

**Decision Notice
&
Finding of No Significant Impact**

**Arrowhawk Fuels Reduction
and
Ecosystem Enhancement Project**

**Humboldt-Toiyabe National Forest
Carson Ranger District
Washoe County, Nevada**

United States
Department of
Agriculture

Forest Service
Intermountain
Region

A Healthy Forest Restoration Act Project

Introduction

In May of 2012, an US Forest Service Interdisciplinary Team completed the Arrowhawk Fuels Reduction and Ecosystem Enhancement Project Environmental Assessment (EA) for this project in compliance with the National Environmental Policy Act and the Healthy Forest Restoration Act (HFRA, 2003). The EA disclosed the direct, indirect, and cumulative environmental impacts that will result from implementing the proposed action to treat hazardous fuels and improve forest health within the project area. The EA is available on the Humboldt-Toiyabe National Forest website at: www.fs.fed.us/r4/htnf/projects/#carson and at the Carson Office (see contact info section).

The project area is located on the Carson Ranger District southwest of Reno, Nevada on the east slope of Mount Rose. The elevation of the project area ranges from 5,100 to 8,000 feet. The project is near the communities of Arrow Creek and Galena along the Mt. Rose highway, Caughlin Ranch, the residences within Logan Meadows, as well as other residences adjacent to the forest boundary in the vicinity of southwest Reno.

The legal description for the project area is Township 19N, Range 19E, sections 31 and 32; Township 18N, Range 19E, sections 4, 5, 6, 7, 9, 10, 15, 16, 21, 22, 27, 28, 29, 30, 32, 33 and 34; and Township 19N, Range 19E, sections 4, 5 and 9, Mount Diablo Meridian. A vicinity map of the analysis area is located in Appendix A, Figure 1.

This project will implement hazardous fuels reduction on National Forest lands primarily in areas identified as priorities in the Carson Range Multi-jurisdictional Fuel Reduction and Wildfire Prevention Strategy completed in 2008 in cooperation with 14 local and state land and fire management entities.

The Arrowhawk Fuels Reduction and Ecosystem Enhancement analysis area encompasses approximately 7,500 acres of land. Approximately 7,425 acres of the analysis area is located within the Wildland Urban Interface (WUI) as specified in the Sierra Nevada Forest Plan Amendment (2004) and 75 acres are located within the general forest. Treatments proposed in this document will only occur on National Forest System lands. Approximately 6,493 acres are within Inventoried Roadless Areas (IRAs), and the project was designed to be in compliance with the 2001 Roadless Rule.

PURPOSE AND NEED FOR ACTION

The purpose of this initiative is to reduce fire hazard to the communities of Arrow Creek, Caughlin Ranch along the Mt. Rose highway, the residences within Logan Meadows, as well as other residences adjacent to the National Forest boundary in the general area of southwest Reno and to provide defensible areas for firefighters to control and/or suppress future wildland fires. The project will also improve watershed conditions and protect municipal watersheds from adverse effects of severe wildland fire on soil and water quality; reduce dense vegetation to increase vigor, health and growth rates in the forested ecosystem, and improve aspen stands where health of the stand is declining from competition from encroaching conifer trees.

This action is needed because tree and shrub densities in the project area are increasing and vegetation health and vigor is declining. This is causing competition for water, and sunlight. The existing vegetation conditions support fire intensity levels which threaten the safety of firefighters engaged in community protection efforts. Additionally, decreased vegetation vigor is increasing the potential for the spread of insect, disease, and severe wildfires in the forest.

These fires have severe effects on ecological and watershed values as well as posing threats to communities. Examples of these effects can be seen as a result of the Hawkin Fire in 2007, which occurred on the northern end of the project area. Other recent examples fires burning under severe fire conditions include the Caughlin Fire of 2011, which burned into the project area from the adjacent private property and the Washoe Lane Fire in January of 2012, which burned into the Galena community southeast of the project area.

DECISION

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

- 1) Whether or not the project has the potential for significant impacts and if an environmental impact statement would need to be prepared prior to issuance of any decision.
- 2) Whether to approve the proposed Arrowhawk Fuels Reduction and Ecosystem Enhancement Proposal as written (see Appendix A and B for maps and detailed description) or with modifications.

I find, based on a review of the Arrowhawk Fuels Reduction and Ecosystems Enhancement Project Environmental Assessment, that the proposed action has no significant impacts requiring the preparation of an Environmental Impact Statement prior to the issuance of my decision to implement. (See section entitled Finding of No Significant Impacts for details)

Also, based on my review of the Environmental Assessment (EA), I have decided to implement the proposed action as described in the EA. The proposed action has been designed to reduce the hazard of a severe wildland fire by reducing forest fuel loading through treating vegetation in the three fuel layers: crown or canopy fuels, ladder fuels, and surface fuels. By products of this proposed action will also: improve tree vigor and plantation tree growth and survival; improve and protect wildlife habitat; protection and improve of watershed conditions by decreasing the threat of high severity wildfire and; and enhance and expand existing aspen stands.

My decision includes implementation of hazardous fuels and forest health treatments on up to 7,500 acres of National Forest lands as described in Appendix B of this document and the EA (pages 8 – 14). A map of the proposed action is located in Appendix A, Figure 2. Treatments will include shrub and incidental small tree thinning on approximately 2,500 acres, conifer thinning on approximately 878 acres, animal treatments to control cheat grass on approximately 2,900 acres, aspen enhancement on approximately 118 acres, and prescribed fire throughout the project area as conditions allow.

Treatments will be spaced throughout a ten year time period. Some areas will receive more than one type of treatment and some locations may be retreated if needed to meet project objectives while adhering to resource protection measures designed to mitigate possible adverse effects of the treatments.

DECISION RATIONALE

I have selected the Proposed Action because it comprehensively addresses the purpose and need. This proposal responds to the need to protect communities and natural resources within and surrounding the project area which has become increasingly more urgent due to a number of recent fires which have burned near and into the project area. Vegetation conditions within the project area will support fire behavior that exceeds the desired condition for the Wildland Urban Interface specified in the Sierra Forest Plan Amendment, 2004.

Additionally, the proposed action and associated design features incorporated into the proposed action to mitigate potential negative environmental impacts, address comments and concerns raised by both the public and interdisciplinary team members during the development and analysis of the project. In designing mitigation measures and analyzing the environmental consequences of the proposed action (EA pgs. 24 – 85) potential impacts to air quality, cultural resources, noxious weed spread, recreation, Inventoried Roadless Areas, soils and water, vegetation, visual resources, wildlife, and sensitive plants were considered.

OTHER ALTERNATIVES CONSIDERED

The team followed the alternative development and analysis procedure found under Section 104 of the Healthy Forest restoration Act. Section 104 (c) Consideration of Alternatives requires (A) the proposed agency action alternative; (B) the alternative of no action; and (C) an additional action alternative if the additional alternative is proposed during scoping or the collaborative process and meets the purpose and need of the project, in accordance with regulations promulgated by the Council on Environmental Quality (CEQ). No additional alternatives were proposed during scoping or collaboration. Potential issues concerning environmental effects that may have lead to the need to develop alternatives were addressed through design features and mitigation measure built into the proposed action.

