water Resources - Affected Environment – 4-151] BLM has not provided necessary detailed and site-specific information not only on the ones the EIS would attack, it has also not provided detailed site-specific information on the ones it would leave alone. Mapping of their location, assessment of their conditions, flows over the course of the year, predicted effects of mine and climate change, etc. - in the Three Bars landscape have not been conducted.

All of this information is necessary to assess the relative scarcity of undeveloped or unaltered springs – and understand the full context and intensity of the loss that would if BLM's bulldozing dries up springs, or spring-fed segments of streams.

Please also consider:

Sada and Pohlman also describe:

A number of anthropogenic stress factors also disturb springs. These include diversion ground water pumping, spring box capture and piping to troughs, channelization, etc.), impoundment, nutrient pollution, introduction of non-native plants and animals, and trampling by humans and non-native ungulates (Shepard 1993, Minckley and Unmack 2000, Sada 2001, Sada and Vinyard 2002). In a survey of 505 springs throughout northern Nevada, Sada et al. (1992) found greater than 85 percent of springs were moderately or highly disturbed by livestock and diversion. ***Less than five percent of springs were unaffected by human disturbance****.*

Biotic and abiotic characteristics of springs are influenced by elevation, spring size, aquifer affinities, disturbance stressors (natural and anthropogenic), and physicochemical characteristics of aquatic and riparian environments.

All of these factors have not been adequately assessed.

BLM fails to provide full and comprehensive baseline analysis of spring systems, for example, that are essential before BLM radically disturbs the springs with backhoes, bulldozers, and deforestation of the watershed. BLM also fails to asses the present impacts of grazing schemes on springs, streams, meadows and watersheds in a valid FRH process and analysis.

[Water Resources - Affected Environment – 4-152] Despite the endless EIS tables listing various habitat treatment destruction all over the place, even the most minimal and basic information on the streams and springs is lacking. For example, what is the volume of perennial water flow in all stream, spring, springbrook areas over all months of the year? How has it been altered by grazing, past treatments, roads, water developments for livestock, etc. Were there water inventories done here in the 1970s-1990s? If so, what was found? How do past flow rates for any periods that data is available compare to current flow rates? How much climate change adversely impact perennial flows? How long is the current perennial wetted segment/segments of the stream spring system? How has this changed over time?

And crucial information on the type and characteristics of the springs –each of which is a unique system – must be fully understood before BLM revs up the bulldozers and starts ripping away. Or

destroying the water holding and retention capacity of the watershed by burning it up, smashing it, or converting it all to wood chips. See Sada and Pohlman:

These surveys should be conducted annually for three to five years to determine baseline conditions. Sampling frequency may be reduced to every three to five years once current or baseline conditions are accurately quantified. The number of springs, duration of surveys, and goals and purposes of Level II surveys should be developed by a team of managers, ecologists, and hydrologists. These surveys include water chemistry analyses, quantitative description of aquatic habitats, and the identification and enumeration of riparian and aquatic taxa to species or genus, respectively. Information provided by these surveys will 1) quantify current or baseline conditions at the beginning of a monitoring program and 2) quantify changes in biotic and abiotic characteristics of springs under existing or newly implemented management strategies. Level II surveys may include only …

BLM's bulldozing of riparian areas while allowing grazing to continue in watersheds runs a grave risk of promoting highly invasive white top, knapweed and other species that will require large amounts of chemical herbicide to try to control.

In fact, it appears that BLM is trying to purposefully mislead the public and downplay the amount of herbiciding this bioengineering scheme will entail. See Grazing Section of EIS that pretends that the Battle Mountain BLM is not planning on very expensive and drift-prone ground and aerial application of herbicides. These chemicals and their carriers and adjuvants and breakdown products can pollute waters, harm aquatic biota, harm ground-dwelling small mammals, nesting birds, and contaminate forage eaten by sage-grouse, pygmy rabbits, mule deer, wild horses, etc.

[Vegetation Treatments Planning and Management - Methods - Planting and Seeding – 4-153] BLM also arbitrarily failed to assess revegetating with only native species and local native ecotypes, in outright defiance of current best available science for Great Basin systems. This helps to demonstrate that this is at its heart a livestock forage project, and Battle Mountain BLM remains shackled to blind use of destructive exotic species forage.

[Alternatives - 4-154] BLM also makes reasonable alternatives sound like extremes – by suggesting a passive restoration alternative would be a complete ban on logging, grazing, etc. BLM has constructed an alternative it will never choose, instead of a reasonable range of passive actions (reductions in livestock, introduction of beaver, much more stringent controls on livestock use) and minimally disturbing active restoration such as hand cutting, fence removal, carefully stabilizing some headcuts with small rocks without the use of heavy equipment, etc.

BLM Provides No Scientific Basis for its Summary and Comparison of Effects on Resources by Alternative Table 2.6.

[Meteorology and Climate Change - Environmental Consequences – 4-155] BLM's rejection of a full and fair analysis of the adverse effects of climate change on the project and livestock grazing that would continue in the disturbed lands must b corrected in a SEIS. The contractor uses the standard rejection language that ignores Beschta et al. 2012, BLM's own Pellant 2007 Congressional Testimony, Dellasala Testimony, Chambers et al. 2009, as well as USFWS's WBP Finding for GSG, Knick and Connelly 2009/2011 *Studies in Avian Biology*, etc.

In table 2-6, BLM ignores a full and fair cumulative effects analysis of the Alternative effects on soils, microbiotic crusts, waters, watersheds, water quality and quantity, sustainability of perennial flows, habitat quality and quantity for rare, imperiled and sensitive species, impacts on recreational uses and enjoyment, impacts on cultural sites, etc.

Geothermal Exploration and development Impacts - Akin to Fracking

[Water Resources - Cumulative Effects - 4-156] BLM must also fully assess the impacts of geothermal activity or other energy activity that may use fracking. Does mining use a process akin to fracking, as well?

It appears to us that the massive bioengineering scheme – which is certain to further deplete, destroy and diminishing perennial surface waters will also serve as "cover" for the masking the large-scale adverse impacts of all the declines that are underway (and/or highly foreseeable) in the aquifer – from mining aquifer drawdown, continued irrigation of marginal crops using ground water pumping, and from foreseeable fracking-like activity associated with geothermal development.

In discussing the minimal info on flow, the EIS states:

An important result of these flow investigations is that flow-gaining and flow-losing reaches occurred within short distances on upper Birch Creek and Pete Hanson Creek. These flow increases and decreases often occurred within several hundred feet (or less) of each other, and are likely to result mainly from groundwater and geologic factors along these headwater channel lengths. On Vinini and Henderson Creeks, snowmelt conditions and other complicating factors prevented conclusions about gaining and losing stream sections (JBR 2009).

THIS supports our concerns that bulldozing drainages will have serious adverse consequences- and may result in permanent loss of surface flows. This would mask the effects of irrigation, mine and geothermal impacts to the aquifer, as well as mask the effects of the burning, chopping, chipping - and all the other parts of the treatments that will dry up and desertify this landscape even more.

[Cumulative Effects - Assessment Methodology - 4-157]Figure 3-6 does not show mining or other claims. It merely shows mining districts. Where is a map showing all energy or other rights-of-way, as well? Where is an overlay of the project polygons on the mapping that is provided? Please assess the full foreseeable mining development in this region. We also stress that the [Cumulative Effects - Assessment Methodology – 4-158] CESA is much too small for all mapping and cumulative effects analysis for all elements of the environment, and must include large areas mined/undergoing mining development to the north, east, south in particular, aquifer drawdown effects of mining, irrigation etc. across the underlying shallow and deeper ground water aquifers. How over-allocated are these already? How is that already impacting/likely to impact ground and surface waters? How much water would the Mount Hope mine use? Where would it come from? How about the plethora of gold mines all

surrounding this landscape? New mining actions like the Pan mine, ever-expanding Barrick and other operations all over the place?

The EIS just throws words and concepts around, without any critical analysis of the sweeping conclusions that it draws, for example:

As suggested by the CEQ, this EIS considers the following basic types of effects that might occur:

• *Additive – total loss of sensitive resources from more than one incident.*

• *Countervailing – negative effects are compensated for by beneficial effects.*

• *Synergistic – total effect is greater than the sum of the effects taken independently.*

The cumulative effects analysis assumes that maintenance of past treatments has occurred, and that the BLM would make an investment in maintaining the condition achieved or the objectives of the project, rather than implementing stand-alone, one-time treatments ..

What does this mean? Across Nevada, BLM vegetation treatments are increasingly infested by cheatgrass.

Mapping shows generalized, simplistic Ecoregions, then the DEIS states:

Rangeland landscapes are divided into ecological sites for the purposes of inventory, evaluation, and management. An ecological site, as defined for rangeland, is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. The ecological site descriptions are based on physiographic, climatic, vegetative, and soil factors for each soil association.

This ignores the vast sterile seas of crested wheatgrass, mottled cheatgrass-weed Sandberg bluegrass, cwg failed fire rehab sagebrush-less landscape as well as vast areas of burned pinyon-juniper all to the north.

To understand the full battery of direct, indirect and cumulative effects of this assault on native sage and PJ, BLM must place the Roberts Mountain area in context, i.e. significant native vegetation communities remain. They have not generally suffered as much cwg seeding, including disastrous post-burn or post-treatment seedings, as Elko lands to the north. Thus, they are critical to survival of many sensitive species, and the DEIS's efforts to portray large areas as unhealthy (based on the severely flawed ENLC and AECOM reports that are based on idealized modeled communities and wildly incorrect fire return and disturbance intervals) must be set aside. A Supplemental EIS must be prepared that takes a hard look at the habitat that is currently being provided for native biota, with full and fair baseline inventories for sensitive species presence and habitat needs. Instead, [Native and Non-invasive Vegetation Resources - Environmental Consequences – 4-159] the ENLC AECOM info relies on Ecosite descriptions that claim that minimal sage canopy cover is an ideal state. When in fact, if lands were managed and drastically manipulated to achieve that state, sensitive species ranging from sage sparrow to loggerhead shrike to pygmy rabbit would be wiped out over vast tracts of the Three Bars landscape. See Rich 1979, Knick et al. 2003. Dobkin and Sauder 2004.

This project was severely flawed by reliance on ENLC Ecosite information. This flaw can only be cured by [Asssement Methodology - Baseline Studies – 4-160] preparation of a Supplemental EIS that is based on systematically collected baseline data that takes into account the full habitat needs of a broad range of sensitive species.

The Ecoregion vegetation is an idealized concept often divorced from the reality on the ground, and the vulnerability of lands to weed invasion if disturbed. The Ecosites also by and large ignore the importance and value of microbiotic crusts.

Section 3.4.2.2 minimally describes a hand full of climate change impacts. Notably, it identifies predicted large-scale losses of PJ in the SW – which makes retention of much of the PJ BLM targets for destruction here even more vital, and the impacts of the senseless chaining, chipping, chopping, burning and other destruction of trees based on ENLC info even worse.

Key Issues Are Not Adequately Addressed

BLM claims that Key Issues assessed were:

Concern that big fire years are a result of climate change, and are beyond agency control.

The potential adverse effects of climate change and increasing temperatures, including on noxious weeds and other invasive non-native vegetation problems, alterations in runoff, and reduction in perennial flows, and changes to upland conditions.

Whether 3 Bars Project actions may promote desertification, global warming, and climate change processes.

The current degree of desertification that exists across the District and on adjacent lands and how climate change may exacerbate effects of deforestation and/or sagebrush removal or eradication effects.

Effects of global warming and climate change, and increased risk of site desertification and noxious weeds and other invasive non-native vegetation invasion following treatment, grazing, or other and overlapping disturbances.

[Meteorology and Climate Change - Environmental Consequences – 4-161] BLM does not seriously assess these concerns, and instead glosses over them and presents information maximally supporting its outdated view and incorrect fire and disturbance intervals, that ignore the historical vegetation communities, natural plant succession, and the needs of the sensitive species for structurally complex mature and old growth woody shrubs and trees, as well as the critical role of microbiotic crusts in land health.

This biased and circular reasoning is shown where [Meteorology and Climate Change - Environmental Consequences – 4-162] BLM includes generic paragraphs about GHG, but ignores the loss of the sequestered carbon, and loss of the ability to sequester large amounts of carbon, especially if weeds choke the landscape.

Then, BLM makes unsubstantiated assumptions that: "*significant adverse effects will not occur*".This claim is based on minimal consideration of GHG only, and while ignoring the loss of sequestered carbon, the strong likelihood of weed invasions, added and cumulative impacts from losses due to grazing, mining, and other stresses on the lands, vegetation, waters, sensitive species.

DEIS 3-44 admits:

The 8,300 acre Mount Hope Project, under construction in the southeastern portion of the 3 Bars Project area, would be a large contributor of dust and other pollutants in the CESA. Emissions of PM10, PM2.5, and lead would be generated by numerous processes as a result of the mine project, including the re-suspension of road dust, wind erosion of exposed dirt surfaces, and activities related to the processing of ore materials.

BLM claims:

In general, air quality impacts from wildfires would be greater than air quality impacts from prescribed fire on a per acre basis – Yet BLM has just admitted that "Based on long-term averages, approximately 6,900 acres would burn annually from wildfires in the CESA".

With the use of prescribed fire comes the very significant risk of escaped fire, and much larger fires. Plus by creating hotter, drier, windier, potentially grassier sites, and increasing OHV use and travel in a landscape where the current Land Use Plan fails to control this use in any way, all the impacts of the treatment are likely to be MUCH greater.

[Air Quality - Environmental Consequences – 4-163] Alt C effects are NOT similar to Alt A for Air Quality. DEIS claims at 3.5.3.4.3 are false. BLM cavalierly proposes no mitigation measures for air quality.

BLM also ignores adverse impacts of wind erosion and dust deposition, the degree to which climate change will amplify risks of cheatgrass dominating treatments (especially since the DEIS fails to control livestock grazing impacts across the treated watersheds, and relies on vague promises of some future livestock actions.

[Wildlife Resources - Environmental Consequences – 4-164] BLM ignores the adverse impacts of noise on wildlife, and this battery of aggressive bulldozer, dump truck, chaining, helicopter and OHV prescribed fire activity may cause significant initial displacement of wildlife, and this of course will be followed by long-term displacement. Habitat is VERY slow to recover in these harsh, arid, cheatgrass prone environments. Increased human access will increase human disturbance, rod noise, etc. All the mining geothermal plant and other activity and its noise, visual and other disturbances – as well as outright mortality of wildlife, will have significant unassessed impacts.

While the EIS makes endless rosy claims that "long term" magically things will somehow be better if massive treatment disturbance is unleashed. [Assessment Methodology - Definitions – 4-165] It is unclear how long termed is defined. Is it the Ely BLM magical 30 years and all will be back to the way it was before? It is likely to take PJ communities hundreds of years to recover to the structural and age class complexity destroyed by BLM in afternoon of fire, chaining, chopping, etc. Plus – the full diversity may never return once the land is essentially leveled, new erosion of topsoil takes place, and

either weeds and/or harmful exotics like crested wheatgrass are seeded as livestock forage in the eroding, de-stabilized wasteland left by the treatments.

Black sage may take hundreds of years to recover wildlife values the same with Wyoming big sage. We also stress that mountain big sage is increasingly vulnerable to cheatgrass invasion in these grazing and climate-stressed arid lands, as is mountain mahogany and mixed sage-bitterbrush or other shrub communities. See Knick and connelly 2009/2011.

[Vegetation Treatments Planning and Management - Roads - 4-166] BLM fails to address the potential road upgrades and improvements that would occur as its fleet of dump trucks, crushers, choppers, pile burning scorching the soils, chainers, fire vehicles, etc. are unleashed on the landscape and sensitive watersheds. This will lead to long-term increases in disturbance and ecological stresses. Playing out across the landscape and watersheds.

Once vegetation is cleared, a path will be opened up for cross-country OHV and pick-up truck use. This will result in increased fire risk.

Once sage is crushed, new two tracks that then gradually develop into roading will spring up.

DEIS 3-63 to 3-64 refers to BMPs. [Standard Operating Procedures - 4-167] There is great uncertainty in applying BMPs. They are typically decades is not centuries behind the times in applying scientific information to minimize damage and disturbance. They greatly ignore the degree and severity of degradation that exits in the landscape, and how vulnerable it actually is to weeds, erosion, etc. They ignore drought, weather extremes, etc. The DEIS applies endless caveats in admitting that they are only "reasonably" certain. Then, in grazed landscapes where trespass and non-compliance is common and often undetected until severe damage is done, any supposed BMP becomes even more uncertain. [Standard Operating Procedures – 4-168] BMPs greatly fail to take into account cumulative impacts, including of multiple disturbances occurring in the same watershed. And BLM cannot even apply the proper BMPs, even it indeed had a list of great BMPs – as it [Assessment Methodology – Baseline Studies – 4-169] has not conducted the necessary site-specific analysis to understand sensitive species occurrence and threats across this landscape, vulnerability of lands to loss of intermittent and perennial flows from individual and combined disturbance effects, etc.

