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Humboldt-Toiyabe
National Forest

Austin-Tonopah
Ranger Districts



ENVIRONMENTAL ASSESSMENT

ELKHORN II PRESCRIBED BURN PROJECT

**Austin-Tonopah Ranger Districts
Humboldt-Toiyabe National Forest
August, 2007**

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CHAPTER 1: PURPOSE AND NEED

DOCUMENT STRUCTURE

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into Six parts:

Chapter 1 Purpose and Need: The section includes information about the history of the project proposal, the purpose of and need for the project, and the Forest Service's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and compliance with the Land and Resource Management Plan.

Chapter 2 Alternatives: This section provides a more detailed description of the proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This section also includes mitigation measures and monitoring required under the Proposed Action.

Chapter 3 Affected Environment: This section describes the resources that may be affected by the alternatives. These resource issues were identified during public scoping and determined to be significant issues.

Chapter 4 Environmental Consequences: This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized according to the resources of concern.

Chapter 5 List of Preparers: This section provides a list of preparers who assisted with or were consulted during the development of the environmental assessment.

Appendices: The appendices provide additional information to support the analyses presented in the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Austin-Tonopah Ranger District Office in Austin, Nevada.

BACKGROUND

The Humboldt-Toiyabe National Forest is proposing to use prescribed fire to treat pinyon-juniper woodlands within Elkhorn Canyon and Wattles Creek watersheds. Elevation in the project area ranges from 7,500 to 9,200 ft. with slopes between 15 and 80 percent (average slope is approximately 50 percent). The project area is predominately a mountain big sagebrush community type, with significant pinyon-juniper encroachment. The closing canopy has caused a decline in

understory shrub and herbaceous vegetation. Removal of the overstory in a mosaic pattern will allow re-establishment of understory herbs and grasses, and over time, shrubs.

Portions of the project area were previously treated with prescribed fire. The first entry, Elkhorn Canyon Prescribed Burn (Elkhorn 1), was designed to treat approximately 30%-80% of 6,965 acres (Units 1-3). The burn was implemented in the spring and fall of 2005, successfully treating 1,900 acres, 27% of the 3 treatment units. The current proposal, Elkhorn 2, expands the project boundary to incorporate 10,490 acres, while maintaining the 30-80% treatment objective (Units 1-4). The size-range of treatment openings would expand to 5-500 acres (from 20-200 acres).

PURPOSE AND NEED FOR ACTION

- 1) Reduce fuel loading to lower the possibility of large scale fires. Excessive pinyon-juniper fuel loadings have created a moderate-high risk of losing key ecosystem components from fire.
- 2) Reduce tree density to minimize the risk of epidemic insect and disease outbreaks. Competition for water in overcrowded stands of pinyon-juniper increases susceptibility to insects and disease.
- 3) Restore mountain shrub and sagebrush habitats to increase wildlife habitat diversity. Pinyon-juniper encroachment has increased vegetative competition for light, water and nutrients. As a result, coverage by shrubs and herbaceous species has declined, reducing critical habitat components for many wildlife species, including mule deer and sage grouse.

PROPOSED ACTION

The Forest Service proposes to prescribe burn approximately 2,500-6,700 acres, 30-80% of four treatment units encompassing 10,490 acres. Fire would primarily be applied aerially, with the objective of creating openings ranging from 5-500 acres. Ignition could occur any season of the year, as long as the weather and fuel moisture conditions are within the burn prescription. Implementation and monitoring crews would access the site primarily by pickup and ATVs. Little or no hand-line would be constructed. Fire ignition would not occur in riparian corridors, or stands of mountain mahogany, mountain big sage, or aspen. Burned acreage would be rested from livestock grazing for a minimum of two years

FOREST PLAN DIRECTION

Forest-Wide Goals

Forest-wide goals and standards for **Fire and Fuel Management** as stated in the Toiyabe National Forest Land & Resource Management Plan 1986, Chapter IV-4 are:

Goal #2 Prescribed burning will be planned to meet management objectives, including fuels reduction and habitat type conversion, in a safe and efficient manner (page IV-4).

Standards and Guidelines (page IV-15).

- 5) Natural fuel treatment projects will meet multi-resource objectives
- 6) Vegetation manipulation may be required to meet protection objectives
- 7) Use planned, prescribed fire to improve or enhance resource outputs where appropriate

- 8) Use planned and unplanned ignitions to restore natural ecosystems in wilderness and other areas where appropriate
- 9) Cooperate with other agencies and adjacent landowners to encourage treatment of hazardous fuel accumulations where cost effective and where fuels present a threat to public lands

PUBLIC INVOLVEMENT

Scoping

The Elkhorn II Prescribed Burn Project was originally scoped as a Categorical Exclusion (CE). Scoping letters were sent to all interested parties on April 26th, 2006. A total of two comments were received during the original scoping process.