Under the No Action alternative, current management plans would continue to guide management of the project area. No vegetation treatments would be implemented to accomplish project goals. This alternative did not meet the purpose and need for the project.

The proposed action meets the requirements of the non-commercial funding alternative required under the November 3, 2009 Remedy Ruling by Judge England regarding the 2004 Framework (Sierra Nevada Forest Plan Amendment). The ruling requires a detailed consideration of a “non-commercial” funding alternative for fuels reduction activities. The proposed action meets the requirements of a non-commercial funding alternative because only trees needed to meet fuels reduction or forest health improvement will be removed. Although trees of commercial value may be sold, no additional timber harvest of larger diameter trees will be included to create a break-even or positive economic return. Therefore a separate non-commercial alternative was not analyzed.

PUBLIC INVOLVEMENT

The Forest Service used multiple methods to develop the proposed action and determine the issues of this project. The Forest Service involved members of the public, interested private groups, and State and local agencies, including:

- Listing of the project in the Schedule of Proposed Actions (SOPA), published quarterly by the Humboldt-Toiyabe National Forest, 2009-present
- Collaboration with the Nevada Fire Safe Council, and Sierra Fire Protection District
- Mailing the opportunity to comment/scoping document to 82 interested individuals and groups and adjacent landowners on August 17, 2009. Eight individuals provided comments during the scoping period
- News release to local media sources about project, and time and location of public meeting on August 18, 2009
- Publication of an opportunity to comment/scoping legal notice in the Reno Gazette Journal on August 21, 2009
- Holding a public meeting in South Reno, Nevada on September 8, 2009
- Presentation to the Washoe County Southwest Truckee Meadows Citizens Advisory Board, September 16, 2009

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

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

Although a number of concerns and potential issues were noted during scoping and the analysis, no unresolved resource conflicts were identified. As documented in the Environmental Consequences section and this project's planning record, the Proposed Action will not result in unacceptable impacts on any given resource and the Proposed Action will not be inconsistent with applicable laws, regulations, rules, and Forest Plan standards and guidelines. All comments, and issues raised during the scoping period have been addressed and those documents have been included in the project record.

FINDING OF NO SIGNIFICANT IMPACT

After considering the environmental effects described in the Arrowhawk Fuels Reduction and Ecosystem Enhancement Environmental Assessment and reviewing the Council on Environmental Quality Regulations for significance (40 CFR 1508.27), I have determined that this proposal is not a major Federal action that will significantly affect the quality of the human environment, either individually or cumulatively. Preparation of an Environmental Impact Statement pursuant to Section 102 (2)(c) of the National Environmental Policy Act of 1969 is not required. This determination is based on consideration of the context of the proposal and the following factors to be considered when evaluating intensity of the potential impacts, as outlined in 40 CFR 1508.27.

1. Beneficial and adverse impacts

My finding of no significant environmental effects is not biased by the beneficial effects of the action. The beneficial effects of fuels reduction and forest health treatments have not been used to balance adverse effects of the treatments. Potential adverse effects were considered in the project design and mitigation measures to reduce the potential for adverse impacts were incorporated into the proposed action. These mitigation measures and design features are specifically included to minimize or eliminate potential adverse impacts caused by the fuels reduction and forest health treatments. Effects determination were made independently from the beneficial effects of the treatment, but considering the mitigation measures incorporated into the project design. A discussion of the potential effects is summarized in the EA (pages 24 – 85).

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

Implementation of this project will reduce threat to public health and safety from high severity wildland fire. The treatments are designed to increase the efficiency of fire suppression efforts and reduce the risk to firefighters, the public, improvements, and the natural resources of the area. These fuels reduction treatments will achieve improved public health and safety by reducing the intensity of wildfires and their resistance to control by fire suppression efforts. Implementation of the Proposed Action will be governed by public health and safety standards and contract clauses.

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

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

There will be no significant effects on unique characteristics of the area. Parklands, prime farmlands, wetlands, wild or scenic rivers or ecologically critical areas are not present within the analysis area. The Galena Regional Park, immediately to the south of the project area will most likely benefit somewhat from the treatments on adjacent

National Forest lands, especially if similar fuels reduction and forest health treatments are implemented in the park as well.

Historic and cultural resources within the project area have been surveyed and analyzed, and found not to be significantly affected by the project. A letter of concurrence was received from the State Historic Preservation Officer in March of 2012.

Because eighty-six percent of the project area is within Inventoried Roadless Areas (IRA's), this project was designed to be in compliance with the 2001 Roadless Rule. There is no road construction, reconstruction, or temporary road construction within Inventoried Roadless areas as per 36 CFR 294.12. Timber proposed for removal is to maintain or restore the characteristic ecosystem composition and structure, specifically to reduce the risk of uncharacteristic wildfire effects as specified in 36 CFR 294.13.

A Project Roadless/Wilderness Attributes Analysis Worksheet has been completed and added to the project file. This assessment indicates that the present proposed impacts to roadless character and resources would be minimal and short-term. These small IRAs have been highly manipulated by human activity including logging, mining, tree plantations, and proximity to urban interface of Reno. The project proposal has been submitted to the Regional Forester for review and a concurrence letter has been received.

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

There are expected to be very few negative effects on the human environment due to the design features and mitigation measures build into the project design specifically to prevent them. Public involvement efforts did not reveal any significant controversies regarding the environmental effects of this proposed action. Similar actions have been proposed, analyzed and implemented by the district in the recent past with very little controversy. (EA – Public Involvement pgs. 6-7 and Environmental Consequences pgs.24-85).

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

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

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

The action is not likely to establish a precedent for future actions with significant effects, because this action is not unusual in itself and does not represent a decision in principle about future considerations. This action is the project level implementation of the Toiyabe National Forest Land and Resource Management Plan (USDA 1986), as amended by the Sierra Nevada Forest Plan Amendment (USDA 2004) and helps move the project area toward the desired conditions identified in these plans.

7. Whether this action is related to other actions with individually insignificant, but cumulatively significant impacts.

Cumulative effects of this action were discussed in the Environmental Consequences section of the EA, both in general terms considering activities occurring in the project area presently and in the recent past, and within the effects analysis of each resources area (EA pages 24-85). No cumulatively significant impacts were discovered during the Environmental Assessment. Although there will be individual short-term disturbance to some species, the proposed action will not contribute to a downward trend in populations.

8. The degree to which the action may adversely affect districts, sites, highways, structures, and 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 historic resources.

Cultural resource field surveys were completed and the State Historic Preservation Officer (SHPO) concurred with a determination of “no adverse effect to historic properties” within the avoidance plan provided for this project which has been incorporated into the design features of the proposal. The implementation activities will be designed to avoid impacting the historic archaeological resources identified in the project areas. The project will protect some of these resources by reducing the threat of a catastrophic wildland fire (EA Environmental Consequences – Cultural Resources (pgs. 26 to 27).