BLM (this is so typical of the Ely ENLC info) presents tables of acres of soil "limitations", based on minimal information and gross generalizations. [Soil Resources - Assessment Methodology - 4-170] It fails to explain how determinations were made that soil productivity, quality, erosion from wind, treatment suitability, etc. were actually determined, and what models they were based on. And WHAT is the current condition of the weed-preventing and watershed-stabilizing microbiotic crusts? The flawed models and assessments used in the "health" analysis downplay crusts, and current science related to their health.

[Soil Resources - Assessment Methodology - 4-171] It is impossible to understand how the various damage "susceptibilities" – fire, shredder, chaining, site degradation, etc. are determined. We are also very concerned because NRCS across the sage-grouse landscape has developed false Ecosites based on incorrect fire return and disturbance intervals, and that have minimal woody vegetation of any kind as ideal states. Thus, the Ecosites set up the landscape for massive treatment – funded by tax dollars run thorough NRCS. [Soil Resources - Assessment Methodology – 4-172] The NRCS has also then developed flawed methods to make broad brush claims about "susceptibility" - that fail to take into

account, for example, the severity of degradation of the drainage network, combined with the harshness of the treatment, and overlapping multiple treatments in the same watershed - making lands highly vulnerable to erosion, watersheds highly vulnerable to sedimentation, downcutting and permanent loss of sustainable perennial flows, etc. This is made even worse by the typical BLM rangeland health assessment avoiding any steeper slopes, seeking ideal communities on flat terrain distant from areas of more intensive livestock use, and other artifices that essentially "rig" the system to benefit the livestock industry desires for maximizing livestock forage at the expense of all other values.

Plus, the NRCS currently downplays the vital role and significance of microbiotic crusts. How much does the wind and water erosion susceptibility INCREASE in the whole series of flawed soil maps – if cattle and/or sheep grossly trample soils across the watershed? How is that figured in – either right before the treatment destruction of vegetation and soil disturbance occurs, or as long-term degradation that has dramatically reduced crusts as well as understory vegetation? In essence, what "ideal" conditions are the various models and claims about soils based upon. WHERE do these ideal conditions exist across this landscape, and where do they not?

[Soil Resources - Assessment Methodology - 4-173] This NRCS soils modeling exercise greatly ignores wind, wind direction, unpredictable drought or lack of rain effects post-treatment, and many other factors that can result in treatments being a big failure and weed invasion promoter.

It is hard to understand how the same office that developed the drought EA could develop such a shallow, programmatic, meaningless EIS analysis – and spend a million dollars on this. We stress that we have noted that all of the projects where ENLC information is used are outrageously expensive – entailing many hundreds of thousands and often millions of dollars spent in creating weedlands – based on analysis that looks just like this. We note some of the parties responsible for the Ely Veg EAs are also involved in this.

In sum, the "site degradation susceptibility" Figure 3-22, and other generic mapping exercises that assume an ideal world, are useless in the context of the degradation that exists from historic and chronic livestock grazing impacts, vagaries of weather, etc.

They also greatly fail to take into account the degree to which treatments will INCREASE erosion – by stripping vegetation, exposing soils, and increasing wind that will increase erosions, as well as make sites dry out faster – thus becoming wind-erodible faster.

BLM throughout all parts of the EIS soils, veg, wildlife, watersheds, etc. makes generic, self-serving unsubstantiated statements like this one "although treatments would have short term effects on soil condition and productivity, it is predicted that disturbance effects resulting from restoration activities would be less severe than wildfire effects and erosion that would result from lack of restoration. [Soil Resources - Assessment Methodology - 4-174] WHERE is the baseline information to support the level of erosion that is actually occurring under the grazing burden (historic and chronic/current)/load, roading load, the severity of use allowed under the grazing permits, the complete and total lack of upland trampling standards, the lack of riparian trampling standards, and the overall degree and severity of desertification?

Another unintended consequence of livestock grazing—is destruction of soil crusts leading to greater dust and thus more dust on snowfields causing snow to melt sooner.

http://www.colorado.edu/news/releases/2013/11/14/new-study-dust-warming-portend-dry-future-colorado-river

All Of these highly destructive treatments will not only make soils more vulnerable to erosion overall for a VERY long period of time, they will also destroy the protective woody vegetation cover – thus allowing livestock to trample and de-stabilize the remnant native vegetation as well as microbiotic crusts areas and herbaceous species protected under plants Plus they will also kill understory vegetation from mechanical, fire, and even wind erosion damage. And how will grazing levels impact this? [Wildlife Resources - Environmental Consequences – 4-175] If BLM applies a 40% upland utilization level on the herbaceous vegetation and Key larger sized grass species, that means that many other grass plants get grazed to much higher levels. 40% upland utilization fails to provide necessary residual nesting cover for sage-grouse, and also must be viewed in terms of how little watershed cover it provides, and how little vegetation is present to capture snow, shade the ground and slow evaporation following rainfall events, and block the wind. In essence, BLM will great vast swaths of much harsher sites much more prone to erosion in wind (and water runoff) in these chronically grazed landscapes where the native vegetation communities have vastly longer fire return and disturbance intervals, and much slower rates of recovery, than the ENLC, NRCS, UNR and other modeled Ecosites claim. The discussion of adverse and beneficial effects is just generic, programmatic nonsense.

We are concerned that BLM constantly uses fear-mongering wording like “catastrophic” wildfire. Catastrophic wildlife is how PJ and many other arid western forests naturally burn.

BLM makes endless sweeping statements maligning PJ. The PJ is present in riparian areas because of chronic livestock degradation, and because of the small narrow drainage area topography and terrain. Many trees have very significant and much larger root masses stabilizing banks than any of the few scraggly willows that have managed to survive relentless grazing abuse ever have. Instead of attacking juniper as an enemy, and killing it and de-stabilizing streams, BLM must work on naturally restoring the water table. If BLM loses the shade, soil stability, and other effects of PJ, large-scale losses of biological values will occur in many of these highly degraded drainages. And let’s take this to its logical extension, If BL does not want plants using water, then put the stream in a pipe, and have the perfectly engineered environment. The exact same reasons BLM claims it must destroy the PJ in riparian areas are the reasons used for destroying willows in Nevada private lands –up to the present.

BLM claims it will reconnect streams to their floodplain, We saw an example of this in Smith Creek – at massive public expense, a downcut stream was obliterated, and the channel filled in with rocks – thus ensuring that perennial flows will be lost forever from a significant segment of the drainage. Instead of addressing the grazing degradation, NRCS and other agencies killed the stream. We note that in Nevada, often the downcut streambanks provide habitats for small mammals, and have some roses or other vegetation that also provides habitat for migratory birds. In contrast, by bulldozing, flattening and obliterating the stream channel, BLM simplifies the structure. With streams having such low to minimal flows, this effectively shortens the length of the drainage that is able to provide sustainable perennial flows – forever. IN CONTRAST, ig [Vegetation Treatments Planning and Management - Methods - Riparian – 4-176] BLM relied on natural recovery, and beavers, the stream could over time be brought closer to being in contact with its floodplain The end result of something like the massive bioengineering of the Smith Creek project is loos of everything –floodplain and channel with water. The end result is an extraordinarily expensive permanent loss of biodiversity. These systems can only take so much abuse – and that includes “treatment: abuse –until water flows are permanently lost.

Regarding dust:

http://www.colorado.edu/news/releases/2013/11/14/new-study-dust-warming-portend-dry-future-colorado-river

Reducing the amount of desert dust swept onto snowy Rocky Mountain peaks could help Western water managers deal with the challenges of a warmer future, according to a new study led by researchers at NOAA's Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. - See more at: http://www.colorado.edu/news/releases/2013/11/14/new-study-dust-warming-portend-dry-future-colorado-river#sthash.2FeZvrWN.dpuf

Since the mid-1800s, human land use activities have disturbed Southwestern desert soils and broken up the soil crust that curbs wind erosion, leading to increased dust. In previous research, Deems and his colleagues showed that increasing dustiness leads to accelerated snowpack melt.

That earlier work was based on the moderately dusty years of 2005-–2008, with about five times as much dust than in the 1800s. But during 2009, 2010 and 2013, unprecedented amounts of desert dust fell on Colorado snowpacks, about five times more than observed from 2005–2008. Moreover, other researchers have reported that climate change is likely to increase the frequency and intensity of drought in the Southwest, which could increase dust problems further by harming the grasses and shrubs that reduce surface wind speeds.

For the new work, the researchers used climate and hydrology models to investigate the effect of that "extreme dust" on the Colorado River's flow now and in the future, as the Southwest continues to warm. Snowmelt in the extreme dust scenario shifted even earlier in the season, by another three weeks, pulling peak water levels in the Colorado River to earlier in the spring and leaving less water for later in the year.

http://www.hydrol-earth-syst-sci.net/17/4401/2013/hess-17-4401-2013.html

Dust abatement minimizes soil disturbing activities such as large-scale livestock destruction of microbiotic crusts.

[Air Quality – Environmental Consequences - 4-177] BLM must assess the amount of dust that is attributable to livestock disturbance, loss and degradation of microbiotic crusts, etc.

We note we have also seen large plumes of dust blowing off of mines – such as the ely Robinson mine which generates dust clouds visible from dozes of miles away.

What wind speeds were the soil erosion models BLM uses based on? What combination of wind speed and slope and livestock trampling disturbance.

[Native and Non-invasive Vegetation Resources - Environmental Consequences – 4-178] BLM ignores literature that shows PRESCRIBED fire kills native grasses. See Bunting paper on Idaho fescue, USFS Fire Effects database describing fire impacts on native grasses.

The hubris of the EIS modelers is so great that [Soil Resources - Mitigation – 4-179] DEIS at 3-93 states " Soil resources would benefit from mitigation and monitoring in Section 3.17.4 I livestock.

Then it states: **No mitigation or monitoring measures are recommended specifically for soil resources.** Don't look - so you don't find out you were wrong - is the mantra of this EIS.

[Water Resources - Environmental Consequences – 4-180] How many of the 334 springs have been dug into, piped, or otherwise altered for livestock? What were the impacts? What is the aquatic habitat condition at these? How dependent are they on snow accumulation? How will deforestation and denuding of the landscape reduce snow accumulation and speed

[Water Resources - Cumulative Effects– 4-181] 3-107 admits the Kobeh Valley is losing water due to pumpage from groundwater storage. It is clear that the Diamond Valley is turning into a dustbowl DEIA at 3-108 state that irrigation pumping has created a groundwater depression, and the southern part of the valley is subsiding. What effect is overall mine depletion of ground water – Cortez to Robinson and all points in between – having on this, as well?

BLM describes Pine Valley as having shallow groundwater levels. This is an extraordinarily degraded valley where most of the sage and PJ has burned off, and vast areas have been converted to cwg, cheatgrass and a blend of weeds and mottled communities. BLM completely ducks any full and fair analysis of what is occurring her – by trying to focus on only 2/3 of the basin (and not the drier northern part), as well as providing no information on volume and rates of decline of this or any other aquifer.

[Water Resources - Cumulative Effects – 4-182] Grass Valley is also in serious trouble, and now the Ormat geothermal developers are punching holes in the aquifer all over the place. Are they using processes akin to fracking? Instead, though, of looking at any current information – BLM uses figures from 1966 in its so-called "analysis". We are greatly concerned that no information on mining impacts to aquifers (current or projected) is in here at all.

In order to understand the effects of the massive deforestation, vegetation destruction and bioengineering project, BLM must explain how surface expression of water in the springs and streams are linked to shallow and deep aquifers, and the combined effects of the projected battery of disturbance actions on this.

[Water Resources - Affected Environment – 4-183] Table 3-15 shows how very little perennial stream flow exists. When and how was the info collected that this is based on?

[Water Resources - Environmental Consequences – 4-184] There is no clear evidence that killing trees will increase water to any significant extent, especially after the full extent of erosion and grazing plays out. Will treatments remove stockponds? And what kind of water developments are being considered? [Water Resources – Assessment Methodology – 4-185] How has BLM determined the effects of deforestation on rapid water loss and site drying, including in hotter, harsher, windier drier sites where water will simply be lost to the wind?

[Assessment Methodology - Significance Criteria – 4-186] BLM's significance criteria are inadequate, and it is unclear how they were derived. BLM does not conduct adequate analysis to address them.

[Vegetation Treatments Planning and Management -Methods - Fencing - 4-187] BLM has not explained what is meant by claims "BLM will not completely block access to water sources" by

livestock, horses, wildlife ,etc. WHAT does this mean? Will entire allotments or pastures be closed? Or is BLM just planning to shift, and intensify sever impacts into other sensitive erodible, weed-prone sites? Or will it have dustbowl water haul or water gap feedlot-like sites?

While BLM passingly mentions hillslope runoff and bank stability, it fails to take a hard look at these effects. [Water Resources - Environmental Consequences – 4-188] BLM admits that "restoration"/destruction of native vegetation and disturbance of soils making them susceptible ot erosion would affect surface water quality. The studies BLM cites do not account for livestock grazing effects. See Belsky 1996, for example. Note the Pierson study showing that erosion was 20-fold greater on burned sites.

BLM admits that removal of vegetation could increase surface water runoff and **reduce infiltration**.

BLM then claims "improvement" over the long term as native vegetation replaces itself. Then why do this massive destruction in the first place – if only after the naive vegetation such as PJ and sage returns following the disturbance in the long-term, will conditions actually be improved? The EIS states that no mitigation or monitoring measures are recommended specifically for water resources.

Since *no formal delineation of wetlands* has been done for the project area, this places a much higher burden on the EIS to collect critical baseline info. [Wetlands, Floodplains, and Riparian Areas - Affected Environment – 4-189] Who conducted the PFC inventories and when? How was trend determined? How might these treatments degrade conditions? How can highly degraded watersheds withstand treatments? How and when does grazing occur? What is actual use any pasture? What riparian standards are in place, and where and when are they measured? What does monitoring show, and please provide this.

The BLM would reseed or replant wetland and riparian zones where the native plant community is unlikely to recover and occupy the site, and restrict livestock, wild horse, and wild ungulate access to treatment areas until establishment goals have been reached.

It is highly uncertain and unresolved how this will occur, the effects, including cumulative adverse effects it will have, and how successful any of this would be.

If BLM would not seek to tear apart the riparian areas with massive bioengineering, they should be able to revegetate naturally, especially with introduction of beavers and removal of livestock from the watershed and pastures affecting the riparian system.

[Vegetation Treatments Planning and Management - Methods - Riparian – 4-190] Removal of PJ may reduce, degrade, stream systems and hydrology, and result in lethal temperatures for aquatic species, algae blooms, etc. it may cause large-scale new headcutting and erosional events.

Many of the mechanical treatments would occur within stream channels, where heavy equipment would be used to improve the structural integrity of the stream channel. The potential impacts of mechanical treatments on wetlands and riparian zones are discussed in the 17-States PER (USDOI BLM 2007c:4-29 to 4-30). This is insane – especially for these tiny little streams. Reading these grandiose bulldozing schemes, it appears to us that BLM believes it is the Army Corps of Engineers stabilizing the Mississippi, or something. [Vegetation Treatments Planning and Management - Methods - Riparian - 4-191] None of the stream channels is actually big enough for a bulldozer to fit

into, is it? [Assessment Methodology - Baseline Studies - 4-192] BLM simply cannot rely on the PER report – as no NEPA at all was ever conducted on the PER. If these activities are to be permitted by the Army Corps, we will urge the Corps to deny all permits for this nonsense.

BLM again relies on highly uncertain fencing and other schemes:

use of temporary and permanent fencing to restrict livestock, wild horse, and wild ungulate access to treatment areas.

BLM claims: *Pinyon and juniper are not riparian species, and are not as effective as native vegetation in stabilizing soil.*

[Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences - 4-193] DEIS 3-140 purposefully ignores the role of livestock grazing in promoting cheatgrass and cheatgrass invasion.

Non-native vegetation on the 3 Bars Project area is associated with historic wildfires and with rehabilitation of burned areas following wildfires. Treatments can benefit wetland, floodplain, and riparian habitats if vegetation removal reduces …

This section also discusses permanent fencing in several places, and water gaps (feedlot-like) as in The BLM also proposes to install fencing to limit livestock, wild horse, and wild ungulate access to treatment areas, although water gaps would be incorporated into fencing along streams to allow these animals to access water.

BLM refers to Livestock Mitigation in Appendix C.

As discussed in the Mount Hope Project EIS under Wetland and Riparian Zones (USDOI BLM 2012c:Section 3-11), and in this EIS under Water Resources (Section 3.9), there is concern that pumping of water for future livestock and domestic uses, mining, and agricultural could reduce surface water flows in streams and wetlands associated with the Diamond Mountains, Diamond Valley, Roberts Mountain, Kobeh Valley, and Pine Valley. Although the Mount Hope Project EIS determined that effects on streams and wetlands would not be significant, it did find that effects to groundwater resources from the mine project and other water users could be significant within the CESA.