The Washoe Tribe of California and Nevada, and the Reno Sparks Indian Colony have been consulted on the project. The district maintains open communication with the tribe concerning potential discoveries during project implementation.

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

According to the U.S Fish and Wildlife Services species list obtain for the project area (Ref.No 2012-SL-0071) no threaten, endangered, or proposed wildlife species have the potential to occur in the project area. One candidate plant species has the potential to occur. Field surveys found no evidence to indict it’s presences in the project area. The four wildlife and eight plant species listed on the USFS Region 4 Forest Sensitive Species list that have the potential to occur in the project area were carefully analyzed. Effects of project implementation were analyzed and design features were incorporated into the project design to address potential impacts on these species. (EA Environmental Consequences - Wildlife/Sensitive Plants pgs. 34-47 and 57-85).

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

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

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

I find the proposed action to be consistent with the Toiyabe National Forest Land and Resource Management Plan (1986), as amended by the Sierra Nevada Forest Plan Amendment, 2004. The project was designed to be in conformance with land and resource management plan standards and guidelines. This action is also consistent with the National Forest Management Act of 1976, and the Healthy Forest Restoration Act of 2003.

My decision to implement this action is consistent with all applicable laws, Executive orders, regulations and policies as summarized below:

Clean Air Act of 1970, as amended – The Proposed Action is in compliance with the Clean Air Act, 1977 as amended. All required permits will be secured to ensure compliance with federal and state laws. Pollutant emissions will be within state and federal standards. The Northern Sierra Air Quality management District (NSAQMD) enforces compliance with the Clean Air Act. Burning permits are issued and administered by the NSAQMD. Smoke production and management, as analyzed in the EA.

Clean Water Act of 1977, as amended - The Clean Water Act (CWA) is a federal statute that requires states and tribes to restore and maintain the chemical, physical, and biological integrity of the nation's waters (33U.S.C. 466 et seq., Title I, Section 101). The project does not involve the filling, alteration or modification of any waterway or riparian area. This proposal includes design features to ensure management activities maintain or improve watershed conditions (EA-proposed Action Design Features pgs. 17-18). The Soils and Water analysis (EA- Environmental Consequences pgs. 47- 49) discloses the potential effects of the alternatives on water quality. The project area contains two Nevada Impaired Waters (303d) listed streams due to high zinc, boron, and arsenic content. The priority for developing remediation plans is low. The EA analysis reveals no significant adverse impacts to water quality.

Consultation with Tribal Governments (E.O. 13175) – Consultation with the Washoe Tribes of California and Nevada and the Reno Sparks Indian Colony has been ongoing during project analysis and will continue through implementation. The District consulted with the tribes in face-to-face meetings, with the tribes having no specific, on-the-ground issues or concerns with the Arrowhawk project. The district last met the Washoe Tribe on February 22, 2011; and with the Reno-Sparks Indian Colony on August 8, 2011. Other laws requiring consultation include:

American Indian Treaty Rights – The proposed hazardous fuels treatments will not conflict with any known treaty provisions.

Archeological Resources Protection Act of 1979 Public Law 96-95 12USC 470

Native American Graves & Repatriation Act of 1990 - Public Law 101-60125 USC 3001

Endangered Species Act of 1973 - The project area contains no known populations or potential habitats for any federally listed threatened or endangered species, as documented by the U.S. Fish and Wildlife Service in a letter dated January 11, 2012 (Ref. No 2012-SL-0071).

Environmental Justice (E.O. 12898) (59 Fed. Register 7629, 1994) directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low income populations. The action will not

result in unequal impacts on minority populations and low income population and complies with E.O. 12898.

Floodplain Management (Executive Order 11988) and **Protection of Wetlands** (Executive Order 11990) – This action will not result in significant adverse impacts on wetlands or floodplains as they relate to protection of human health, safety, and welfare; preventing the loss of property values, and; maintaining natural systems. The goals of Executive Orders 11988 and 11990 will be met. All wetlands will be protected through design features which conform to Executive Order 11990.

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

The EA considered impacts to migratory birds. A limited operating period (LOP) within aspen stands and riparian areas will occur April through July during migratory bird breeding season. Some short-term impacts are expected to migratory birds; however, long term habitat conditions will also be improved for some species

National Historic Preservation Act of 1966 - The Forest Service conducted an intensive cultural site survey of the project area. Results of the survey were documented in the project Cultural Resource Report (see project record), as was the determination the project will have no effect on any known cultural resources eligible for the National Register of Historic Places. On March 12, 2012, heritage report R2010041702040 was submitted to the State Historic Preservation Office (SHPO) for review. The SHPO concurred with the no adverse effect to Historic Properties and potentially eligible resources determination. This action will not have any direct or indirect effects on historically significant sites if the protection measures incorporated into the proposed action as design features are adhered to.

2001 Roadless Rule - When developing the treatment proposal in the Inventoried Roadless Areas of the project, the Forest Service followed the direction outlined in the August 18, 2008 memorandum from the Chief of the Forest Service. The project was also reviewed for consistency by the Regional Forester as per the direction from the Chief dated June 8, 2012. Documentation of the Regional Forester’s review for consistency is available in the project file.

IMPLEMENTATION DATE

In accordance with 36 CFR 218, subpart A, implementation of this decision may begin immediately following its execution. Implementation will most likely begin in the early fall of 2012.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES

The EA for this hazardous fuel reduction project is was prepared under the provisions of the HFRA. It is subject to the 36 CFR Part 218, Subpart A Pre-decisional Administrative Review Process and is not subject to the notice, comment, and appeal procedures found in 36 CFR Part 215. Pursuant to 36 CFR, Part 218, no appeals are provided.

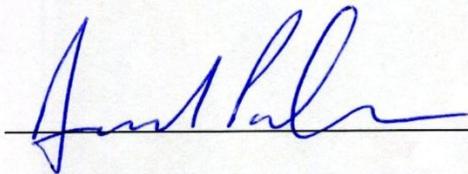
Individuals and organizations who submitted specific written comments related to the proposed authorized hazardous fuel reduction project during scoping or other public involvement opportunities were eligible to file an objection following completion of the environmental assessment during the pre-decisional administrative review process. This information was provided in the scoping letter that was sent to 82 individuals and local public entities and in a legal notice published in the Reno Gazette Journal on August 21, 2009.

A letter outlining the objection process and copy of the EA were sent to 9 individuals who expressed interest in the project during scoping. A legal notice providing notification of the availability of the EA for review and initiating the objection period was published in the Reno Gazette on May 23, 2012. The 30 day objection period began May 24, 2012 and ended June 22, 2012. No objections were received.

CONTACT INFORMATION

For copies of the Arrowhawk Fuels Reduction and Ecosystem Enhancement Environmental Assessment, please visit the Humboldt-Toiyabe National Forest web site at: www.fs.fed.us/htnf. You may also contact the Carson District Ranger, Genny Wilson, 1536 So. Carson Street, Carson City, NV 89701, 775-882-2766.