THIS makes no sense, and is purposefully constructed to avoid a full and fair consideration of Alternative C. BLM claims that: *Under Alternative C, effects from non-3 Bars Project reasonably foreseeable future actions on wetlands, floodplains, or riparian zones would be similar to those described under Alternative A. Adverse, short-term effects to wetlands, riparian zones, and floodplains associated with the use of fire and mechanized equipment would not occur under Alternative C. By not being able to use mechanical methods and fire to reduce hazardous fuels and create fire and fuel breaks, the risk of wildfire and its effects on wetlands, floodplains, and riparian zones would likely increase on the 3 Bars Project area.*
The BLM would conduct hazardous fuels reduction and habitat improvement projects using manual methods on about 32,000 acres within the 3 Bars Project area, and on about 15,000 acres in other portions of the CESA, or about 3 percent of acreage within the CESA. ***Only about 100 acres of wetland and riparian habitat, and 1 mile of stream habitat, would be restored annually on the 3 Bars Project area.*** *Wetland, riparian, and floodplain habitat should improve within the 3 Bars Project area*

and within the CESA, but not to the extent as would occur under Alternatives A and B.

By removal of livestock from existing pastures, and herding requirements and/or requiring mandatory measurable standards of use as triggers for livestock removal coupled with cutting livestock to numbers that the ranchers can actually control so there can be no excuses about not knowing where al the cows are – could passively restore vast areas – far more than BLM's pretending it is re-sculpting the Mississippi River floodplain – albeit in Eureka County. Plus, to do that, first one would have to find a stream big enough to fit a bulldozer in.

It appears as if some of the Bioengineering DEIS preparers have never set foot in this rugged arid landscape. For example,

None of the reasonably foreseeable future actions should result in the significant destruction or loss of wetlands. For upland treatments with the potential to remove large areas of vegetation (fire and mechanical), [Vegetation Treatments Planning and Management - Methods - Riparian - 4-194] *the* ***BLM would maintain vegetated buffers between the treatment area and wetlands …*** HOW would you propose doing that when you are planning to destroy the only vegetation that has been able to survive the scorched earth grazing BLM has been imposing on these lands all of these years – i.e. the PJ in steep, rugged terrain?

BLM then states:

The majority of stream restoration treatments would be done in streams with little to no stream-floodplain connections. Thus, historical floodplains would only experience flows during very rare high magnitude discharge events. Treatments to improve the structural integrity of stream channels would likely improve the flood attenuation functions of those areas over the long term.

So what is the purpose of all this –except to waste a million dollars on an EIS and many millions or more? Where there are downcut gullies at lower elevations, they are actually providing a diversity of wildlife habitats – from pygmy rabbits to migratory songbirds inhabiting bankside areas not subject to intensive trampling. By flattening them out, dumping rocks in, all you will do is dry out the flows sooner and destroy any hope of eventual recovery of the system once headwater areas are recovered by beavers and removing cows.

Regarding Ecosites, BLM states:

The USDA Natural Resources Conservation Service (2012) soil survey was used to determine the ecological site descriptions for the project area. Rangeland landscapes are divided into ecological sites for the purposes of inventory, evaluation, and management. An ecological site, as defined for rangeland, is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. A description of the ecological site descriptions can be found in Appendix B of the Landscape Restoration Project Rangeland Health Report (Eastern Nevada Landscape Coalition and AECOM 2012). The ecological site descriptions are based on physiographic, climatic, vegetative, and soil factors for each soil association.
The ecological site descriptions were then grouped by associated dominant vegetation type (overstory and understory species) into broader vegetation cover types to characterize the Potential Natural Community for each plant association. The Potential Natural Community is defined as the biotic community that would become established on an ecological site if all successional sequences were

completed without interference by people under the present environmental conditions (Habich 2001).

The problem is – this is just like Cave-Lake and all the other Ely BLM schemes, and they rely on drastically inaccurate and incorrect disturbance and fire return intervals and blind focus on grass components at the expense of shrubs and trees and crusts. They are based on inaccurate assumptions of the NV soil surveys that become further warped in the modeled Ecosite descriptions, use of FRCC, etc.

We are appalled at the lack of concern for sensitive species. BLM states:

The BLM Special Status Species list was reviewed to determine which special status plant species could occur in the project area. These were supplemented with notes taken during the project site visit and kick-off meeting.

[Wildlife Resources - Assessment Methodology - Baseline Studies - 4-195]THIS is the severely flawed baseline for sensitive species – not where the species live on the land, or determining where they can no longer lives due to degradation, or how important the lands AECOM/ENLC range studies claim need to be unhealthy may actually be for these species.

[Native and Non-invasive Vegetation Resources - Analysis Methodology - Baseline Studies - 4-196]It is entirely inadequate to merely rely on Mount Hope rare plant studies –as they were conducted over only one small part of this very large and significant land area.

*Major vegetation community types in the 3 Bars Project area include pinyon-juniper woodland, mountain mahogany woodland, aspen, big sagebrush, low sagebrush, black sagebrush, greasewood, salt desert scrub, grasslands, and cheatgrass (a non-native plant; **Figure 3-26**, **Table 3-22**). Information on noxious weeds and other invasive and non-native vegetation, including cheatgrass, is provided in Section 3.12.*
*One of the objectives of the 3 Bars Project is to restore lands to achieve 75 percent of their Potential Natural Community based on the status of key plant species. A Potential Natural Community is defined as the biotic community that would become established on an ecological site if all successional sequences were completed without interference by people under the present environmental conditions (Habich 2001). Seral status is an expression of the condition of the vegetation community and is useful in determining whether an area is progressing toward its Potential Natural Community. The Potential Natural Community is considered achieved with the presence of 77 to 100 percent of the desired key species in a plant community. **Figure 3-27** and **Table 3-22** show the location and extent of major expected vegetation communities, based on ecological site description, in the project area …*

What does this seral status mumbojumbo really mean? Comparing Map 3-26, current vegetation communities, with the map of proposed treatments, it is clear BLM seeks to destroy nearly all the PJ in the project area.

[Native and Non-invasive Vegetation Resources - Affected Environment - 4-197]Table 3-22 shows that there is actually LESS sage and LESS PJ than is expected based on the soil surveys.3-152 shows how out of whack the excess “grasslands” are –

About 4,433 acres of the project area should consist of native grassland. Over 52,000 acres are currently categorized as grassland, however, most (over 47,000 acres) of these acres consist of areas burned by wildfire, or occupied by non-native grasses (primarily crested wheatgrass) planted by man.

Management actions proposed for sagebrush communities are also expected to indirectly enhance native grasslands, as they would increase the abundance of native bunchgrasses throughout the project area, providing additional forage and seed sources, while removing non-native grasses.

[Native and Non-invasive Vegetation Resources - Affected Environment - 4-198] **This shows there are too many grasslands already – yet the projects will make more grasslands**! So why in the world, once it realized this – why didn't BLM stop right there and focus on restoring 47,000 acres of grassland to native shrubs and trees???

Generally, the big sagebrush community in the 3 Bars Project area suffers from the following concerns (USDOI BLM 2009a, Eastern Nevada Landscape Coalition and AECOM 2012):

• *Most (if not all) sampled sites examined in the rangeland health assessments lacked an understory of native bunchgrasses, and those that support bunchgrasses typically only support one species.*

• *Many sites lack an understory of native perennial forbs.* WHAT role does livestock grazing have in this?

• *Shrub diversity on most sites is less than desirable and below what the ecological site would allow.*

• *Some areas are characterized by monocultures of sagebrush or bitterbrush.* These are monocultures, but contain diverse microbiotic crusts and structurally complex and varied age shrubs. We request a site visit to these ENLC/AECOM "monocultures" with BLM.

• *Some areas have been overtaken by cheatgrass as a result of wildfire.*

• *Some areas suffer from invasions of noxious weeds and other invasive non-native vegetation.*

In addition, large areas that are dominated by big sagebrush have experienced extensive encroachment from pinyon- areas that are dominated by big sagebrush have experienced extensive encroachment from pinyon-juniper …

In other words – this is the standard ENLC Veg assessment finding that everything everywhere is messed up – so the only thing that can be done is to destroy it.

This is cheatgrass-susceptible grazed to death landscape must have management minimizing disturbance – by livestock grazing and treatment to native vegetation, microbiotic crusts, and understories.

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Rangeland Health - 4-199] Yet BLM's AECOM/ENLC reporting is developed to maximize disturbance, and this greatly biases the EIS alternatives against passive restoration.

BLM abjectly ignores a fundamental frontline defense against weeds and a crucial component of native plat communities in the arid interior west sagebrush, salt desert shrub, and pinyon-juniper landscapes. [Soil Resources - Affected Environment - 4-200] There is not a word, not a mention at all - of microbiotic crusts in the "plant community dynamics" section of the long series of Tables that BLM uses to set up the landscape for massive destruction and conversion to cheatgrass. It is clear that BLM

is not interested in the health of native communities, restoration of ecological processes, biodiversity, and preventing weeds – as it blows off an consideration of microbiotic crusts in what it considers important related to "rangeland health".

While BLM claims it will not specifically target mountain mahogany, any use of fire would likely result in destruction of mountain mahogany as collateral damage.

[Soil Resources - Affected Environment - 4-201] BLM's description of pinyon-juniper communities shows its (and AECOM/ENLC's) blatant disregard for microbiotic crusts:

Pinyon-juniper woodlands generally occur on steep south-trending hillsides and mountains at all aspects, between 5,500 and 8,600 feet amsl. This vegetation type generally occurs on shallow, loamy soils with high percentages of coarse fragments. Singleleaf pinyon pine and Utah juniper dominate the overstory. The understory is often nothing more than barren soil in dense stands of pinyon-juniper …

The sites that BLM describes as having "barren soils" typically (when not trampled by livestock) are protected by a diversity of microbiotic crusts that provide a wealth of essential ecological services – from fixing nitrogen, to preventing soil erosion in wind and water and thus having a very vital protective effects in preventing dust pollution including on snow, to storing CO2 (see Wolfahrt), and slowing water runoff from sites. See BLM Technical Bulletin Belnpa et al. 2001, Deines et al, Ponzetti et al. on microbiotic crusts. And most crucially, crusts are a frontline defense against cheatgrass and other highly flammable invasive weeds that drastically alter ecosystem processes, fire return intervals, and the health of native ecosystems and rare and sensitive species habitats.

Prevey et al. shows that the sage BLM plans to destroy is a frontline defense against cheatgrass, as well.

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper – 1 - 202]The DEIS states that PJ now covers (only) approx. 25% of the project area. (Phase II and III). The Ecological description finds trees should be present on 27% of the area. So WHY the need for massive expensive treatments?

This EIS is pervaded by the range mindset that anything a cow can't eat is worthless.

BLM then states:

The difference (approximately 18,819 acres) shows that pinyon-juniper is less common that it was historically. This may reflect, in part, the extensive use of pinyon-juniper in the making of charcoal in the late 1800s (see Section 3.11.2.6), and recent fires (1999 to present), that removed a substantial acreage of pinyon-juniper on the Simpson Park Mountains and Sulphur Spring Range and on Roberts Mountains.

BLM then goes on to say:

However, if Phase I stands are also considered, there are about 118,000 more acres with pinyon-juniper than would be expected under normal conditions. The Phase I acreage demonstrates the rapid expansion of pinyon-juniper woodland in the project area at the expense of other potential natural vegetation … BLM has no evidence that these trees are expanding at the expense of PNV, and are not

in fact the actual and true PNV over much of that acreage.

[Native and Non-invasive Vegetation Resources - Affected Environment - Sagebrush - 4-203] What is the basis for the 20 to 35 percent canopy cover claims for mixed Wyoming big sage, juniper sites "assumed to be representative"? What specific reference sites and other information are all these percentages based on?

This whole section is confusing, lacking in clarity, and lacking in careful and thorough review of historical records and on-the-ground evidence of past treatments, charcoal, etc. on these sites. WHERE in Phase I areas has BLM removed trees in the past – for all periods during which records have been kept? WHERE in Phase II and III? How many communities don't fit these arbitrary Phase models, and instead vary complexly over time and space?

Sagebrush and forested vegetation communities are naturally dense and varied. BLM tries to impose one-size-fits-all veg destruction on complex native vegetation communities that vary depending on slope, aspect, elevation, past human disturbance, chronic grazing disturbance, and stochastic events.

[Native and Non-invasive Vegetation Resources - Affected Environment - 4-204] WHAT is included in the understory production figures – wood? What is the "understory production" of crusts supposed to be? It is clear this 20 to 35 percent figure for juniper is drawn out of thin air.

Just by all the natural variation alone, we bet one would rarely find a veg community anywhere that fit in all these tiny little ideal community boxes NRCS has concocted and BLM has so embraced as they always over-estimate "forage".

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-205] BLM repeatedly cites Romme 2007, ignoring the series of Romme et al. 2009 papers that undermine the long-held myths perpetuated by Miller (who has always been dramatically wrong about sage-brush) and Tausch who does not concern himself with understanding the impacts of historical mining deforestation in the Great Basin but yet has always drawn sweeping conclusions about PJ communities.

Sagebrush on much of the 3 Bars Project area has also been replaced with pinyon-juniper woodlands (USDOI BLM 2009a, 2012c, AECOM 2011a, Eastern Nevada Landscape Coalition and AECOM 2012). Many of these indicators have been observed in Phase III (or late successional) pinyon-juniper woodlands, which generally have a high density of trees and buildup of fuels.

The BLM considers two classification schemes when assessing the condition of pinyon-juniper woodlands. One scheme is based on historical types of pinyon-juniper vegetation (Romme et al. 2007), and one is based on transitional phases of woodland succession for mountain big sagebrush associations (Miller et al. 2008). These classification systems are summarized in **Table 3-31**.

Has the sage "been replaced" as part of a natural plant successional process?

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-206]Generally, areas of potential expansion are areas in which pinyon-juniper woodlands have not historically been …WHAT does this mean? Is BLM treating areas where the trees are not yet present?

Figure 3-28 *differentiates expansion areas from areas of historic occurrence. Based on this mapping,*

approximately 46 percent of areas with trees are in Phase I, 35 percent are in Phase II, and 19 percent are in Phase III (AECOM 2011a). However, pinyon-juniper trees occupy only a portion of the area delineated into phases, especially for areas dominated by Phase I and II pinyon- juniper. In Phase I areas, grasses, forbs, and shrubs comprise much, if not most of the area.

[Native and Non-invasive Vegetation Resources - Affected Environment - Pinyon-juniper - 4-207] How do you end up delineating the area into Juniper Phases if there are not trees? Is this done to justify spending more money on million dollar EISs?

This is a huge bias, and something that NV range researchers like Tausch and others have frequently done –they don't age the junipers –which are often much older on sites than pinyon (takes them longer to attain size) AND the whole reason they are harder to age is they are much slower growing, wood is denser, and growth rings much closer together. Pinyon in the past was often selectively removed, as well for firewood, mining wood, etc.:

Old growth pinyon-juniper stands are 140 years old or greater. Because age is difficult to estimate from tree core samples from Utah juniper trees, cores from singleleaf pinyon pines are typically used to determine the age of a particular stand of trees. Old-growth pinyon-juniper stands tend to occur on slopes, ridges, and inaccessible areas (i.e., areas not easily logged …

Old-growth pinyon-juniper stands tend to occur on slopes, ridges, and inaccessible areas (i.e., areas not easily logged; AECOM 2011a). Areas having old growth pinyon-juniper woodlands are Indian Springs, Pete Hanson Creek, higher elevations on steep slopes, and the northern portion of the Sulphur Spring Range. Based on sample tree cores from the 3 Bars Project area, the majority of old-growth trees are between 160 and 200 years old, and as old as 290 years (AECOM 2011a). ***As discussed in Section 3.11.2.6, much of the older pinyon-juniper was harvested to make charcoal for the mining industry in the mid-1800s****.*

Then there is no need for treatments, since they are re-occupying sites where the naturally occur.

BLM does not explain how it defined a stand, how many trees had to be older for the stand to be considered old growth, etc.

□□*Lack of understory species diversity, and absence or decline in associated woodland species (e.g., aspen, bitterbrush, and curl-leaf mountain mahogany). WHAT role does chronic livestock grazing play in this? How much of this is the result if natural plant successional processes?*

• *Widespread occurrence of Fire Regime Condition Class II and III (fire regimes that have been moderately or significantly altered from their historical range) due to excessive fuel loadings.*

[Wildland Fire and Fire Management - Affected Environment - 4-208]WHAT is the fire return interval and historical range of variability time intervals that are being used to determine this? You cannot rely on Rick Miller, who has been dead wrong about fire intervals.

[Native and Non-invasive Vegetation Resources - Environmental Consequences – Pinyon-juniper – 4-209] *Decreased tree vigor and pine nut production*. How much impact is drought having on this? Or livestock soil compaction?

[Wildland Fire and Fire Management - Environmental Consequences - Pinon-juniper – 4-210] *Increased pathogen infestations resulting in greater than 20 percent ongoing mortality within a given stand.* THEN why not just let the stand alone to self-thin through natural mortality agents? Why is this a problem? These are natural ways that the forests world-wide self-thin. This also reduces "flammable fuels". The forest is acting just like forests are supposed to, and human intervention is unnecssary.

[Wildland Fire and Fire Management - Environmental Consequences - Pinon-juniper – 4-211] *Stand conditions in excess of 1,200 trees per acre in several watersheds.* Is the forest undergoing self-thinning there, too? What are the age classes of the trees? If there is limited understory, even the miller models show you should not burn.

BLM mapping such as 3-28 shows that BLM is conflicted. BLM, having at least recognized the concept of plant succession – shows here that this fails to fit into the "idealized" model community boxes that NRCS, Miller, Tausch et al have constructed.

But this is how old growth forests often tend to be – especially when severely impacted by livestock grazing:

[Wildland Fire and Fire Management - Environmental Consequences - Pinon-juniper - 4-212] *Many of these indicators have been observed in Phase III (or late successional) pinyon-juniper woodlands, which generally have a high density of trees and buildup of fuels.*

How was high density determined, an dhow does this vary by slope, terrain, past mining era or treatment history, etc.?

WHAT does this mean:

*Overall, **the area is experiencing issues with invasive annual grass species (mainly cheatgrass) that are altering the fire regime**, as discussed in Section 3.12 (Noxious Weeds and other Invasive Non-native Vegetation). Large wildfires, caused by a buildup of cheatgrass and shrubs, are compromising the health of the sagebrush-steppe habitat. The encroachment of pinyon-juniper woodlands is also compromising the health of the sagebrush-steppe habitat.*

[Wildland Fire and Fire Management - Environmental Consequences - Pinon-juniper - 4-213] What is the basis for the claim that large fires are caused by a "build up" of shrubs? And again, where are trees re-occupying, undergoing natural successional processes? How many of the various Phase areas are persistent woodlands, and where are they located? How did BLM determine this?

Persistent Woodlands

Table 3-31 defines persistent Woodlands.

BLM tries to omit the areas that might prove more productive for grass if it kills the trees. Relatively flatter deeper soils at the elevations of much of the project areas also naturally support pinyon-jniper, and in fact trees (where they have not been destroyed in Nevada) may often attain larger stature in such sites and be good pine nut producing stands.

[Native and Non-invasive Vegetation Resources - Assessment Methodology – Pinyon-juniper - 4-214] How has BLM determined areas of potential expansion?

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Rangeland Health - 4-215] How were the KMAs in the so-called range health assessment that ENLC was involved in, selected? Are these the BLM "trend" sites – if so, those are specifically selected for measuring cow utilization, are often not representative at all of rugged or rough areas, or areas that actually receive a significant amount of livestock use. They provide no valid basis for conducting a systematic rangeland health assessment.

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Rangeland Health - 4-216] Why did did ENLC conduct rangeland health studies in December? Forbs would be all dried up and scarcely noticeable. This, of course, would bias the outcome of the "health" assessment to come out more unhealthy, and thus in need of treatment. How severe were the sites grazed? Was there snow?

It is clear these also sought out "pure" representative communities and not the often mottled and more disturbed sites.

[Native and Non-invasive Vegetation Resources - Affected Environment -4-217] WHAT was the climax vegetation community that the early middle and late successional status (used by ENLC and shown in Map Figure 3-290.

We strongly object to the use of the term 'desired dominance" nonsense – that is overwhelmingly biased towards livestock forage species. BLM cannot predict WHAT will be dominant when it rips up and tears apart native vegetation communities with its battery of aggressive treatments, highly invasive seeding techniques, etc. For example, look at the failed fuelbreaks in the Diamond Valley, Austin fuelbreaks that immediately produced cheatgrass in mowed sage and similar cheatgrass-infested fuelbreaks across the West. Look at the Ely Tebuthiruon and mowing, beating/roller chopping cheatgrass profusion. When you remove protective shading and moisture-retaining woody vegetation, sites become hotter, drier, and there is no competition for cheatgrass so it thrives.

WHAT does this nonsense mean?

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Rangeland Health - 4-218]*Production is a measurement of the above-ground weight of the sampled vegetation.* ***Desired dominance*** *??? refers to* ***the species types that should be present on an ecological site given its stage of succession ???[Succession to WHAT climax community?]****. The Potential Natural Community is a measurement of composition, not to be confused with production. A site could be experiencing high production, but have low Potential Natural Community, if it is only producing a single grass, forb, or shrub … species.* WHERE do diverse and intact microbiotic crusts fit into this??? BLM has developed false models that allow it find nearly al lands in the Great Basin unhealthy - due to the vegetation and not current chronic livestock grazing disturbance - and thus in need of very expensive treatment.

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-219]What are the intervals and assumptions (based on what scientific information?) that Table 3-45 Fire regime condition Class relies? Is it the ever-changing, always out of date on-line blackbox of the agency Landfire site? How does this all take into account the typical dense rabbitbrush, cheatgrass, rabbitbrush and cheatgrass, and other conditions that result from many BLM fires/treatments – such as mowing,

crushing, chopping, shredding? How does it take into account the fact that removal of protective shade, snowmelt retaining and moisture retaining vegetation that ends up making the fire season several weeks longer? Once woody vegetation is removed, the hotter, drier uniform windier site just bakes in the sun.

How does this deal with the fact that mining era deforestation plus BLM treatments have actually made fires/disturbance be **much too frequent and much too extensive**. The BLM/AECOM/ENLC models do not include the actual mining era disturbance in estimating disturbance intervals. Thus, there is a significant need to minimize loss of recovering and successional PJ and some sage communities, since the are aberrant compared to the abstruse artificial modeling assumptions that these NV deforestation and sage destruction schemes are based on?

This is just a series of range myths heaped one on top of the other – and used to justify manipulating and destroying plant native communities by Ely BLM using this ENLC scheme that finds everything everywhere to be unhealthy and mixes opposing ecological concepts to impose artificial modeled states on highly complex wild land systems.

What is the scientific and historical basis for determining the "functionality"

The similarity index is used to compare the present state of vegetation on an ecological site in relation to the kinds, proportions, and amounts of vegetation expected for the site. Is this "expected" or what is wanted to maximize livestock forage grass and expensive treatments?

*For many areas within the project area, the goal is to restore the state of the plant community to a condition that is considered to be in a mid- to late-successional status. However**, desired plant communities may be developed on a treatment-by-treatment basis** depending on site-specific conditions and needs (e.g., use of non-native desired species to combat cheatgrass*). THIS means there are no rules and anything goes and any community can be converted to a crested wheatgrass and cheatgrass wasteland at will. This is a bioengineering hubris taken to a new level of absurdity.

After management objectives have been developed, one specific plant community may be identified as the desired plant community.

BLM Is in essence trying to inflict an artificial, farm-like scheme on grazing-stressed wild lands that are highly vulnerable to weed invasion when disturbed, and where BLM has not ever successfully been able to extinguish cheatgrass once BLM's disturbances of grazing and treatment produce a significant density of this flammable weed.

*Once the desired plant community has been identified, it is appropriate to determine the similarity index of the existing community to the desired plant community. Successional status is determined by the similarity index, which is expressed as the percentage of a plant community that is on the site compared to the Potential Natural Community for that site. Early successional status indicates that 0 to 25 percent, mid-successional status indicates that 26 to 50 percent, and late successional status indicates that 51 to 76 percent of the plant community is presently on the site compared to the Potential Natural Community. The Potential Natural Community occurs when 77 to 100 percent of the Potential Natural Community is on the site. **Figure 3-30** shows successional status on the 3 Bars Project area. **Tables 3-32** to **3-37** discuss some of the vegetation concerns and plant community status at each…*

BLM then provides a series of tables with meaningless percentages.

Under the EIS fire and other discussions of goals and objectives, BLM has a long list of nice sounding concepts. But it never balances these often very competing uses and conflicts, as is required under FLPMA. [Wild Horses - Environmental Consequences - 4-220] How is BLM protecting wild horse foaling areas from grazing, for instance? [Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-221] What fire return intervals is BLM relying upon in making the claim that it is going to:

Restore pinyon pine and juniper woodland density and coverage to the approximate values found under natural fire return intervals
Etc. on 3-249 to 3-250.

In the EIS's limited, self-serving analysis of adverse effects of fire, crushing, chopping, mowing, hacking and other treatment risks, BLM makes the sweeping conclusion that:

[Wildland Fire and Fire Management - Environmental Consequences - 4-222] *In general, proposed treatments would have few adverse impacts on wildfire risk*. This seems to be BLM claiming it won't cause hot, dry, cheatgrass-choked sites.

This ignores the vast body of science on cheatgrass adaptations to grow on hot, dry sites, flammability, and drastically altered fire cycles that doom native ecosystems. BLM only considers risks of treatment vehicles in transporting weeds – and not the fact that destruction of the woody vegetation opens up country to all manner of motorized travel. Plus, removes denser woody vegetation that, in combination with slope, topography, water limitations, may have previously acted to reduce livestock impacts in less accessible areas. It ignores the full battery of adverse impacts of grazing imposition on treatments. For example, even Robin Tausch found that grazing use 5 or 6 years after a treatment caused cheatgrass – in the Shoshone Underdown site. It ignores that the treatment results in a hotter, drier, windier, more uniform site. AND that cheatgrass, heat, dryness, weather extremes, etc. are ALL expected to favor the ever-adapting exotics like cheatgrass and other bromes.

Plus on top of all this is the significant risk that BLM will seed exotic species, or coarse cow forage pseudo-native cultivars post-fire, introducing a new and cascading series of ecological stresses on the land.

Special Status Plants Surveys and Baseline Ignored

[Native and Non-invasive Vegetation Resources - Assessment Methodology - Baseline Studies - 4-223] BLM states that: *No focused special status plant surveys have been conducted in support of this project.* Well, if BLM truly was interested in native vegetation, protection of biodiversity, etc. it would have systematically conducted special status plant surveys across the project area. The battery of treatments will disturb and destroy soils where native plant pollinators may live, radically crush, chop, smother and otherwise destroy plants and pollinators, and promote weed infestations. It will also make sites more accessible to livestock disturbance due to removing woody vegetation impediments.

Of the six species listed in the table, the Nevada Natural Heritage Program has records of three occurring within the 3 Bars Project area—Beatley buckwheat, least phacelia, and one-leaflet Torrey

milkvetch. Beatley buckwheat, a BLM Sensitive Species, is known from Roberts Mountains, with an additional mapped occurrence immediately northwest of the project area. Least phacelia, a BLM Sensitive Species, is also known from Roberts Mountains. One-leaflet Torrey milk vetch is known from the southern end of the Kobeh Valley, near U.S. Highway 50. Lahontan beardtongue, a BLM Sensitive Species, has been documented from the area near the intersection of U.S. Highway 50 and Nevada State Route 278 near the southeastern corner of (but outside of) the project area.
According to BLM resource specialists, the Monte Neva paintbrush (state listed as critically endangered) is only found in riparian areas associated with hot springs at low elevations within the greasewood-rabbitbrush-sand dropseed
BLM imposes massive treatment polygons without ever looking for species both in the polygons and on the ground across the project landscape. All it does is consult old databases where only small areas of the sprawling project have had any surveys.

The potential adverse impacts on sustainable pine nut production – for pinyon jay and other species as well as humans is huge. *All pine nuts intended for resale require a permit/contract. The three designated areas in the 3 Bars Project area for commercial pine nut harvest (North Simpson Park, Roberts Mountains, and Whistler/Sulphur Spring) total approximately* ***303,300 acres.***

DEIS 3-209 makes self-serving unsubstantiated assumptions. Removal of fuel does not directly translate into reduced fire danger. With weed invasion, and hotter, drier windier sites – and if cheatgrass invades – and catalytic converter fires and other increased human incursions with motorized vehicles occur, these projects are likely to greatly increase fire frequency, and with more areas burned even more areas will be at risk of rapid, frequent fires. By trying to prevent so-called ”catastrophic” PJ fires BLM is disrupting the natural fire characteristics of this arid land forested ecosystem, and actually making it much more likely to burn - and much more out of balance with the natural disturbance and fire interval.

All treatments that reduce the buildup of hazardous fuels would help reduce the risk of wildfire in the 3 Bars Project area. Therefore, these treatments would be expected to have a long-term benefit by reducing the likelihood that a catastrophic wildfire could burn sensitive plant species and high quality native plant communities, such as sagebrush, desert salt scrub, native grasslands, and native woodlands.
Fuels reduction treatments and creation of fuel and fire breaks would all reduce the risk of catastrophic wildfire in pinyon-juniper and sagebrush habitat. The reduced risk of wildfire would be expected to benefit sagebrush and pinyon-juniper communities, which are generally adversely affected by large wildfires. Again, this is based on incorrect fire return and disturbance models, and does not take a hard look at all the adverse impacts of the hot dry, open, windier, weed-prone, OHV enticing treatment effects.

[Proposed Action and Purpose and Need - Documents that Influence the Scope of the EIS - 4-224]
BLM cannot rely on the PER, because it did not undergo NEPA, and is based on flawed and woefully outdated science. The ESA consultation was not over the PER, but the herbicides, and that too is old and outdated. See Beck and Mitchell 2012, Jones et al. 2013, etc. Full and complete new consultation must occur here.

The BLM may use prescribed fire in Lahontan cutthroat trout occupied drainages under stipulations developed through the Endangered Species Act Section 7 process. The effectiveness and potential impacts of prescribed fire are discussed in the 17-States PER (USDOI BLM 2007c: 4-36, 4-54 …

BLM states:

A 2001 study of aspen stands in the Roberts Mountains area concluded that aspen are generally in poor condition and that many stands are not readily regenerating (Kay 2001). The BLM has also observed that aspen regeneration and recruitment are below their potential throughout the 3 Bars Project area. While fire suppression may be a contributing factor, ungulate herbivory of new growth from root suckers appears to be the primary factor preventing successful regeneration of aspen stands. Aspen regeneration is a key management concern and aspen enhancement …

Indeed, and the Kay report and exclosures like in Simpson Park show it is the cattle and sheep that are the "ungulates" doing the damage.

In the long term, treatments are expected to result in an expansion of riparian and wetland habitat, (re)establishment of riparian and wetland habitat where these communities have been lost or diminished due to erosion, incising, and herbivory, and protection of riparian habitats from wildfire. Native riparian vegetation is much more resilient to wildfire than riparian corridors that have been taken over by upland vegetation such as pinyon-juniper or sagebrush. Efforts by the BLM to enhance wetland and riparian vegetation would help to increase the number of miles of stream and acres of wetlands that are in Proper Functioning Condition.

Has BLM ever really looked closely at juniper growing in or near aspen stands or many other areas? Often there are many series of sapsucker holes drilled in the trees – an insect trapline. Juniper also provides thermal cover for species like bushtits, in areas near riparian zones, and a wealth of other wildlife values. Plus, the proximity of rocky outcrops, canyon-like settings, etc. mean that PJ often naturally occurs by, in, or close to riparian areas. The EIS proposes highly unnatural manipulation and stripping of often the only cover protecting the watersheds and streams.

BLM states:

Mechanical treatments such as chaining generally increase herbaceous biomass, but this improvement in forb and grass cover may disappear after about 25 years <u>as pinyon-juniper reestablishes</u> [this shows these are persistent PJ sites!] on the site (Tausch and Hood 2007). Follow-up maintenance treatments with chainsaws or a roller chopper are typically required within 10 to 20 years of treatment initiation to remove trees that have persisted from the initial chaining. Use of mechanical equipment can also be limited by terrain (Miller et al. 2005), and as discussed under Soil Resources (Section 3.8), much of the area targeted for pinyon-juniper management is not suitable for chaining or shredding because of steep slopes and other factors. Chaining could also cause the loss of desirable vegetation, and lead to invasion of the site by noxious weeds and other invasive non-native vegetation. Thus, chaining would likely be used on a limited basis in the 3 Bars Project area. WELL – all of this just shows that the sites that were being walloped in the Taush and Miller studies are actually persistent PJ sites – Plus BLM's treatments may erode enough soil to make them harsher, drier sites that may be even more favorable to PJ.
BLM proposes not allowing natural succession to occur, and keep killing off trees and sage into the future. This project will have serious long-term adverse effects, and there is no semblance of restoration involved in this perpetual disturbance scheme.

The BLM would utilize fire as one means of removing and thinning pinyon-juniper from treatment sites ... Fire is highly non-selective, risky, promotes rapid spread of cheatgrass, harms and destroys understories … BLM will destroy mature and old growth trees, mahogany mature and old growth sage,

and other vegetation with fire, as well as expose cultural sites to erosion, streams to sedimentation, soils to erosion in wind, etc.

These are the exact conditions where BLM is not supposed to be burning things –lest treatment effect conditions end up being like a catastrophic fire:
Prescribed fire treatments can produce desirable results on sites with woodlands in Phases I and II particularly when there is an abundance of perennial natives in the understory (Tausch et al. 2009). [Native and Non-invasive Vegetation Resources - Environmental Consequences - Pinyon-juniper - 4-225] *The BLM plans to conduct most burns on Phase II or Phase III sites to initiate stand replacement and to avoid impacts to shrubby vegetation including sagebrush. These sites generally have a depleted understory …* Doesn't even Miller say not to burn these sites??? WHAT does all this self-serving circular reasoning nonsense mean? Except that it is likely to be wildly expensive, and make no difference in the end - as all of the lands are likely to become weedlands under the multiple repeated and overlapping disturbances that BLM seeks to impose.

BLM has not dealt with the very serious risk of adverse outcomes of this project. BLM takes 11% of the veg being something it seeded as a success.