SIGNATURE PAGE



Dave Palmer (Acting District Ranger)



Date

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APPENDIX A

MAPS

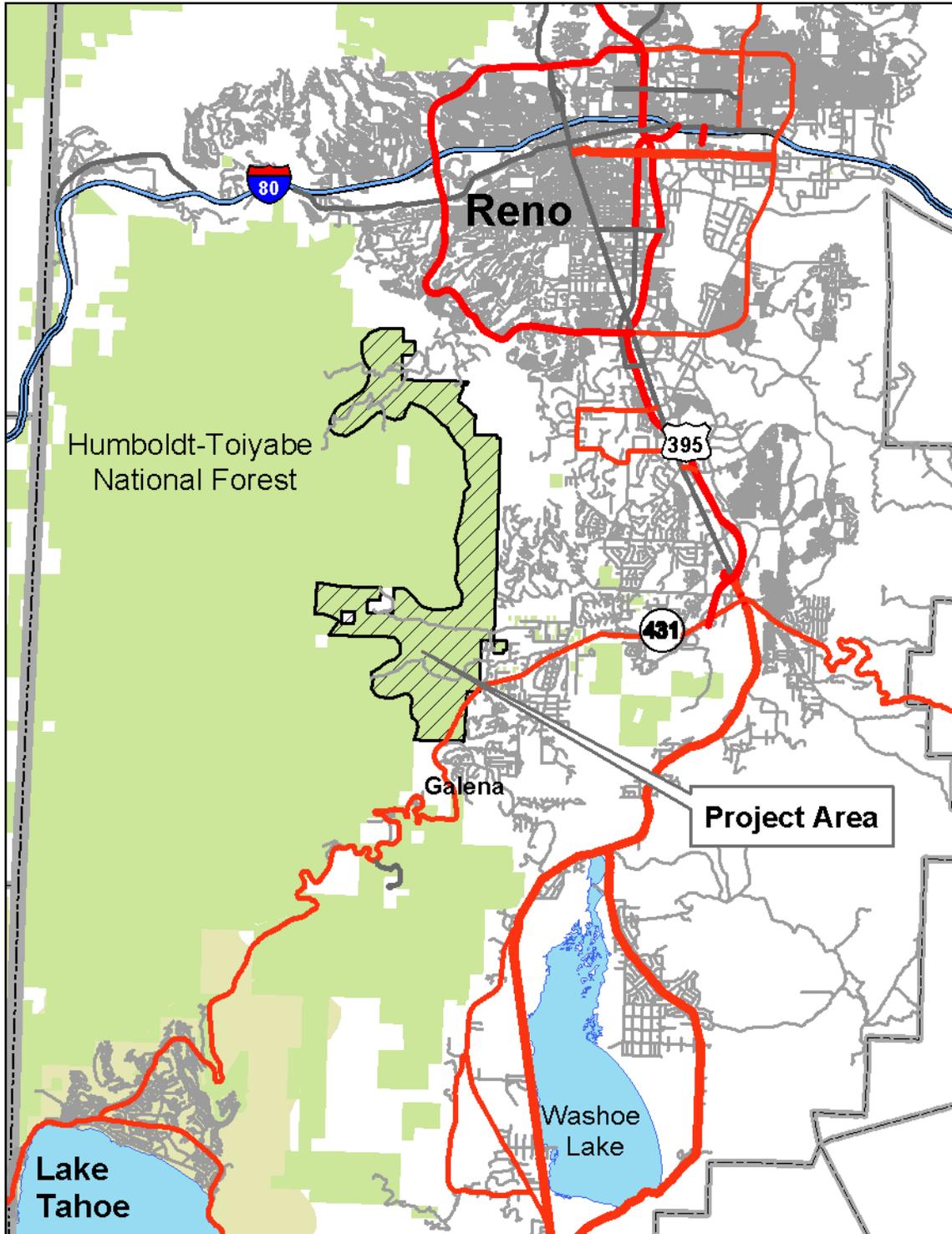


Figure 1 – Vicinity Map

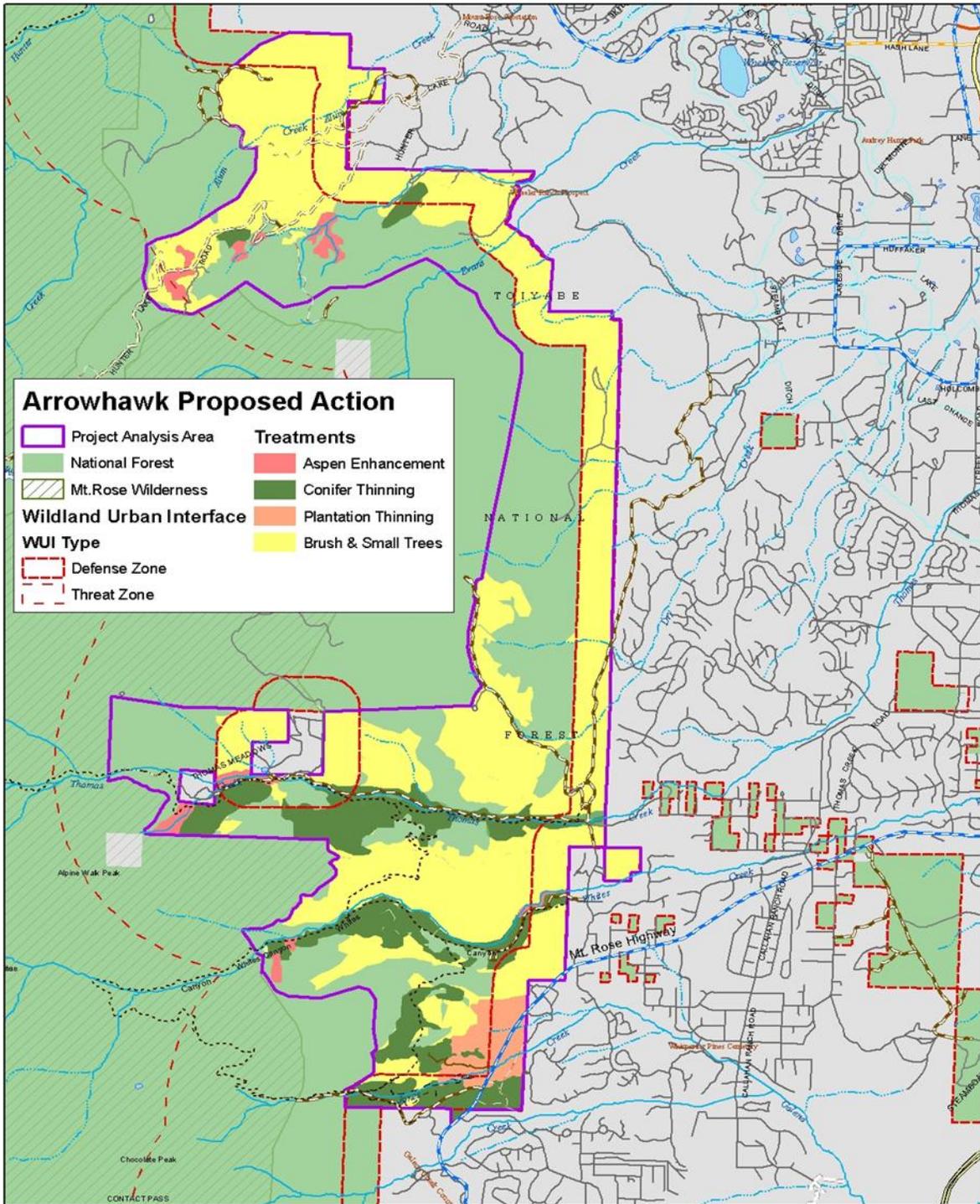
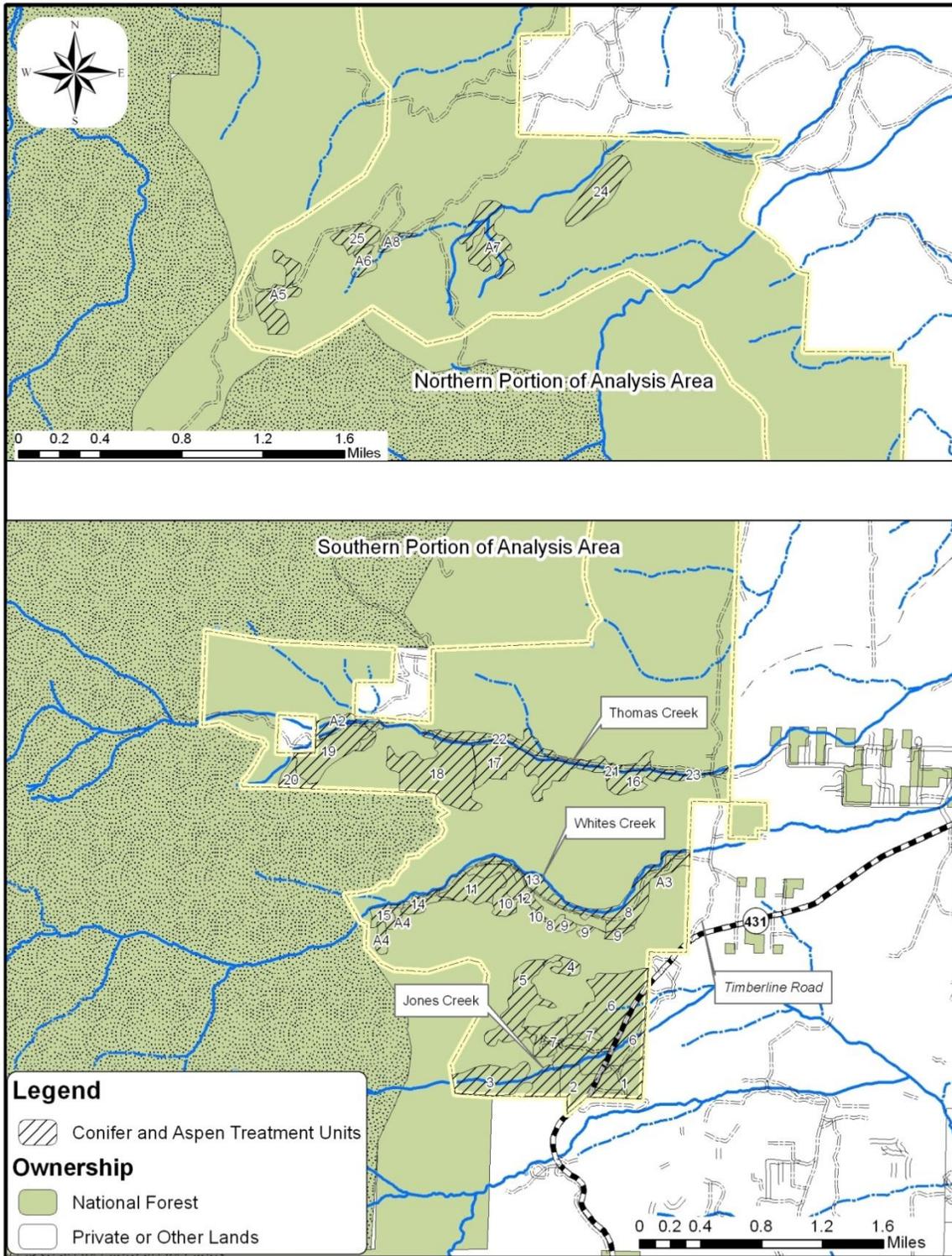


Figure 2 – Proposed Action

Figure 3 – Conifer Thinning and Aspen Enhancement with Unit Numbers



APPENDIX B

Proposed Action

Shrub and Incidental Small Tree Thinning (Brush Units)

Within approximately 2,500 acres designated as brush treatment units, shrubs and small trees will be treated through mechanical means such as mastication, mowing, chainsaw cutting, chipping, piling and/or prescribed fire. The entire area within the units will not be treated if a partial treatment is sufficient to adequately reduce potential fire behavior or cannot be treated without severely impacting site stability. Generally, the treatments will focus on thinning the understory vegetation that acts as ladder fuels under larger individuals of both tree and brush species. Additionally, large expanses of continuous dense brush will be broken up by treatments.

The objective for treatments is to reduce fuel continuity by creating mosaics of different age classes of vegetation mimicking the natural vegetative patterns created by low intensity fire. The treatments will reduce dense concentration of shrubs and small trees under larger trees and break up the horizontal continuity of brushy fuels by creating mosaics of different age classes through treating 30 to 70 percent of the area per entry. The percentage treated will be based on fuel conditions, threat to property and resources from wildfire, and potential for invasive weeds.

For example, if the site has a high potential for cheatgrass invasion due to harsh site conditions such as southerly slope, poor soil, or lack of shade from over story vegetation the greater percentage of the existing vegetation may be retained per entry. Or if the site is adjacent to private property and the vegetation on site poses a significant threat, a percentage of vegetation from the higher end of the range will be removed. Entries will be generally be separated by 5 to 10 years in the WUI Defense Zone and 10 to 20 in the threat zone, but vegetative response will determine the actual timing for the next treatment cycle.

Healthy shrubs of larger size will be maintained to provide visual and habitat diversity and some snags of brushy species will also be retained. Bitterbrush and mountain mahogany will be favored for retention. If cheatgrass or other invasive are present in sufficient densities weed treatments may be completed prior to brush treatments. If conditions allow prescribed burning may occur following the initial mechanical treatments.

Trees in these units are generally scattered throughout the landscape or clustered in small groves rather than continuous stands. Thinning shrubs and small trees from beneath larger trees will be done to break the fuel ladder that allows fire to climb from surface into tree crowns. This will reduce the amount of heat generated in surface fires which can be lethal to trees even if their crowns do not burn. Initial treatments will focus on older age classes of shrubs showing evidence of moisture stress or age and density related decline.

The ridge top treatments will focus on the vegetation on the northern sides of the ridges which are areas in which fires will normally be expected to slow their rates of spread and intensity, and are areas where fire fighters often use to contain a fire. The width is based on potential fire behavior based on available fuels, weather and wind, and topography. These treatments are not designed to stop an oncoming wildfire by themselves, but rather to provide a safe location to

facilitate fire suppression efforts and provide an anchor point for prescribed burning projects. These units will be highest priority for treatment after WUI Defense Zones.

On approximately 178 acres within the plantation areas, non-commercial size trees will be thinned to maintain an average of 16 to 20 foot spacing, off-site plantation trees will be removed, shrub densities around the trees will be reduced and pruning of live limbs up to six feet will occur.

Conifer Thinning

Treatments will occur on a total of approximately 878 acres; generally small diameter conifer trees up to 24" dbh will be thinned from below with fir species and insect and mistletoe infested trees favored for removal. This treatment will involve thinning from below by generally removing smaller trees that are most susceptible to wildfire and leaving the dominant largest trees that are less susceptible to fire. Trees will be thinned from below to 70 to 160 square feet of basal area with the average being approximately 90 square feet of basal area per acre. Small tree removal will be emphasized and trees less than 8" dbh will be thinned to 10 to 15 trees per acre. All trees 24" dbh or greater will be retained, additional trees will be retained within the basal area carrying capacity of the site. Residual trees will be irregularly spaced across the landscape with small groups of typically three to six closely spaced overstory trees to retain structural diversity. Removal of some trees greater than 24" dbh may be necessary for skid trails or landings. Residual basal areas, up to 250 square feet per acre, will be retained in some locations. These locations will include areas where high densities of trees greater than 24" dbh occur, in untreated areas, and in areas where pockets are retained, described in the paragraph below.

To provide habitat diversity, pockets of trees up to 1 ½ acres in size will be retained in some of the riparian and other areas. These pocket zone areas include: a) within 200 feet North and 300 feet south of Thomas Creek from the WUI defense zone to Thomas Creek meadows, b) within 300 feet of Whites Creek from the trailhead west, c) within 300 feet of Jones Creek, and d) within units 4, 5 and 7. These tree pockets will occur in specified areas where canopy cover currently exceeds 50%, large down woody debris and larger diameter snags exist. The size of the tree pockets will vary and will be dependent on areas where specified conditions exist, however size will not exceed 1 ½ acres and pockets will be no closer than 300 feet to allow continuous forest cover to be broken up to deter the effects of fire. Some thinning of trees across diameter ranges less than 18" dbh may occur within these pockets; however canopy closure will not be reduced below 50 percent. Preferable over story trees include Jeffrey pine and aspen, though white fir over story as well as understory trees may be retained. Conifer thinning units where tree clumps and tree pockets may occur are displayed in Figure 3 of Appendix A.

Within units 19 and 20, clumps of three to five trees at least 18" dbh and the existing understory trees in the clump will be retained. Within these units, outside the defense zone, one clump per acre will be retained, where the conditions exist. If possible, canopy closure within the entire unit will not be reduced below 40 percent, however if fuels reduction objectives cannot be met canopy closure will drop below 40 percent.

Additional trees within the pockets and in units 19 and 20 may be removed only when necessary to allow for fire lines, skid trails and landings. Placement of wildlife pockets and fire lines, skid trails and landings will be coordinated during implementation to accommodate critical access points for implementation of treatments and placement of wildlife pockets for resource protection.

On accessible slopes generally less than 30%, approximately 584 acres of conifer trees will be thinned and removed with ground based equipment such as tractors, mechanized equipment and pickup trucks through saw timber and commercial and personal use fuel wood contracts. On approximately 412 acres, on slopes generally greater than 30% and less accessible areas, trees will be removed with an aerial removal system, such as helicopter yarding. Whole tree yarding, removing the bole, tops and limbs of trees, will be utilized where economically feasible. In areas where whole tree yarding is not feasible, activity slash will either be lopped and scattered for under burning, or piled and burned or chipped. Treatment of activity slash will be a priority for prescribed burning. If adequate funding is not obtainable to do helicopter removal, treatments in those units will be completed on small trees and treated on site, through hand cutting and piling to burn or chip, or masticate. Funding will continue to be pursued to complete the forest health treatments, but fuels reduction is the priority as funding is available.

Animal Treatments

Carefully managed sheep grazing will be used to target areas infested with cheatgrass. Timing of grazing will occur when cheatgrass is most susceptible to damage and stress from defoliation. For cheatgrass, this includes short time periods in the spring and fall when the plant is in “green-up”. Targeted grazing could occur on approximately 2,900 acres of currently infested sites. Grazing will not occur in aspen sites or other sensitive meadow and riparian zones. All known sites infested with medusa head will be avoided to reduce the potential to move medusa head seed to other portions of the project area.

Prescribed Fire

Prescribed fire will be applied throughout the project area as conditions allow. Burning will include burning slash piles produced in thinning brush and trees, broadcast burning of shrub species, and understory burning in conifer stands. Burning will be utilized both to consume vegetation that cannot otherwise be removed in order to reduce fire behavior in the event of a wildfire, and to restore the ecological benefits of low intensity fire in this fire adapted ecosystem.

Burning will generally be done following mechanical treatments that will reduce fire behavior by removing or rearranging natural fuels. Pile burning will be conducted in areas that have previously been thinned. Branches and needles, and other small diameter material will be piled to dry and burned under prescribed conditions. Broadcast burning may be used in some areas that have been previously treated as well as some untreated areas that have low to moderate natural fuel loading and fire behavior potential. Low intensity understory burning will also be used to reduce surface fuels and stimulate herbaceous growth under the tree stands. All prescribed burns will be done under manageable conditions and locations chosen to limit impacts while achieving the project objectives.

Burns will be conducted under conditions both cooler and wetter than are typical of wildfire conditions, and detailed burn plans will be written and approved by required officials and air quality regulators. Burns will most commonly be conducted in areas that have received prior mechanical treatments, however they may be used in areas untreated by other means if conditions allow. Preparation of areas to be burned may include use of chainsaws and/or mechanical equipment to cut small trees and brush to create control lines to prevent fire escaping burn units. Because burn units will be determined as the project is implemented, specific resource protection measures for the burn units will be determined during the burn planning process.

Aspen Enhancement

On approximately 118 acres, aspen stands will be enhanced and expanded through removal of encroaching conifers and stimulation of aspen regeneration. Treatment will include removal of most conifers up to 30" diameter at breast height (dbh) from within and approximately 100 feet (1 ½ times the tallest aspen tree) from the edge of the existing stand. It is usually difficult to get a fire to carry through a pure aspen stand, even in the understory, because of this aspen stands are often used as living fire breaks (Shepperd 2001).