After broadcast burns, the BLM may need to reseed burned areas with forbs, grasses, and shrubs. Based on past reseeding treatments conducted for several wildfires burns in the District, seeding and planting of native and non-native vegetation may have limited success, especially during drought years and native release of seeds may be the primary mechanism for site revegetation. However, in areas with sufficient moisture, seedings have been successful and have resulted in an abundance and diversity of forbs, grasses, and shrubs. For example, at the Fluffy Flat wildland fire site, 11.4 percent of vegetation was comprised of seeded species and seedling survivorship was 54 percent 3 years after seeding (USDOI BLM 2011e). To ensure vegetation restoration success, the BLM may prohibit livestock access to the area through grazing closure decisions that are effective upon issuance. The BLM may also use temporary fencing, including electric fencing, which has been used effectively at wildfire restoration sites to improve revegetation success by excluding livestock, wild horses, and wild ungulates (USDOI BLM 2009d, e, 2010e, f, g, h, i, j, 2011e, f).

It does not even guarantee that cows/sheep will be excluded, just stating 'may' and does not deal with the adverse effects on wildlife wildhorses, recreational uses, etc.

[Vegetation Treatments Planning and Management - Methods - Planting and Seeding - 4-226]What is a "replacement" species? Are we to have hybridized weedy coarse exotic and pseudo-native cow forage cultivars strewn across this supposed "restoration" landscape?

BLM claims its treatment acres are only a small portion the watersheds – however they are typically the primary areas where water is present and many are concentrated by are within the likely area of Mount Hope aquifer depletion.

Grasses and forbs would benefit from prescribed fire and would be the first to revegetate the site. If non-native annual grasses and forbs occur on a site prior to fire, and if fire intensity is high, then non-native annual grasses and forbs would be the first to establish after a fire. Without other treatments, non-native annual grasses and forbs may dominate the site (USDOI BLM 2012b). The BLM generally has had good success in controlling non-native vegetation and allowing native vegetation to establish on sites treated using prescribed fire on the 3 Bars Project area (see Section 3.12.3.3). However, some

sites could require seeding or other rehabilitation efforts following the fires, or it could take decades following a fire to fully establish all desired vegetation including understory vegetation

Projects to thin sagebrush (Alpha group), reduce herbaceous dominance (Rocky Hills Unit), open the sagebrush canopy (Table Mountain 2 Unit group), and ***treat cheatgrass*** *(West Simpson Park Unit), would potentially have short-term adverse effects on sagebrush habitats. However, provided project objectives are met, the long-term goal of these activities is to improve the quality of sagebrush habitats. In some cases, the species composition at treatment sites would change, as sagebrush enhancement projects would focus on the components of greater sage-grouse habitat. For instance, at the Rocky Hills Unit, where there are extensive stands of crested wheatgrass and forage kochia, the BLM would conduct treatments to minimize the non-native herbaceous component and increase the sagebrush and native herbaceous component. For the Table Mountain 2 Unit group, mature sagebrush communities with a minimal understory component would be thinned to reduce shrub cover and promote the growth of forbs and grasses.*

"Treating" cheatgrass certainly means herbicide use. A SEIS is essential to analyze all the adverse effects of the herbicide use these projects will result in.

We support eradicating the forage kochia and cwg.

Biological control has been identified for use in the Table Mountain, Rocky Hills, and West Simpson Park units. Targeted grazing …

Biological control has been identified for use in the Table Mountain, Rocky Hills, and West Simpson Park units. Targeted grazing would be used to maintain firebreaks to help reduce wildfire risk in these areas. Grazing can contribute to the spread of noxious weeds and other invasive non-native vegetation through preferential grazing of native vegetation over noxious weeds and other invasive non-native vegetation, and by movement of noxious weeds and other invasive non-native vegetation into uninfested areas via livestock feces (USDOI BLM 2007c). Therefore, there would be some risk of establishment or spread of noxious weeds and other invasive non-native vegetation in treated sagebrush sites if these species are already present in the grazed areas, or if the livestock are brought in from an area where these species occur.

Sagebrush treatments would affect woodland products, as pinyon pine and juniper would be removed from these. No mitigation or monitoring measures are recommended specifically for native and non-invasive vegetation resources.

Because cheatgrass is so widespread and established in the range within the Battle Mountain District, surveys for this species are not normally conducted. However, areas of observed cheatgrass and areas with the potential for cheatgrass monocultures within the project area have been mapped, as shown on ***Figure 3-33****.*

[Noxious Weeds and other Invasive Non-native Vegetation - Affected Environment - 4-227] Figure 3-33 shows no cheatgrass, and no cheatgrass potential. Where is the mapping, and what assumptions were used? Who did it? Was ENLC involved?

Mapped areas include relatively large cheatgrass monocultures in various former burn areas in the northern half of the project area. Large burn areas in the northern portion of the project area are

considered areas of cheatgrass monoculture potential. However, the BLM has seeded many of these burn areas with non-native perennial grasses and forage kochia under the BLM Emergency Stabilization and Rehabilitation Program to combat cheatgrass expansion. During the rangeland health studies, cheatgrass was observed in sampling areas throughout the project area, with the greatest frequency of observance in areas that have been affected by wildfire (Eastern Nevada Landscape Coalition and AECOM 2012). Cheatgrass is ***likely*** *present in other portions of the 3 Bars Project area, although not necessarily in quantities that warrant treatment.*

[Noxious Weeds and other Invasive Non-native Vegetation - Affected Environment - 4-228] How in the world could BLM do an EIS and not even know where cheatgrass is located in the project area? BLM must conduct a Supplemental EIS based on this shortcoming alone.

BLM under Fire states:

[Alternatives - 4-229] *Alternative C would not restore fire as an integral part of the ecosystem, reduce the risk of a large-scale wildfire, or reduce extreme, very high, and high wildfire risks to moderate risk or less. Only about 500 to 1,000 acres would be treated annually to reduce hazardous fuels, and the BLM estimates that the FRCC would be reduced on only about 3,750 to 7,500 acres over the next 10 to 15 years, fewer acres than under Alternatives A and B.*

Where is the scientific basis for discounting this? It would minimize flammable weeds. It would maximize retaining snow and rain on-site - resulting in a shorter fire season. We have often seen BLM claim any tree cutting reduces fire. This is yet another an illustration of the bias of the EIS.

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-230] Figure 3-35 is labeled natural fire Regimes. Is this based on the same fire intervals as the ENLC< Ecosite and any other assessments or analysis were based on?

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-231] EIS mapping makes no sense in relation to greasewood and other veg communities. When one compares Map Figure 3-26 (if we are interpreting the pastel colors correctly) , then it appears that greasewood and playas are in Group V.

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-232] Then, the next map is Fire Regime condition class – where it shows these areas as Group 1.An earlier map shows these areas as Moderate risk of "Catastrophic" [note BLM use of biased Fear-mongering terminology] fire. What is going on? Can BLM just dream up models and schemes until it hits upon one that shows what it wants to justify spending tens of millions of dollars? Are different schemes being applied with different fire and disturbance intervals, and different assumptions? And what are the recovery intervals, and how is recovery defined? What science is this based on/

Under these crazy schemes, only some cwg seedings, it appears are at low risk of catastrophic fire. Map 3-37. This is not, though, how the real world works. See WWP Jarbidge BLM Fire Rehab Appeal comments describing how very readily and frequently cwg burns.

Jarbidge BLM fires, fires all along the northern areas of the Snake River Plain, large-scale recent fires in eastern Oregon, and many other areas with extensive cwg seedings show that fires burn at breakneck speed, and quickly grow to immense size, in areas of extensive cwg seedings.

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-233] Please provide detailed analysis of the intervals, assumptions, scientific basis for all of these various schemes to portray native vegetation communities as unhealthy or having particular risks involved.

The interval for PJ communities in the chart 3-41 should be 200 PLUS years for PJ, as well as for plant communities like black sage, much Wyoming big sage, etc. See Bukowski and Baker (2013, Romme et al. 2009 a, b, USFWS WBP Finding for GSG, Knick and Connelly 2009/2011, Baker 2006.

The chart says it comes from the Landfire Database, a blackbox site with ever-changing info inputs. At what specific point in time? This is a common trick used by Ely BLM and others to avoid any accountability and systematic consideration and analysis of current science. BLM simply points to an on-line FRCC Landfire database, and never includes the assumptions that were used in the calculations, data and scientific sources behind the assumptions, etc. Thus, mapping and analysis all is designed to support destruction of all native veg communities that are present anywhere on the landscape.

The series of maps is based on programmatic modeling and unsupported assumptions that are not grounded in the ecological reality of the current fire situation across the western public lands.

[Wildland Fire and Fire Management - Assessment Methodology - Fire Management Plan - 4-234] BLM tries to rely on its greatly outdated 2004 BLM Fire Plan. BLM states:

In the amendment, the BLM developed fire management categories, ranging from wildland fire not appropriate and full suppression with an aggressive initial attack is recommended (Category A), to wildland fire is appropriate and there are no constraints (Category D). Under the fire management plan, most of the 3 Bars Project area dominated by pinyon-juniper vegetation was categorized as Category C. Under Category C, wildland fire is appropriate, but there are constraints on its use.

The world has changed dramatically since that old plan, based on even older and outdated assumptions about fire, cheatgrass, climate change, was develop. Did that plan ever undergo NEPA? If I recall correctly, it does not appear that the highly flawed Ely plan of that same vintage was ever subjected to NEPA.WHAT scientific information was that plan based? On the unsupported Miller and Rose, Perryman or other claims that Basin big sage in valleys burned every 25 years or so, or that PJ burned every 35-50 years and then only in light little fires, and other long since disproven “range” friendly myths that Miller, Tausch and others had been promoting in that era?

Scientific knowledge about the adverse effects of climate change and adaptations of cheatgrass and other highly invasive species was not factored into the 2004 Fire Plan.

Despite BLM’s longstanding efforts to claim that cwg is some kind of firebreak – the effects of large-scale wildfires across many areas of the west have shown that fires can burn through cwg seedings at the rate of over 50,000 acres – and at times 100,000 acres per day. Compare that to the rate of fires spread through even the most juniper covered landscape.

BLM has cobbled together an incomprehensible stack of treatment models and gibberish. It even embraces the extreme averse disturbance of targeted grazing, which will only serve to increase dust erosion, increase weed problems, disturb and displace native wildlife during sensitive periods of the year, obliterate any native species recovery, and cause worse continuous hazardous fuel cover than already exists, impair HMAs, disrupt the TNEB, etc.

In relation to fuelbreaks, too, BLM makes the assumption that killing vegetation will stop fires and provide fuelbreaks. This is just plain incorrect:

Because about 17 percent of the 3 Bars Project Area would be treated during the next 10 to 15 years, and nearly all proposed treatments would provide some benefit toward hazardous fuels reduction, the BLM estimates that the FRCC on about 95,000 acres would improve over the next 10 to 15 years under Alternative A.

Instead, BLM is likely to increase hazardous fine fuels and frequent flashy cheatgrass fires.

BLM fails to address the fact that the areas treated are to be nearly all the PJ, and much of the higher elevation sage, and sage on deeper soils. Instead of re-connecting sage-grouse and pygmy rabbit haibtats, this is likely to tear them asunder.

BLM clearly is promoting large-scale biomass:

*To reduce this risk, felled trees would be used for posts or mulch, **sold for commercial biomass utilization**, placed in streams to slow water flow, or burned in piles or as slash.*

These systems need nutrients in wood (different from manure and urine from the huge herds of domestic livestock that have been imposed) for soil, for watershed function, to moderate conditions at ground level, provide protected and safe sites for native plants to germinate and grow and not be destroyed by livestock.

*These units have been identified as having high to very high risk of catastrophic wildfire, or in the case of the Tonkin North, Lower Pete Hanson, and Whistler units, very high to extreme wildfire risk (**Figure 3-36**). These units have moderate amounts of standing dead and dead down wood, excessive surface litter, and a closed canopy that is conducive for a crown fire (USDOI BLM 2009a).* [Wildland Fire and Fire Management - Environmental Consequences - 4-235] *By increasing canopy spacing among pinyon-juniper, the potential for a crown fire would be less, while residual trees would provide surface shading that lowers fuel temperatures (Tausch et al. 2009).* Tausch turns out to have been wrong about PJ mining era deforestation, fire return intervals, and also selectively aged trees. This claim is disproven by the on-the-ground effects of recent fires across a variety of forest types that show that wind-driven fires put out embers far from the fire front, and that thinning of the type described here does not work in those conditions.

BLM states:

The BLM would restore fire as an integral part of the ecosystem and reduce hazardous fuels on the Sulphur Spring Wildfire Management Unit by using wildland fire for resource benefit. Several wildfires have occurred in this area in recent years due to dense fuel accumulations and pinyon-juniper cover. In recent years, the BLM has used chainsaws, mowers/shredders, and prescribed fire to create fuel breaks and remove diseased pinyon-juniper (USDOI BLM 2009a). By reducing fuel accumulations and opening up the canopy cover, sagebrush and other shrub … How many of these fires, and how any acres, have burned in areas already burned in previous fires?

[Wildland Fire and Fire Management - Environmental Consequences - 4-236] BLM references 2008 Red Hills monitoring –but this was only a short time after the fire. How much cheatgrass is

present now? We are also strongly opposed to BLM's reliance on expensive and harmful chemical herbicides that are very prone to drift when applied in wildland settings.

PLEASE spend all of your time and energy doing something about this area:

The West Simpson Unit was burned during the 1999 Trail Canyon Fire, and has substantial cheatgrass cover and is in an area rated as high to very high for risk of a catastrophic wildfire. Cheatgrass is quite flammable during the summer, and efforts to eliminate it or slow its spread would help to reduce the risk of wildfire. Crested wheatgrass, forage kochia, and cheatgrass dominate …

[Noxious Weeds and other Invasive Non-native Vegetation - Environmental Consequences - 4-237] How will you eradicate the forage kochia weed that was purposefully seeded? With herbicides? How long were these areas rested from grazing following the fire? How will you eradicate the hazardous cheatgrass fuel?

[Alternatives - 4-238] BLM constantly unfairly tries to downplay the benefits of Alternative C, and appears to have purposefully excluded a series of passive restoration actions and some active restoration from Alt C. For example, eradicating the forage kochia and crested wheatgrass, and planting sagebrush and native grasses shoud be part of Alt. C.

BLM states:

Fire and fuel break treatments would primarily be limited to stream and aspen habitats, or near roads, where pinyon-juniper would be removed to enhance or create new breaks …

[Wildland Fire and Fire Management - Assessment Methodology - Fire Intervals - 4-239] This is what BLM has claimed elsewhere is needed to prevent fuelbreaks – not tearing up the whole landscape. Despite all the EIS bulk, there is not strategic planning and analysis of wind direction, slope, and other factors to identify fire risk.

BLM states: *Alternative C would not restore fire as an integral part of the ecosystem …* Actually, Alt. C would go much further towards restoring the natural and integral role of fire in the ecosystem than would the BLM's slash and burn actions. These lands have had too much disturbance – including mining era deforestation, BLM treatments, chronic livestock grazing disturbance, etc.

Page 2-359 has the classic Ely-ENLC assessment wording about the causes of all the problems – i.e. the "historic" grazing that lets current chronic grazing disturbance off the hook. When does the current grazing period start, and when did the historic grazing period end? Is cattle grazing in 2012 considered "historic"? Why is it the case that cheatgrass is spreading so rapidly recently?

Historic overgrazing, introduction of cheatgrass, large wildfires, and other natural and human-caused factors have contributed to the departure of the plant communities from the Potential Natural Community across the 3-Bars ecosystem. This has led to a decrease in the functionality of ecological processes, thus reducing the resilience and resistance of these ecosystems to disturbance. The treatments proposed in the 3-Bars ecosystem are designed to provide the means needed for these ecosystems to recover.
And as with all other parts of this: No mitigation measures are proposed for wildland fire risk. Heaven forbid BLM accompany this EIS with a concrete Plan to restrict roading, remove or greatly curtail

grazing, etc.

LCT Concerns

[Fish and other Aquatic Resources - Affected Environment - 4-240] We understand that USFWS has said that the LCT here, since they were moved in from other drainages, are not as important as LCT elsewhere. Is that the case?
BLM admits that *Threats to Lahontan cutthroat trout include*
habitat fragmentation due to physical and biological conditions, alteration of stream discharge, w
water quality degradation, and introduction of nonnative fish species (
Coffin and Cowan 2005,
USDOI USFWS …

[Fish and other Aquatic Resources - Environmental Consequences - 4-241] Yet what are the actual concrete watershed-level actions that will result in habitat - other than removal of livestock from the watersheds –not just new barbed wire strips? What pastures cab be closed to better protect watersheds?

[Fish and other Aquatic Resources - Affected Environment - 4-242] To what degree are Vinini and Henderson creeks currently connected (map 3-39)?

[Fish and other Aquatic Resources - Assessment Methodology - 4-243] Have springsnail and native amphibian surveys been systematically conducted across the Three Bars landscape? If so, when and where?

The EIS states: *A significance criteria is if the action results in long-term (greater than three year duration) in alteration or loss of habitat.* THEN all of the actions, including allowing any more grazing in these watersheds, results in long-term impacts.