If successful aspen regeneration, approximately 2,000 to 4,000 stems per acre, does not occur with conifer removal alone, the aspen stand will be under burned with a light intensity burn. In aspen stands where there is minimal conifer encroachment, but minimal to no aspen regeneration, a light intensity under burn will help stimulate aspen regeneration. Refer to Appendix A, Figure 3 for areas where aspen enhancement will occur. (Aspen treatments are labeled with an A before the unit number, ie A1).

Maintenance

Recurring treatments to maintain reduction of ladder and surface fuels and maintain the area with reduced fuels may occur as needed. Prescribed fire will be used to maintain treatments where possible, but brush and small tree mastication, and invasive weed treatments may also be included. Maintenance will also occur in areas that were treated in past projects prior to this proposed action but are within the project area as well as areas treated through this proposal. Re-treatment may occur within three years of the initial treatment and may continue, as needed based on vegetative response and effects monitoring.

DESIGN FEATURES

The design features to be incorporated into, and implemented with the proposed action for resource protection are listed below.

Air Quality

- Prescribed fires are subject to permitting by the Washoe County Air Quality Management District (WCAQMD). For each prescribed fire, the Forest Service will have contingency plans identified to reduce smoke emissions. Contingency plans shall be implemented when

the WCAQMD determines that acceptance limits of smoke are exceeded, and/or the Forest Service anticipated that the prescription for a prescribed fire will be exceeded.

- When mechanical fuels treatment operations occur, dust generated from dirt roads will be monitored for air quality compliance with the standards set forth by the WCAQMD.

Archeology

- For ground-disturbing activities, National Register eligible and unevaluated archaeological sites will be flagged and avoided during project implementation.
- Trees will be directionally felled away from identified archeological sites.
- Temporary roads, skid trails, and landings will be located to avoid archeological sites and no slash piles will occur in identified archeological sites.
- For prescribed burning, crews will construct fire-control lines to avoid placing fire in archeological sites. Wooden artifacts, features, or structures will be protected during burning activities.
- If there are archaeological discoveries of previously unknown sites during project implementation, operations will stop in the area around the discovery while an archaeologist is contacted to investigate the situation.

Fire/Fuels

- All Federal, State and local regulations pertaining to prescribed burning and smoke management will be followed.
- A U.S. Forest Service (Region 4) burn plan will be completed and approved before burning is initiated. Prior to the burning season a news release will be distributed to media contacts and public notification will occur to advise the local community of the prescribed burning.

Noxious Weeds

- Contract equipment will be washed and inspected prior to entering National Forest System lands to remove any soil and debris that may harbor noxious weed seeds.
- Areas with higher concentrations of cheatgrass and/or medusa head will be evaluated prior to any prescribed burning and/or mastication activity to determine the risk of spreading these weeds following implementation. If the risk of cheatgrass spread is considered high, the site will be avoided or mitigated with pretreatment and seeding of native grasses. Only native seed mix, tested as weed free, will be used.
- Ongoing weed treatments will continue on known occurrences of noxious weeds in the project area. Heavily infested areas will be identified and avoided until weeds are eradicated or at levels low enough that the risk of spread is minimal.
- Known occurrences of noxious weeds will be managed. If road surface material is needed to repair roads, sources will be inspected and determined to be weed free.

Recreation

- Treatment in areas that are visible from system trails including Jones / Whites loop, Whites Creek Trail, Thomas Creek Trail, Dry Pond Trail and connector trails to the Galena Creek Visitor center and Jones / Whites Trailhead will be carefully considered and disturbance in the view shed minimized.
- Where treatments are necessary, decrease intensity of treatments along trails to reduce short term effects to the recreation experience, and discourage off trail use. Where feasible leave down woody material and brush along trails to reduce off trail travel proliferation of social trails.
- As much as possible hide evidence of treatments such as cuts, fire lines, evidence of motorized equipment, tire tracks, etc. in areas visible from trails.
- Techniques include includes raking, covering cuts with dirt, cut any stumps flush to the ground, returning fire lines to natural grade, cover ground disturbance such as fire lines with needles or woody material. As much as possible retain the natural appearance of treatment areas near these trails.
- It is preferred that trails be used as fire lines rather than constructing new line in areas visible from trails. If trails are used as fire lines, return woody debris (if available) to the edge of the trail to minimize off trail use and development of social trails. If trails are widened or trenched to make more effective fire lines, return the trail to original width or less than 30" and fill trenched areas / construct water bars to prevent erosion.
- Limit motor vehicle travel on these trails and hide or repair evidence of motor vehicle use associated with the project.

Sensitive Plants

- If **Galena Creek rockcress** or **Washoe tall rockcress** are detected, individual plants will be flagged and excluded from project activities. For a large group of plants, the perimeter of the population will be determined and flagged to exclude project activities. For both individual and groups of plants a 50ft. buffer will be applied to maintain rare plant habitat by excluding project activities. The buffer width may be adjusted to fit the configuration of rare plant habitat with respect to topography and the vegetation present at the specific site as determined by a botanist trained to identify the plant and its habitat requirements.
- With the documentation of **Botrychium ferns** listed as sensitive within the project footprint, an exclusion zone will be designated to avoid plants and habitat during project activities; the perimeter of the plant occurrence will be determined with a maximum 100ft. buffer and flagged to preserve occupied habitat. Potential habitat which is adjacent to the Thomas Creek meadow and the aspen stands on the upper portion of this drainage will be re-surveyed prior to project implementation. The buffer width may be adjusted to fit the configuration of rare plant habitat with respect to topography and the vegetation present at the specific site to protect local hydrology as determined by a botanist trained to identify the plant and its habitat requirements.

- To avoid potential impacts to **Shevock's bristle-moss** from project activities, granitic rocks five feet and taller will be avoided during treatments. To prevent scorching and/or overheating of Shevock's bristle-moss plants and/or habitat, pile burning activities will not occur within 30ft. of large granitic rock. During prescribed fire underburns, shrubs adjacent to granitic rock outcrops may be removed by hand and burned away from the outcrop feature. Within any given unit where the protective measures for the moss prevent implementation of the fuels reduction activity, a botanist trained to identify the moss will survey the site to determine presence or absence of the rare species. Documentation of Shevock's bristle-moss occupied habitat will require modification of project activities and implementation of mitigation measures.
- Both the **altered andesite buckwheat** and **altered andesite popcorn flower** have been documented from the vicinity of Evans and Alum Creek within the project area. Due to the lack of dense vegetation, no fuels treatments are likely to occur in these sites. However to avoid potential impacts from equipment accessing other areas for treatment, occupied habitat will be flagged and avoided during project activities. These areas will be identified on the ground by a botanist trained to identify these plants and their habitat requirements will be omitted from treatment. In addition a thirty foot buffer will be observed at these sites to prevent any incidental impacts from the proposed treatments. While not anticipated, any modification to this mitigation will require a site visit between the district botanist and fuels planner to determine feasible options to protect rare plants and access treatment areas. These areas will be excluded from sheep grazing.
- To avoid impacts to **Sierra Valley ivesia**, all occupied and documented potential habitat (Witham 2000) for this plant will be fenced and/or flagged and will be completely excluded from all project activities, including targeted grazing.