Grazing results in water quality effects that last much longer than 1 month, as sediment, manure and urine - all promote algae that chokes streams. Destruction of 10o year old juniper shading streams within 200 ft of streams represents extremely lasting, detrimental and significant threats.

It is extremely likely that large-scale deforestation, bulldozing, etc and continued grazing in the watershed will result in significant detrimental effects. Climate change alone is likely to result in this much.

BLM proposes harmful ribbon and strip band-aid fencing, while letting livestock continue to hammer the watersheds. Plus PJ currently provides all of the following:
[Fish and other Aquatic Resources - Environmental Consequences - 4-244] *Riparian vegetation is an important habitat component for aquatic species, as plants provide overhanging cover, temperature control via shading, bank stability, a food source from insects on the vegetation, and nutrient input to the stream from loss of leaves and branches* . Then why is BLM killing all the PJ within 200 ft of the streams?

[Vegetation Treatments Planning and Management - Methods - Riparian - 4-245] BLM claims it will replant its bulldozed, devegetated, cut banks – how long will it take for willows to recover to the height of junipers? Plus, in these steep streams, the PJ on the slopes are providing critically important shade.

By removing this protective cover, BLM will dramatic increase water temperatures, runoff force during high severity rain events, etc.

This will also result in rapid runoff and contamination from the herbicides BLM will be applying to control the white top, knapweed, or other weeds its aggressive scorched earth, PJ stumps and bulldozed streambank treatments will produce.

BLM provides no scientific basis for this claim:

… Adverse effects of mechanical treatments on water quality would be expected to be localized and of term in duration, with water quality returning to pre-disturbance conditions within several days or weeks after treatment is completed …

.

BLM will be lucky if it recovers the protective cover and shade it previously had within several decades under the bulldozed streambank and juniper stump approach to riparian management.

Please review the information for Riparian Habitat Areas in the Pacific NW. These were established to protect trees from logging because of the shade, stabilization, structure and other important attributes that conifers provide for aquatic systems, especially those inhabited by ESA listed species. Instead here, BLM wants to essentially denude the entire RHA.

Wilderness, Recreation, Visual, Cultural Concerns

BLM makes sweeping statements that again are not fully fairly and critically evaluated.

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

• *Restoration of the historic landscape that would be beneficial to the visitor experience, including the Pony Express National Historic Trail retracement experience.*

• *Improved habitat and associated wildlife.*

• *A reduction in the presence and number of noxious weeds and invasive non-native vegetation.*

• *A reduction in the risk of a large-scale, catastrophic wildfire*

What are the important natural, scenic, biological and other values of the WSA? Destruction of the native vegetation communities will impair these and other values. Ugly treatment scars will mar the values. The battery of direct, indirect and adverse treatment and lose and uncertain grazing schemes impacts will trammel the landscape with weeds, unnatural scars excessive erosion, streams lacking natural protective PJ cover within 200 ft. of the stream, etc. BLM also proposes treatments that are not appropriate in WSAs or LWCs. [Wilderness Study Areas and other Special Management Areas - Affected Environment - 4-246] Why haven't you done a Lands with Wilderness Characteristics study across the Three Bars area? Particularly in the Simpson Park area?

[Wilderness Study Areas and other Special Management Areas - Cumulative Effects - 4-247] BLM has failed to provide an adequate baseline of the current degree and severity of impairment of values from livestock grazing degradation or other threats to the WSAs. The treatments will prevent natural plant successional processes form occurring, and increase risk of impairing cheatgrass that will overrun wildlife habitats, and watersheds ad result in ugly continuous exotic species areas.

Why will BLM be closing the areas for treatment – AND afterwards?

[Wilderness Study Areas and other Special Management Areas - Cumulative Effects - 4-248] We are very concerned about all the BLM proposed herbicide use, including aerial application where there is significant risk of drift.

The Mount Hope mine would disturb more than 8000 or so acres – the noise, lights, excessive water use, large-scale increase in traffic and human disturbance are a large-scale human disturbance.

Statements like the following are of great concern, and no scientific evidence is provided for the claims that there will be improvement – and not in fact large-scale degradation.

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

For all parts of the EIS, there is no basis provided for the claims of lightning speed and remarkable recovery BLM claims will occur. Example:

3 Bars Project restoration treatments could degrade or reduce recreational opportunities in the short term (< 5 years), but treatments should result in a healthy and functional landscape that provides additional recreational opportunities. Up to 15,000 acres could be off-limits to the public due to mining and other land uses for up to 70 years, but these areas are subject to reclamation requirements and would have minimal long-term effects on recreational opportunities in the CESA … You have to be kidding – Mount Hope (if built) will be a huge industrial zone polluting land, air water, standing out with bright lights visible from 20-30 miles away (at a minimum) with traffic of all kind, noise, and dramatically increased human disturbances, etc.

WHY won't BLM simply allow natural processes to operate in the WSA – restore beavers, and remove cows/sheep from existing pastures in WSAs.

BLM admits:

The production of charcoal and cordwood was one of the area's most significant industries historically, and it resulted in substantial changes to the environment as it existed before 1850. The furnaces of the Eureka mining district, as well as those at other mines in the area, required tremendous quantities of charcoal. In addition, cordwood and lumber were needed for other mining and industrial purposes such as construction. Pinyon-juniper cordwood was also used for fuel by the E&PRR until 1890, when the railroad switched to coal (Zeier 1985:18).
By far the largest single consumer of charcoal was the Eureka mills. In 1880, at the height of mining within the Eureka District, the mills consumed a total of 1.25 million bushels of charcoal. Young and Budy (1979:117 cited in Zeier 1985:18) stated that "the demand for charcoal was so great that

deforestation became a severe problem" with 4,000 to 5,000 acres of woodland cut annually. By 1878, the average hauling distance from (charcoal) pit to smelter was 35 miles.

Regarding threats to cultural sites and values, the EIS states:

The greatest risks to cultural resources would be from mechanical and fire treatments. Chaining, root plowing, tilling and drill seeding, mowing, roller chopping and cutting, blading, grubbing, and feller-bunching could damage surface and subsurface cultural resources if the sites were not avoided. Treatments could compromise depositional context and integrity, and damage or destroy artifacts. Several thousand acres could be burned annually using prescribed fire and wildland fire for resource benefit. The effects of fire on cultural resources would vary depending on temperature and duration of exposure to heat. Generally, higher temperature and/or longer exposure to heat increases the potential for damage to cultural resources. As a general rule, fire does not affect buried cultural materials. Studies show that even a few inches of soil cover are sufficient to protect cultural materials. However, there are times when conditions do carry heat below the surface, with the potential to affect buried materials.

[Vegetation Treatments Planning and Management -Methods - Fire for Resource Benefit - 4-249] This "fire for resource benefit" means BLM is planning to nurse wildfires along. So why all the hysteria bout the need for treatment, when BLM proposes to just let lands burn up anyway?

BLM ignores cumulative effects of erosion from disturbance livestock trampling exacerbating erosion, combined effects of treatments on large-scale erosion and loss of artifacts and scientific values and stratigraphy at sites.

BLM states:

Wildfire is generally more destructive to cultural resources than prescribed fire, since it results in effects from both uncontrolled fire and fire suppression. Management decisions may need to balance the potential effects of a prescribed burn with the risk of damage from an uncontrolled wildfire. Because prescribed fire can be controlled … Fires also ESCAPE. See Ely North Schell Escaped Prescribed Fire report. Plus, there is typically not all the endless messing around manicuring the landscape with dragging and piling slash, or dump trucks hauling biomass chips away - associated with wildfires as occurs with this treatment scheme.

BLM defies all logic and reason in its zeal to destroy the forests that naturally occur, and which historically occurred, in the Three Bars project area.

The harvesting of pinyon nuts, once the most prominent staple among the Western Shoshone and many other tribes in the region, was not only an important subsistence activity but an important cultural event, and to some extent is still today. Harvests were provided with a spiritual leader who arranged and presided over a pinyon nut harvest dance before gathering. This several-day celebration constituted a major social event and included prayers, songs, dances, gaming and sporting events, and feasting. New group leaders were chosen, marriages were arranged, and people exchanged information about resources, harvesting techniques, and political affairs. Plans for subsequent harvests and social alliances were developed. The largest celebrations and harvests in the project area occurred on the Roberts Mountains and Sulphur Spring Range with smaller events in the Mount Tenabo area (Rucks 2004:12). To a great extent, the size of these celebrations was the result of an increased population in these areas, supported by the diverse and dense resources present in them.

For example, according to Rucks (2004:6), the present-day Western Shoshone still refer to Roberts Mountains as a resource-rich area (especially pinyon) that Steward (1970 [1938]:141) noted as being capable of supporting up to 60 households, a far larger population than in many surrounding parts of Western Shoshone territory.

Cutting live trees for firewood is frowned upon by many present-day Western Shoshone and only dead wood is cut, a practice that does not harm trees or reduce potential future nut harvests. Although pinyon nuts no longer constitute a major staple food for the Western Shoshone, they are consumed on special occasions …

This all demonstrates that the natural historical vegetation over much of the area targeted by the Three Bars project area targeted for massive fire, biomass export in dump trucks, bulldozer chaining, slashing, beating, crushing, chopping, etc. is PJ. BLM has abandoned science and environmental ethics in tis current zeal to destroy the native PJ and sage systems of the Three Bars area.

Additional Sensitive Species Concerns

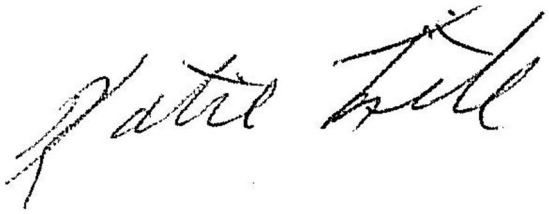
[Wildlife Resources - Affected Environment - 4-250] BLM omits many sensitive species from its paragraph descriptions in the EIS. Those it does mention are incorrectly analyzed, and no systematic surveys and proper baseline were developed. For example, BLM claims that its treatments would benefit pygmy rabbits. These treatments will alter, fragment, degrade and destroy pygmy rabbit habitats. Every part of the aggressive treatment scheme is very harmful to pygmy rabbits and other sagebrush sensitive species. Direct, indirect and cumulative effects analysis for sensitive species glosses over serious harms and degradation. Plus the treatment avoidance time periods and methods are greatly inadequate to protect sensitive species and migratory birds, as well as eagles and native raptors.

[Wildlife Resources - Standard Operating Procedures - 4-251] BLM violates the National Technical Team Report and its own Instruction Memos for sage-grouse. It violates the Conservation Plan for sage-grouse, and may thwart the outcome of the Greater sage-Grouse Regional EIS process by prematurely destroying vegetation in aggressive treatments that would be limited under that EIS.

Land Use Plan and Other Legal Violations

The EIS fails to address many provisions and protections of the Land Use plan, including those for forestry, soils, vegetation, watersheds, sensitive species, WSAs, big game, and other values of the public lands.

We can only conclude that the EIS is inadequate under NEPA. A supplemental EIS must be prepared to clear up all the uncertainty and prevent harm and undue degradation to the Three Bars landscape, and violations of FLPMA, the Wild Horse and Burro Act, the Clean Water Act, the Migratory Bird Treaty Act, BGEPA, the ESA, BLM's own sensitive species policy, and conservation plans.



Katie Fite
Western Watersheds Project
PO Box 2863
Boise, ID 83701
208-429-1679

Deniz Bolbol
American Wild Horse Preservation Campaign
P.O. Box 1048
Hillsborough, NC 27278

Appendix A

EXAMPLE OF PLETHORA of MINING PROJECTS with Cumulative Impacts

Here are just some of the mining actions underway in recent years in Battle Mountain and nearby BLM lands. This demonstrates the tremendous ecological footprint of mining, and new actions that will have drastic and ever-increasing impacts on aquifer drawdown, facilitate weed invasions and habitat fragmentation for sage-grouse, and a welter of other adverse impacts. The cumulative impacts area and assessment of the DEIS is woefully inadequate.

It is essential to understand these effects in order to understand their cumulative impacts on the lands, species, watersheds, affected by the Three Bars Project.

http://www.blm.gov/pgdata/etc/medialib/blm/nv/resources/racs/moso_rac.Par.19904.File.dat/BMDO.DM.Report.July2011.pdf

MINERALS MANAGEMENT
MOUNT LEWIS FIELD OFFICE
Eureka Moly Mount Hope Project - BLM comment letter on Version 12 of the Plan of Operations was issued to Eureka Moly in February 2011. The BLM expects Version 13 prior to the issuance of the Draft Environmental Impact Statement (DEIS). The interdisciplinary team and cooperating agencies have reviewed a second version of the Preliminary DEIS in May and the DEIS is expected to be issued in late August.
Newmont Phoenix Copper Project – The Preliminary Draft Supplemental Environmental Impact Statement (PDSEIS) has been issued to the interdisciplinary team and cooperating agencies. The DSEIS is expected to be issued in July.
Newmont Mule Canyon - Newmont is evaluating the possibility of resuming mining at this site. If mining is not resumed, the closure process will continue. Newmont will inform BLM of their plans in by the end of June 2011. Newmont continues to operate under terms and conditions of an Interim Water Management Plan.
Newmont Buffalo Valley Mine - Newmont is in the process of conducting baseline analyses in preparation for submittal of a Plan of Operations to mine gold.
McCoy/Cove - Reclamation is on-going. Quarterly inspections continue to be conducted. Newmont Toiyabe Exploration Project – Final bond release has been issued for the reclamation and the project has been closed.
Barrick Cortez Hills – The Supplemental Environmental Impact Statement was completed in January 2011 and a Record of Decision and Plan Approval were issued in March 2011.
Barrick Cortez Hills-Pipeline Complex – The Amendment to the Plan of Operations is under review by the BLM. The Amendment includes a road reroute, tailings expansion and borrow pit authorization.
Barrick Horse Canyon Cortez Unified Exploration Plan - BLM issued the Decision Record and Plan of Operations Amendment Approval in May 2011. Litigation is complete and BLM has authorized additional drilling.
Barrick Ruby Hill Mine – BLM is currently reviewing an Amendment to the Plan of Operations that includes a pit expansion and additional process facilities.
Montezuma Mines Red Canyon Exploration Plan of Operations – An EA has been issued to the public. A decision and Finding of No Significant Impact (FONSI) are expected in July 2011.
3Coral Gold Resources Robertson Project - SRK Consulting is preparing an Amended Plan of Operations and revised EA for review.
US Gold Corp Gold Pick Exploration Project - A Plan of Operations was submitted to the BLM in February 2011, and BLM comments have been issued to the proponent.
US Gold Corp Tonkin Springs Closure - An Amended Plan of Operations was submitted to the BLM and is currently under review.
TONOPAH FIELD OFFICE
Round Mountain Gold Corporation Mine Expansion, Round Mountain Mine - The expansion of the open pit at Round Mountain and the development of a new mine pit at Gold Hill, 5 miles north of the existing pit has begun. New leach pads will be constructed at both locations and the tailings impoundment at Round Mountain will be expanded. An appeal and request for a stay was filed by Great Basin Resource Watch and the Descendants of Big Smoky Valley. The appellants' statement of reasons for requesting the stay and BLM's response to their comments have been filed with the Interior Board of Land Appeals.

EA Completed for A.U. Mines, Inc., Manhattan Gulch Mine - The EA for a 553-acre alluvial placer gold mine was completed in the first quarter of FY 2011. The Plan of Operations has been approved and mining is expected to begin after the operator submits the reclamation bond and the Historic Property Treatment Plan has been implemented.
EA is Being Prepared to Analyze Mineral Ridge Gold, LLC, Mineral Ridge Mine Exploration - An EA is being prepared to analyze a 330-drill-hole exploration amendment to the Plan of Operations. It should be available for a 30-day public review period in the third or fourth quarter, FY 2011. The mine went into temporary shutdown mode in 2005 and is expected to come back on line in the fourth quarter of FY 2011.
Plan of Operations for Exploration Submitted for the Rodinia Minerals, LLC, SP Drilling Project - Rodinia submitted a 71-drill hole exploration Plan of Operations in the Clayton Valley area of Esmeralda County. An EA is being prepared to analyze the environmental consequences of permitting the drill exploration. The EA should be available for a 30-day public review and comment period in the fourth quarter, FY 2011.
Proposal for Diatomite Mine: Global Silica, Inc., Monte Cristo Mine - The operator has proposed an open pit diatomite mine with on-site screening, crushing, drying and milling facilities. Additional information to complete the Plan of Operations has been received and the first draft of the EA is expected in August 2011.
Proposal for Open Pit Mine: Nekekim Corporation, Nekekim Mine - The operator has proposed a 40-acre open pit gold mine about 80 miles east of Tonopah. The gold recovery process is not identified at

this time. Additional information to complete the Plan of Operations was requested in the second and third quarters of FY 2011.
Plans to Develop Gravel Pits: Nye County, Mineral Material Pits - The Nye County Road Department has submitted Mine Plans to develop gravel pits, crushing and screening plants, and stockpile areas in Amargosa Valley, Moore's Station Wash and southern Railroad Valley. Development of an EA and 2 CX's began in the second quarter of FY 2011.
Mine Plans Submitted: Tonopah Solar Energy, LLC, Mineral Material Pit - Tonopah Solar Energy, LLC has submitted a Mine Plan for a 25 acre gravel pit, crushing and screening plant, and stockpile area in Big Smoky Valley. The sand and gravel will be used to make concrete for the Crescent Dunes Solar Power Plant facilities and power tower. A sale contract was sent to the operator in March, 2011. The sale will be completed when the signed contract and funds have been submitted.
Amendment Review: Columbus SM, LLC, Inland Navigator Mine - An amendment to the Plan of Operations is being reviewed. A follow-up letter requesting additional information to complete the amendment has been sent to the operator. NEPA analysis of the amendment will begin as soon as the amendment is considered complete.
Reclamation Plans Received for Arizona Pumice, Inc., Beatty Pumice Mine - Mine and Reclamation Plans for the operation have been received. Cost recovery funds have been received and the NEPA analysis has been completed. The application will be processed when the proponent identifies a sale quantity.
Clayton Valley Sodium and Potassium Prospecting Permits - The permits have been on hold, pending determination of the suitability to issue prospecting permits in Clayton Valley. A determination regarding whether or not issuance of permits is appropriate; or if the available resource information is sufficient to propose competitive leases of the individual parcels is in process.
June 2011 Nevada BLM Oil and Gas Lease Sale - The June 14, 2011 sale for Battle Mountain District lease parcels was held as scheduled. Twenty-five parcels sold on the 14th for $662,962.00, no offers have been received on the remaining 56 parcels.
December 2011 Nevada BLM Oil and Gas Lease Sale - An Environmental Assessment of the 155 parcels proposed for sale in the Tonopah area is being written. On June 6, 2011, a Native American

representative toured the proposed lease parcels; comments and concerns were provided in early July.
Notice of Staking to Drill an Oil Well – G & H Energy has submitted an application for an oil well 6 miles NNE of Nyala, NV. An on-site meeting is scheduled for June 15, 2011.
Oil and Gas Geophysical Survey - Major Oil International, LLC has submitted an application for a 120 point geophysical survey in Hot Creek Valley, 12 miles NNE of Warm Springs.
5
Hazardous Mine Working Closures – Approximately 8 mine shafts and adits are scheduled to be grated, gated, or backfilled later this year in the Sylvania Canyon area of Esmeralda County.

Paulus, Stuart

---------- Forwarded message ----------

DOCUMENT #5

From: **Grace Kuhn** <grace@wildhorsepreservation.org>
Date: Mon, Sep 30, 2013 at 11:14 AM
Subject: Re: Follow-up
To: 3Bars_Project@blm.gov

Hi Chad,

This is the second follow-up email from a phone message that I left for you on Friday. As a reminder, I am writing in regards to the news release that was sent out on September 27, 2013 about the draft EIS for the 3 Bars Project.

Does this area include any Herd Management Areas or Herd Areas? If so could you provide what specific 'habitat enhancements and/or hazardous fuel reduction treatments' would be taking place in those HMA's/HA's? [Wild Horses – Environmental Consequences – 5-1}

Thank you for your time, and I would appreciate a prompt response.

Sincerely,

Grace Kuhn
American Wild Horse Preservation Campaign
grace@wildhorsepreservation.org

On Fri, Sep 27, 2013 at 10:56 AM, Grace Kuhn <grace@wildhorsepreservation.org> wrote:
Hi Chad,

I just left you a voice mail, but wanted to follow it up with an email. I am writing in regards to the news release that was sent out today about the draft EIS for the 3 Bars Project.

Does this area include any Herd Management Areas or Herd Areas? If so could you provide what specific 'habitat enhancements and/or hazardous fuel reduction treatments' would be taking place in those HMA's/HA's?

Thank you for your time, and I would appreciate a prompt response.

Sincerely,

Grace Kuhn
American Wild Horse Preservation Campaign

Paulus, Stuart

---------- Forwarded message ----------

DOCUMENT #6 (mass email)

From: **Janet Brown** <dana_brown@msn.com>
Date: Tue, Nov 26, 2013 at 12:13 PM
Subject: Comments on Mt. Lewis Field Office 3 Bars Project Draft EIS
To: 3Bars_Project@blm.gov

Dear Mr. Lewis and Mr. Furtado,

The Battle Mountain District's Mt. Lewis Field Office Draft Environmental Impact Statement (EIS) for the 3 Bars Ecosystem and Landscape Restoration Project raises more questions than it answers. The current Draft EIS fails to provide specific actions for specific locations; the preferred actions are ambiguous and raise serious concerns.

The BLM must clearly define each preferred action, identify the specific locations and outline the time frame (time of year, duration, etc.) for each action.

The Draft EIS fails to adequately analyze the impact of the preferred or proposed actions on wild horses, wildlife and the wild horse Herd Areas in the targeted Project area. I urge the Lewis Field Office to clarify the proposed actions and to specifically address the following:

1. [Vegetation Treatments Planning and Management – General – 6-1] Site-specific preferred actions must be clearly identified and analyzed in the EIS; this must include the timeframe for any actions (time of year for actions, duration of proposed actions, etc.).

2. [Vegetation Treatments Planning and Management – Methods – Fencing – 6-2] The proposed fencing raises serious concerns. Even temporary fencing will have a negative impact on wild horse movement. Any fencing in or around any Herd Areas or Herd Management Areas must be thoroughly disclosed -- including the minimum and maximum duration for each fencing proposal.

3. [Water Resources – Environmental Consequences - 6-3]Any "treatments" to water sources (including use of motorized machinery) must be clearly outlined -- specific locations, duration of each treatment, etc. must be disclosed and analyzed, and alternative actions with fewer impacts must be analyzed to ensure the most environmentally-friendly "treatment' is implemented.

4. Proposed destruction of vegetation raises serious concerns as it is well documented that wild horses rely on pinion juniper trees for cover to gain protection from the elements.

5. [Wild Horses – Environmental Consequences] Each proposed action must specifically be analyzed to determine if there is any temporary or permanent impact these actions may have on wild horses, their movement, their access to natural environmental components (cover, water, forage), etc.

The public must be provided with future opportunities to comments on site-specific actions and other details as requested above.

Sincerely,

Janet Brown

95033

October 27th, 2013

Comment due: November 12th, 2013 DOCUMENT #7

Mr. Chad Lewis
EIS Project Manager
Mount Lewis Field Office
Battle Mountain District
50 Bastian Road
Battle Mountain, Nevada 89820
Fax: (775) 635-4034
Email: 3Bars_Project@blm.gov

RE: 3 Bars Ecosystem and Landscape Restoration Project Environmental Impact Statement, Eureka County, Nevada

Chad Lewis,

My name is Katrina De Boer, I am currently a Environmental Design student at the University of Colorado and I am writing this public comment as an interested and concerned citizen. It is clear that the 3 Bars Ecosystem is an important environment for several plant and animal species, some of which are struggling to thrive as a whole, as well as several Native American tribes. I am thankful to see that the Bureau of Land Management is recognizing the damages done to the area from over usage and non native plants and are working to take steps to restore the land and help the species within flourish. I am especially excited about the project in terms of the potential benefits for the sage grouse, which is a big concern in Colorado. Knowing that the sage grouse is up for evaluation to be placed on the endangered species list, it is appealing to see that a large part of their ecosystem might be restored and this gives hope that some of the issues with the sage grouse might benefit from the 3 Bars Ecosystem project in a larger extent of its range.

The project itself is very well thought out. Personally I feel that Alternative A should be the course of action as long as the short term disturbances do not become long term damages. This area is a fragile environment that has already taken a lot from intrusion and different land use. I understand the need for controlled burning due to over growth and suffering soil health. The fires would be beneficial to the land in the long run but is it safe to say that the different animal species such as the sage grouse within the area will be safe and undisturbed from the fires? Seeing that Alternatives B, C, and D, all do not intend on any fire use they may be more beneficial to the animals within the area. But with each alternative less and less of the area would be restored. Knowing that there would be minimal effects to surrounding areas and to human health from the fire I would be one hundred percent on board with Alternative A as long as it was clearly understood how the animals would be secured from the burns. And if that is not possible then Alternative B is a better option. After all part of the reasoning for the restoration is improving the environment to help local species thrive.

In addition to the fire concern I am curious about the human activities allowed within the area. [BLM – Vegetation Treatments Planning and Management – 7-1] It is stated in the EIS that, “Human related activities allowed under the Federal Land Policy and Management Act,

such as livestock grazing and off highway vehicle use would continue to be allowed on the 3 Bars ecosystem." Would these activities still be allowed during restoration? Would the vehicles disrupt the paths for the fires? Would this then cause new paths to be formed, which would potentially cause more damage to the area? And finally will the human activity disrupt hopes of restoration after land management is implemented?

After understanding how the BLM plans to address these issues I think it will be very clear which alternative is the right course of action for this project at this time.

Any questions or follow-up communication may be sent to my school e-mail katrina.deboer@colorado.edu. I greatly appreciate your time in considering my comments and all of your public service.

Sincerely,
Katrina DeBoer

Via email: **3Bars_Project@blm.gov**

DOCUMENT 8

November 29, 2013

Bureau of Land Management
Mount Lewis Field Office
(Battle Mountain District)
50 Bastian Road
Battle Mountain, NV 89820

Attention: **Chad Lewis, 3-Bars Project**

Document ID: **DOI-BLM-NV-B010-2011-0200-EIS**

Subject: **3-Bars Ecosystem and Landscape Restoration Project** -- **Draft EIS**

Dear Mr. Lewis:

This e-letter is in response to the subject Draft Environmental Impact Statement (EIS) that BLM staff prepared in collaboration with AECOM Environment, a contractor. For ease of reference, below is the link to the Webpage where all documents relating to the Project -- including the Draft EIS -- can be accessed.

- https://www.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=renderDefaultPlanOrProjectSite&projectId=27202&dctmId=0b0003e880146ca5

The focus of my comments is how the proposed actions might affect -- for better or for worse -- the **wild horses** that inhabit the land. The Herd Management Areas (HMAs) involved include:

- Roberts Mountain,
- Whistler Mountain,
- Fish Creek,
- Rocky Hills and some
- currently zeroed-out Herd Areas (HAs).

The subject project would employ various strategies and techniques for restoring degraded rangelands. However, the Draft EIS is equivocal. Its vagueness sows uncertainty in the mind of the public reader. Disappointingly, its preparation did not draw upon the many good ideas contributed through the prior scoping process, particularly with regard to ground and habitat disturbance. The Draft EIS did not determine the impacts -- short-term, temporary, or long-term -- that the proposed landscape-restoration treatments will have on the wild horses, their free-roaming movement, and their access to water, forage, cover, seasonal migration routes, and other resources. Consequently, the Draft EIS did not satisfactorily analyze the potential impacts to the resident wild horses.

I urge BLM to revise the EIS to include specific information whose meaning and intent is clear, and to perform a comprehensive analysis of the impacts of the proposed actions on the wild horses.

- [BLM – Vegetation Treatments Planning and Management – Treatments – 8-1] Please define each preferred action, identify the exact location where it is to be carried out, and provide a time-line as to when it will commence (month, year) and how long it should take (duration). [BLM – Wild Horses – Environmental Consequences – 8-2] The project as currently described is likely to displace the wild horses during landscape-treatment periods. The horses will be further displaced by being fenced out for prolonged periods during landscape-recovery. The HMAs' configurations will shift, thereby disrupting the horses' use of land that is dedicated for their principal use. How will you mitigate these adverse effects?

- [BLM – Vegetation Treatments Planning and Management – Methods – Fencing – 8-3] Please disclose where temporary fences will be installed within or around HAs and HMAs. Please provide a time-line as to the exclosures' commencement and duration. Also, how will you determine which fences are necessary? What are the criteria?

- [BLM – Vegetation Treatments Planning and Management – Methods – Mechanical Treatments – 8-4] Please reconsider whether destroying vegetation is advisable. Holistic Grazing Management consultant Alan Savory found that mechanical treatments, such as chaining, actually made matters worse. Further, wild horses depend on pinion-juniper cover.

- [BLM – Vegetation Treatments Planning and Management – Methods – Mechanical Treatments – 8-5] Please reconsider whether using heavy machinery, such as bulldozers, to stabilize the area's streams is advisable. Won't such construction equipment create landscape-disturbances? Bulldozers are also noisy, resulting in yet more disturbances that will adversely impact the wild horses. Alternative treatments with softer impacts should be considered. The most environmentally-gentle methods should be selected.

- [BLM – Wild Horses – Environmental Consequences – 8-6]Please disclose how BLM will ensure the continuation of viable wild-horse herds in spite of the project. The viability plan must be predicated on an analysis of each affected herd's ...

    - history,
    - characteristics,
    - local water sources,
    - seasonal pastures,
    - migration routes,
    - roundup-and-removal record,
    - fertility-control record,

- genetic-testing record, and
- genetic-test results and recommendations.

Following amendment of the Draft EIS, there should be another public-comment period wherein BLM receives feedback on the modifications that have been made. Thank you.

Sincerely,

Marybeth Devlin
6880 SW 27th ST
Miami, FL 33155

marybethdevlin@bellsouth.net

305-665-1727

November 29, 2013

DOCUMENT #9

U.S. Department of Intrior
Bureau of Land Management
Mount Lewis Field Office
Battle Mountain District
50 Bastian Road
Battle Mountain, NV 89820
Attn: Chad Lewis
3bars_project@blm.gov

Re: Comments on Mt. Lewis Field Office 3 Bars Project Draft EIS

As a life-long visitor to the state of Nevada, which includes visiting the mid-Nevada Eureka County area for recreational, photographic, wildlife observation and scientific research objectives, I oppose the BLM's 3 Bars Project as it now written and provided to the public for review – i.e. Draft EIS. My opposition is because of the large size of the project in land quantity, the duration of the project, the scientific vagueness motivating this proposal and the potentially substantial impacts the proposed treatments will have on the sage-grouse and on numerous other important sensitive resources and due to the lack of a clear purpose and need for any large scale vegetation treatment in the 3 Bar project area, the high potential for the proposed action to have significant, irreversible impacts on the environment.

It is well known that these projects represent a continuing pattern of misguided resource management, as range managers attempt to create more range from forested lands and fire management plans seek to generate money for the district under the aspics of fuel reduction projects. FLPMA requires BLM to "take any action necessary to prevent unnecessary or undue degradation of the lands" and "minimize adverse impacts on the natural, environmental, scientific, cultural, and other resources and values (including fish and wildlife habitat) of the public lands involved." 43 U.S.C. §§ 1732(b), 1732(d)(2)(a). BLM has failed to properly identify and analyze impacts to the resources. As detailed below, the BLM's failure in this regard violates the most basic requirements of NEPA and in addition undermines the BLM's ability to ensure that the proposal does not cause unnecessary and undue degradation of public lands.

[Vegetation Treatments Planning and Management-9-1]

Nature has been taking care of this project area land and flora and fauna for thousands of years without the "help" of the BLM – and yet BLM is proposing many unnatural treatments for this land and thus the entire ecosystem will be intimately affected. It is our job as owners and stewards of this land to make only the best and most environmentally friendly decisions for the land for today and for the future generations. Desired ecological conditions depend on management objectives, potential uses for the site, and ecological characteristics of the site, such as soil profiles and ecological site type. Managers need to identify conditions that are ecologically feasible on a given landscape and that will satisfy management objectives over the long term. Then, and not until then can they can determine if a treatment or series of treatments could help to achieve those results. The DEIS does not specify exactly what treatments will be used on which portions of the project and when these treatments will be used and to what extent these treatments will be used – thus the BLM is providing itself with an open-ended capability to take these actions outside of the public's knowledge. Setting goals and objectives requires knowledge and participation by stakeholders beyond a one-time, one-size-fits-all EA proposal. The public may have differing or even conflicting ideas about the values that should be emphasized in juniper-dominated rangelands or the appropriate ecological condition of those lands and the public has a right to know the specifics of the BLM's proposal. Natural disturbances and changes in environmental conditions also may affect the site, and management plans may need to be adjusted as a result and again, I state that the public has a right to know the ongoing and changing specifics – one size does not fit all. Preparation of a full environmental impact statement that analyzes potential water, endangered or critical species, soil and cultural impacts, including potential impacts from livestock grazing, mining and other multiple uses is required; without which, this BLM has ignored its legal requirement to take a hard look at these highly relevant impacts.

<u>Livestock – Hard Look</u>

One example of BLM's omission of a major cause of public land destruction that is not sufficiently proposed is the removal/reduction of private livestock on public land. The DEIS professes to restore lands to their natural condition by introducing fire and mechanical manipulation and chemical application to the ecosystem, but the proposal does not address the fact that livestock grazing is a major and continuing cause of altered fire cycles, understory loss, soil compaction, pinyon-juniper expansion, riparian destruction or that burned and grazed juniper sites on BLM lands are being invaded by non-native grasses.