Soils/Water

The risk of impacts to soil and water will be reduced through implementation of the Best Management Practices (BMPs) identified below.

- Generally, ground based equipment will operate on slopes less than 35 percent (30 percent on decomposed granite soils), except for pitches of 150 feet or less. However, mechanical mastication operations may occur on slopes up to 50 percent; these will be designed on a unit by unit basis only after soil stability, soil rock content and the location of the steep slope in relation to the remaining portions of the treatment unit have been determined to be appropriate by the Forest Service.
- Skid trails will be designated on ground based skidding units. Skid trails will be located to minimize soil disturbance and potential erosion.
- Rehabilitation of skid trails may include ripping, seeding and waterbar construction. Temporary roads will be obliterated. Native seed mix will be used during project rehabilitation efforts.
- Equipment exclusion zones will be established for both seasonal stream and perennial streams to protect stream bank stability and water quality. Equipment exclusion zones will be established within 50 feet of a seasonal stream and 100 feet of perennial streams.
- No trees will be removed where they provide stream bank stability.

- Ground based equipment will stay on designated stream crossings.
- Pile burning will be minimized in riparian conservation areas, prescribed fires may back into riparian vegetation areas; avoid direct lighting within riparian vegetation.
- Where fuel conditions allow, five to ten tons per acre of coarse woody debris, greater than three inches in diameter, will be retained.
- Designate sheep bedding sites away from aspen stands, streams and riparian areas. Designate watering areas for sheep.

Vegetation

- Skid trails will be designated on ground based skidding units and located so damage to the residual stand is minimized. Multiple pass skid trails will be located a minimum of 75 feet apart except where they converge at landings.
- In conifer thinning areas, all live conifers 24 inches dbh or greater will be retained; in aspen enhancement and plantation protection and enhancement areas, all live conifers 30 inches dbh or greater will be retained, exceptions are allowed to meet needs for equipment operability but will be carefully considered and minimized.
- Temporary roads will be obliterated; skid trails and landings will be rehabilitated.
- Where feasible, whole tree yarding, with limbs and tops attached, will be utilized to minimize burn intensity and reduce surface fuels.
- Pile burning will not occur within aspen stands.

Visual Resources

- Thin forest vegetation to achieve a more attractive, open and diverse condition that is more consistent with the historic range of the project area scenery, emphasizing the long-term presence of aspen and large conifer trees (>24" dbh) in a clumpy and irregular distribution.
- Long term visible vegetation damage, skidding, slash and soil exposure is minimized (to remain visually unnoticed from trails, trailheads and views into the project area from the Galena Visitor Center and the interpretive trail. This includes trails and trailheads at Thomas Creek, Whites Creek, and Jones Creek.
- Vegetation removal will be done in a manner that protects residual trees and ground cover characteristics from apparent damage.
- Create no long term linear lines or extreme soil disturbance that creates color contrasts or other noticeable contrasts.
- Mowing must be accomplished so as to mimic natural events that result in a characteristic landscape appearance (vegetation mosaics, differing heights and densities, etc.)
- Flush cut stumps within 50 of trails/trailheads.

- Tree marking within 50' from trails, trailheads, and the Galena Visitor Center and the interpretive trail is not readily visible from trails. This includes trails and trailheads at Thomas Creek, Whites Creek, and Jones Creek.
- Skid Roads and Landings: Utilize existing skid roads and landings to the extent possible.
- Retain natural appearing large snags and down logs when they do not pose safety or fuels hazards.

Wildlife

- A Protected Activity Center (PAC) has been designated within the project area to protect nesting habitat for flammulated owls. To maintain habitat integrity within the PAC, the following vegetation prescription has been developed: Modify existing canopy cover no more than 10% in stands with canopy cover of 60% or more and modify no more than 5% in stands where canopy cover is less than 60%;
 - Brush thinning will be by hand and will retain at least 50-70% of the existing brush cover;
 - Tree thinning will be by hand and focused on existing dense patches of understory trees less than 12" in diameter;
 - Where feasible, two canopies of trees and shrubs will be maintained throughout the PAC;
 - All snags with existing cavities will be maintained;
 - Limited operating period from May 15- September 15; no project activities within the PAC during this period unless cleared through the District Wildlife Biologist
- To maintain habitat integrity in some portions of the project area, pockets of trees, up to 1 ½ acres in size, will be retained in some of the riparian and other upland areas. Wildlife pockets will include the following:
 - A) Areas within 200 feet North and 300 feet south of Thomas Creek from the WUI defense zone to Thomas Creek meadows, b) areas within 300 feet of Whites Creek from the trailhead west, c) within 300 feet of Jones Creek, and d) within units 4, 5 and 7.
 - Wildlife pockets will occur in specified areas where canopy cover currently exceeds 50%, and large down woody debris and larger diameter snags exist.
 - The size of the tree pockets will vary and will be dependent on areas where specified conditions exist, however size will not exceed 1 ½ acres and pockets will be no closer than 300 feet.
 - Some thinning of trees across diameter ranges less than 18" dbh may occur within these pockets; however canopy closure will not be reduced below 50 percent. Preferable overstory trees include Jeffrey pine and aspen, though white fir overstory as well as understory trees may be retained.

- Within units 19 and 20, clumps of three to five trees at least 18” dbh and the existing understory trees in the clump will be retained. Outside the defense zone, one clump per acre will be retained, where the conditions exist. If possible, canopy closure within the unit will not be reduced below 40 percent, however if fuels reduction objectives cannot be met canopy closure will drop below 40 percent.
- Where available, three of the largest snags per acre will be retained throughout the project area; at the minimum three pieces of large woody debris, the largest available per acre, will be also be maintained throughout the project area.
- Project activities will not occur in aspen and riparian areas April through July to minimize potential disturbance to migratory birds.
 - Prescribed burning sites will be surveyed for active bird nests immediately before burning occurs (within 1- 3 days). Active nests will be flagged and avoided within 50 feet of a nest site.

MONITORING

This project will use an adaptive management approach, in which treatments are implemented, monitored and adapted. Monitoring will determine if the desired conditions are being achieved. Adjustments to project prescriptions based on monitoring of the proposed action will not need a new decision unless they are determined to be outside the scope of the proposed action. Monitoring actions will include those in Table 1.

Table 1 Monitoring Actions Associated With Implementation of the Arrowhawk Fuels Reduction Project		
Monitoring Actions	Method	Timing
Evaluate the effectiveness of fuels and forest health treatments in meeting project objectives	Field exams and photo points	Pre and post project activities
Evaluate burning conditions, fuel consumption, and RX fire effectiveness	Observations and photos during and after burns	Pre, during and post burn
Evaluate effectiveness of aspen enhancement	Photo points	Pre and post activity
Ensure contracts are correctly implemented.	Inspections	During and post activities