Livestock Grazing - Cumulative Effects - 9-2]

Riparian Destruction by Privately Owned Livestock on BLM-Managed Public Land (above photo)

Livestock grazing has at least the following major negative ecological impacts:

- Significantly Alters Plant and Animal Communities
- Decrease Biodiversity
- Leads to Elimination of Native Predators
- Introduction of Invasive Plants and Diseases
- Soil Compaction and Accelerated Erosion
- Hydrologic Disruption and Contamination
- Habitat Destruction

Another very important question that is not addressed within the EA but is required in order to satisfy the NEPA requirement to take a hard look at this very relevant issue and incorporate it within the DEIS alternative: Will all livestock grazing be discontinued for two or more years after fire and other treatments?

Removal or reduction of livestock grazing in the treated project area would:

1. Allow natural recovery of plants that will recover on their own to occur (from regrowth or sprouting), without the added pressure and stress of defoliation from livestock grazing.

[Vegetation Treatments Planning and Management - 9-3]

2. Allow the germination and initial growth of seeded plants to occur without ground disturbance from livestock hoof action and trailing.
3. Allow seeded plants to establish for at least two years so they are adequately rooted in the soil, to avoid them from being physically pulled out of the soil from livestock grazing.
4. Allow seeded plants to grow into mature plants with sufficient leaf growth for photosynthesis and the ability to produce seed before they are grazed by livestock.
5. Allow riparian areas and wetlands, which are highly preferred grazing areas, to rest from livestock grazing pressure to allow for full recovery of riparian plant growth and vigor to ensure the proper functioning of riparian/wetland sites.
6. Allow native plants to recover from mow/chop/burn treatments through regrowth and sprouting to provide food, cover, and shelter to wildlife - especially in sage grouse habitats.

[Veg Treatments Planning and Mgmt-General-9-5]

The Battle Mountain District's Mt. Lewis Field Office Draft Environmental Impact Statement (EIS) for the 3 Bars Ecosystem and Landscape Restoration Project raises more questions than it answers. The current Draft EIS fails to provide specific actions for specific locations; the preferred actions are ambiguous and raise serious concerns. The BLM must clearly define each preferred action, identify the specific locations and outline the time frame (time of year, duration, etc.) for each action. The Draft EIS fails to adequately analyze the impact of the preferred or proposed actions on wild horses, wildlife and the wild horse Herd Areas in the targeted Project area. I urge the Lewis Field Office to clarify the proposed actions and to specifically address the following:

[Water Resources-Envir. Conseq. 9-7]

1. Site-specific preferred actions must be clearly identified and analyzed in the EIS; this must include the timeframe for any actions (time of year for actions, duration of proposed actions, etc.).
2. The proposed fencing raises serious concerns. Even temporary fencing will have a negative impact on wild horse movement. Any fencing in or around any Herd Areas or Herd Management Areas must be thoroughly disclosed -- including the minimum and maximum duration for each fencing proposal.
3. Any "treatments" to water sources (including use of motorized machinery) must be clearly outlined -- specific locations, duration of each treatment, etc. must be disclosed and analyzed, and alternative actions with fewer impacts must be analyzed to ensure the most environmentally-friendly "treatment' is implemented.
4. Proposed destruction of vegetation raises serious concerns as it is well documented that wild horses rely on pinion juniper trees for cover to gain protection from the elements.
5. Each proposed action must specifically be analyzed to determine if there is any temporary or permanent impact these actions may have on wild horses, their movement, their access to natural environmental components (cover, water, forage), etc.

[Wild Horses-Environmental Consequences - 9-4]

[Vegetation Treatments Planning and Methods - Fencing - 9-6]

[Wild Horses-Envir. Conseq-

The public must be provided with future opportunities to comments on site-specific actions and other details as requested above.

BLM's Idea of Land Health Treatment is Not My Idea of Land Health Treatment (above – BLM photo)

I appreciate the opportunity to participate in the planning decisions on our public lands and wish you to leave you with this quote by Ralph Waldo Emerson, "What you do speaks so loud that I cannot hear what you say".

Sincerely,
Ms. Kathleen Gregg
Environmental Researcher
therealgrandmakathy@yahoo.com

Cc: Amy Lueders, Nevada State Director
alueders@blm.gov

Receipt and Response Requested

---------- Forwarded message ----------
From: **Eileen Hennessy** <eileen.hennessy@yahoo.com>
Date: Fri, Nov 29, 2013 at 8:37 AM
Subject: Comments on Mt. Lewis Field Office 3 Bars Project Draft EIS
To: 3Bars_Project@blm.gov

DOCUMENT #10

Dear Mr. Lewis and Mr. Furtado,

As a wild horse and burro advocate and a taxpaying American citizen who has a stake in the public lands managed by the Bureau of Land Management (BLM), I want to go on record as voicing my strong opposition to the BLM's proposed action to wreak havoc on a 750,000-acre land area, including federally designated wild horse habitats, by proposing the so-called "3-Bars Ecosystem and Landscape Restoration Project, an inappropriately named plan to "improve" this area by means of highly destructive slash and burn techniques that would cause more harm than good to these rangelands.

The Battle Mountain District BLM manages an area in Nevada known as "the heart of wild horse country which includes 28 Herd Management Areas (HMAs) extending more than 3 million acres. The Herd Management Areas (HMAs) threatened by this misguided dangerous and proposal include Roberts Mountain, Whistler Mountain, Fish Creek, Rocky Hills and zeroed-out Herd Areas (HAs). Such severe disturbances the agency proposes to let loose on these rangelands would most definitely inflict negative impacts on the mustangs and other wildlife living in these areas and the resultant wreckage cannot and must not be ignored. The BLM must clarify its intentions in explicit detail defining and outlining each and every preferred action before even suggesting such a potentially devastating proposal.

The Draft EIS for the 3 Bars Ecosystem and Landscape Restoration Project is fraught with obscure and ill-defined proposed actions that lack salient details and specifics such as locations, time frames among other details. Such logistics, as well as a serious and thorough analysis of the negative impacts such proposed actions would have on wild horses and all other wildlife in these areas, are absolutely vital and must be included in the revised Draft EIS for each and every separate action proposed if, when and where it were to occur.

[Wild Horses – Environmental Consequences – 10-1] There would surely be long-term impacts on mustangs and other wildlife from the proposed actions in the Project's targeted areas due to BLM removing protective cover, or poor site recovery. The long-term impacts of such actions, which would result in loss of vital protective coverage, necessary forage, habitat access and inadequate range restoration, have not been seriously considered and must be thoroughly examined in the revised EIS.

As wild horse advocates have come to understand the mindset behind the BLM's Wild Horse Harvesting Machine, it comes as no surprise that this rogue agency is specifically targeting and planning the destruction ("treatment" and removal) of vegetation required for wild horse foraging as well as those that provide mustangs shelter from the elements, including sagebrush and pinion-juniper trees respectively.
An increase of cheatgrass and other weeds would also result.

The "Preferred Alternative" also proposes other euphemistically-named "treatments" in these legally designated wild horse habitats including so-called "temporary" fencing which would greatly and adversely restrict wild horses from their rightful range in their lawfully designated HMAs for extended periods of time. (No doubt, as

wild horse advocates have come to expect, these “temporary” barriers would eventually become PERMANENT (as they seem to have done in the PMWHR) allowing the BLM to little by little reduce (chip away) the HAs/HMAs to a fraction of their size thus spurring the BLM to declare that they have little choice but to zero out the remainder of the already stolen acres of wild horse habitat due to lack of space for the remainder of “overpopulated” wild horses who are left crammed into the shamefully reduced habitat. This shameful ploy has been used time and time again by the BLM -- first chip away at the wild horses legally designated area, then build a few fences until it appears that the scant habitat remaining could not possibly sustain the “massive” amount of wild horses left after the agency has dissected their habitat with their intrusive fencing. Thus one more wild horse HA/HMA is zeroed out, in direct response to a man-made problem of crowding wild horses into ever shrinking habitats, a scenario which the agency itself created to justify mustang removals in order to fulfill its land grab agendas.

[Vegetation Treatments Planning and Management – Methods – Fencing – 10-2] Fencing of any kind -- permanent or “temporary” -- severely impairs wild horse movement therefore, any such proposed action to erect TEMPORARY fencing requires in-depth analysis examining the negative impacts of each and every fencing proposal including disclosure of the projected duration of such actions. It goes without saying that any such fencing projects must not be proposed to somehow justify wild horse roundups and permanent removals in a quest to ultimately zero out more wild horses HAs/HMAs.

The damage the agency would wreak with this bulldozing scheme in no way takes into account the utter destruction such demolition tactics would have on not only the wild horses but all the existing wildlife living in these areas as well as the negative impacts such a toll of annihilation would surely have on the environment, including vegetation and water sources.

The misguided methods of the “Preferred Action” would be devastating to say the least, not only to wild horses but other wildlife that exists in these areas. To unwisely propose to implement such range “improvements” as “temporary” intrusive fencing, bulldozing and “stabilizing” small streams using heavy equipment in waterways, chaining, shredding, tilling, mowing, roller chopping, tree shearing, intensive livestock grazing ("targeted" grazing in BLM speak), chopping, burning, hand cutting and destroying myriad vegetation in wild horse habitat, is a recipe for disaster and all under the guise of “improving” the landscape is ridiculous even for the BLM as it contradicts the agency’s mantra of working toward maintaining “thriving ecological balance”. [Vegetation Treatments Planning and Management – General – 10-3] Exactly how would this proposal of mass destruction lead to “improvement” of the range? Seriously?

This proposed onslaught against the land and its wildlife is nothing more than a recipe for disaster. Do the agency ever tire of inventing new and more devious ways of “managing” our federally protected wild horses into extinction? Does your mandate to preserve and protect these “living symbols of the historic and pioneer spirit of the American West” who “contribute to the diversity of life forms within the nation and enrich the lives of the American people” and are “fast disappearing from the American scene” according to the Wild Free Roaming Horse and Burro Act of 1971, mean anything to you?

I realize the agency has absolutely no experience in managing wild horses and burros, as they themselves have often stated, but I would think a government agency called “Bureau of LAND Management” would be able to envision the catastrophic effects of this proposal would unleash on the targeted land areas if this insincerely and ironically named “3 Bars Ecosystem and Landscape Restoration Project” were to proceed. The BLM’s gross inadequacy at land as well as wildlife (YES, wild horses are, in fact, NATIVE wildlife - not a feral invasive species) management is an embarrassment and I do not appreciate my tax dollars being squandered on yet another of the agency’s self-serving schemes to eradicate OUR wild horses/burros and other wildlife from OUR public lands!

[Vegetation Treatments Planning and Management – General – 10-4] The current Draft EIS fails to analyze the

long-term impacts of these proposed actions which would result in loss of vital protective coverage, necessary forage, habitat access and inadequate range restoration, important details that must be seriously addressed and thoroughly examined in the revised EIS.

The 3 Bars Project Draft EIS must include the above listed revisions and I strongly urge the BLM to work toward preserving the rangelands by seriously examining less intrusive and destructive methods of improving the targeted areas that will not endanger the existing ecosystem's wildlife or the surrounding environment which must be left intact and unmolested in order for them to survive.

As a taxpaying member of the public, I demand to be provided with opportunities to comment on any and all future proposed actions that would impact our nation's wild horses/burros and other wildlife as well as their ranglelands in the targeted area including specific details on proposals for each separate action such as exact site locations, detailed time frames including time of year and duration of such proposed actions. Needless to say a thorough analysis of the negative impacts on the wild horses, other wildlife and the environment must be included in the revised Draft EIS.

Thank you for your serious consideration of my comments on this most urgent issue.

Sincerely,

Eileen Hennessy

02176

APPENDIX E

ARMPA-MD FIRE 23 DOCUMENTATION

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APPENDIX E

ARMPA-MD FIRE 23 DOCUMENTATION

Within the 3 Bars Ecosystem and Landscape Restoration Project, prescribed fire treatments are analyzed under Alternative A. Not all prescribed fire activities will be in GRSG habitat. However, for prescribed fire (broadcast and pile burning) that does occur in GRSG habitat, as stated in MD FIRE 23 within the 2015 ARMPA, the NEPA analysis for the Burn Plan will address:

1) **Why alternate techniques were not selected as a viable option:**

Prescribed fire may be used to control vegetation; enhance the growth, reproduction, or vigor of certain plant species; manage fuel loads; and maintain vegetation community types that meet multiple-use management objectives. Prescribed fire treatments include broadcast burning and the burning of hand stacked piles. Broadcast burning treatments would occur in areas where slope is the limiting factor for mechanical treatments. Prescribed fire would reduce hazardous fuels loads on a project site and assist in preparation of the site for seeding.

While pinyon-juniper can be controlled without the use of prescribed fire, non-fire methods generally do not provide long-term control if pinyon-juniper remains nearby. Fire treatments, including thinning, piling, and burning, typically can remove more trees per unit cost than shredding and mulching, while leaving less woody debris on the ground that could serve as fuel for a wildfire (Gottfried and Overby 2011). Studies suggest that dense stands of Phase II and III pinyon-juniper, where most BLM fire treatments would occur, cannot be managed effectively by fire alone, but must also be treated mechanically to increase herbaceous vegetation that fuels the fire (Ansley and Rasmussen 2005, Tausch and Hood 2007, Tausch et al. 2009). Thus, the BLM would use manual and mechanical methods, in addition to fire, for those units with Phase II and III stands that are proposed for treatment with fire.

When used in combination with the manual and mechanical treatments, pile burning may be an appropriate action to remove fuels from the site. Piles would be constructed using the debris and dead material left on site after the implementation of a mechanical treatment. Piles would be burned based on environmental conditions and in coordination with a developed burn plan.

2) **How GRSG goals and objectives will be met by its use:**

Prescribed fire (broadcast and pile burning) will meet both GRSG habitat objectives and management objectives.

For habitat objectives, prescribed fire can improve general landscape level conditions by

- Reducing tree canopy cover in order to increase the potential for sagebrush and perennial species to establish;
- Increasing sagebrush extent and connectivity;
- Reduce GRSG proximity to tall structures.

Prescribed fire meets ARMPA Objective FIRE 5, which is to "Protect and enhance PHMAs and GHMAs and areas of connectivity that support GRSG populations, including large contiguous blocks of sagebrush, through fuels management and incorporation of FIAT assessment".

3) **How the COT report objectives will be addressed and met:**

Landscape level Objectives: Prescribed fire can reduce conifer encroachment and increase sagebrush extent, which will improve nesting areas, cover and food availability.

Lek Objectives: Security can also improve if conifer cover is reduced to less than 3% within 0.6 miles of a lek.

Nesting Objectives: Prescribed fire, in conjunction with other treatments (ie-seeding), will increase sagebrush and native perennial cover to improve nesting cover. Removing conifers within potential nesting habitat will also increase security by reducing GRSG proximity to tall structures.

Brood-Rearing/Summer Objectives: Prescribed fire, in conjunction with other treatments (ie-seeding), will increase sagebrush and native perennial cover to improve cover and food availability.

4) A risk assessment to address how potential threats to GRSG habitat will be minimized:

Potential threats to GRSG habitat will be minimized by following Standard Operating procedures as stated in Appendix C:

Noxious Weeds: Minimize risk when known noxious weed infestations are present in treatment units. The BLM is required to develop a noxious weed risk assessment when it is determined that an action may introduce or spread noxious weeds or when known noxious weed habitat exists (USDOI BLM 1992). If the risk is moderate or high, the BLM may modify the project to reduce the likelihood of weeds infesting the site and to identify control measures to be implemented if weeds do infest the site.
Prescribed fire treatments would be most successful on sites where perennial grasses are likely to recover and establish after treatment, and least successful on sites where cheatgrass is present.

Greater Sage-Grouse: Prescribed fire activities will adhere to seasonal restrictions to minimize risk to GRSG during seasonal life-cycle periods.

GRSG Habitat: Prescribed fire activities will be conducted to minimize risk of reducing sagebrush cover. The BLM plans to conduct most burns on Phase II or Phase III sites to initiate stand replacement and to avoid impacts to shrubby vegetation including sagebrush although these sites generally have a depleted understory. Pile burns within sagebrush ecosystems (Phase I) will be conducted during the fall, winter, and spring to take advantage of conditions of soil moisture, snow, precipitation, and vegetation green-up to reduce fire impacts to non-target vegetation.

Post-burn monitoring and Adaptive Management requirements: Based on post-burn monitoring for noxious weeds and habitat and resource objectives, some post-burn restoration and management may be needed. After broadcast burns, the BLM may need to reseed burned areas with forbs, grasses, and shrubs. Based on past reseeding treatments conducted for several wildfire burns in the District, seeding and planting of native and non-native vegetation may have limited success, especially during drought years, and native release of seeds may be the primary mechanism for site revegetation. However, in areas with sufficient moisture, seedings have been successful and have resulted in an abundance and diversity of forbs, grasses, and shrubs.

Contingency Resources and Patrol Requirements: Prior to prescribed fire, contingency resources and patrol requirements will be outlined within the prescribed fire plan, per BLM policy and Interagency Prescribed Fire Planning and Implementation Procedures Guide. Contingency resources will be addressed in Element 17: Contingency Plan and Element 18: Wildfire Declaration. Patrol requirements will be addressed in Element 21: Post-burn Activities