Notice and Comment

A Notice of Proposed Action (NOPA) for the Elkhorn II Prescribed Burn Project was mailed to all interested parties on February 20, 2007 and provided a 30 day comment period. A legal notice regarding the Notice of Proposed Action and comment period was published in the Tonopah Times-Bonanza & Goldfield News on February 22, 2007. A total of four comments were received regarding the proposed project.

Consultation with Federal and State Agencies

Scoping documents were sent to the U.S. Fish and Wildlife Service, the State Historic Preservation Office, State of Nevada Department of Administration, and the Nevada Department of Wildlife.

Tribal Consultation

Consultation letters and scoping documents were mailed to the Tribal Chairs of the Ely Shoshone, Duckwater Shoshone and Yomba Tribes on April 26th, 2006. In addition to these letters, District Ranger Steve Williams discussed the proposed Elkhorn II Prescribed Burn Project with the Yomba Tribal Council. No significant concerns were raised regarding the proposed project.

DECISION FRAMEWORK

Based on the environmental analysis contained within this document and the project record, the District Ranger will decide:

- 1) Whether to approve the proposed Elkhorn II Prescribed Burn Project as written or with modifications.
- 2) What mitigation measures are needed for the project.
- 3) What monitoring is needed for this project.

CHAPTER 2: ALTERNATIVES

LOCATION

The project area is located in the Elkhorn Canyon and Wattles Creek watersheds on the Monitor Mountain Range. This area is within the Tonopah Ranger District of the Humboldt-Toiyabe National Forest, Nye County, Nevada. Legal description of the project is Township 8 North, Range 47 East, Sections 2-11, 14-23 and Township 9 North, Range 47 East, Sections 15, 16, 21, 22, 26-29, 32-36. The project area is approximately 30 miles east and 35 miles north of Tonopah, Nevada. A copy of the Project Area Map has been included in Appendix 1.

ISSUES

Scoping comments included concerns about the following: soils (erosion), air, wilderness, vegetation, rare plants, noxious weeds, public access/recreational use, cultural resources, Management Indicator Species (MIS), sensitive wildlife, migratory birds, habitat fragmentation, old growth, and livestock. A preliminary analysis of these concerns identified significant and non-significant issues.

Significant issues are analyzed in detail in this Environmental Assessment. These issues include:

- Analysis required by law, regulation, or policy, which include: neotropical migratory birds, Management Indicator Species (MIS), and federally threatened or sensitive species
- Effects upon vegetative communities.

Analysis of the remaining scoping issues will not be carried forward in detail in the Environmental Assessment. These issues have been determined to be non-significant. A detailed analysis of all issues identified during scoping has been included in Appendix 2 of this Environmental Assessment.

ALTERNATIVES

Alternative 1 - Proposed Action

The Forest Service proposes to prescribe burn approximately 2,500-6,700 acres, 30-80% of four treatment units encompassing 10,490 acres. Fire would primarily be applied aerially, with the objective of creating openings ranging from 5-500 acres.

The desired canopy crown-fire would be achieved using a helitorch, a gelled fuel aerial ignition device attach to a helicopter's external cargo hook. The ignition and fuel are controlled by the pilot, using an electrical connector on the belly of the helicopter. Ignited fuel would be dropped from the helicopter into the tree canopy. Ignition could occur any season of the year, as long as the weather and fuel moisture conditions are within the burn prescription. Some of the elements within the burn plan consist of temperature, relative humidity, wind, fuel moisture, and soil moisture.

In addition to the helicopter, large equipment proposed for use includes pickups and ATVs. General site access to project area would occur off County Road 729 (Trail Creek Road), approximately 7 miles southwest of State Hwy 225. Several staging areas for equipment parking and material storage

would be located on existing roads away from streams and riparian areas. A batch station to mix the helitorch gel would be located along or adjacent to the Barley Creek Road #005. In addition, during implementation employees may camp out at existing dispersed camp sites. Remote access may be conducted by horses or hiking.

This proposal involves little or no construction of hand lines. Construction of fire lines would be considered only as a last resort to protect important resources or structures. Consequently, no ground fire crews would be utilized unless absolutely necessary.

Fire ignition would not occur in riparian corridors, or stands of mountain mahogany, mountain big sage, or aspen. If fire does enter into these community types, appropriate suppression actions may be taken to minimize the impacts.

Following project implementation, burned acreage would be rested from livestock grazing for a minimum of two years, or until the area has recovered sufficiently to permit grazing.

Alternative 2 - No Action

The No Action Alternative has also been analyzed in detail in this Environmental Assessment. Under this alternative, no treatments would occur within the project area.

MITIGATION MEASURES

Mitigation measures are proposed to avoid and minimize negative effects to resources surrounding and within the project area.

Cultural Resources

Nevada State Historic Preservation Office (SHPO) has concurred with the following mitigation

- Hand remove duff or pine litter on the following sites: 4170405549, 5630, 5575, 5576, 5566, and temporary site number 05EFP24.
- Replace, recollect, and re-hydrate sourced and hydrated obsidian artifacts should the following sites burn-over: 4070405548, 5556, 5630, and 5576.
- Stage a fire engine near the historic homestead site (4070405573) for site protection, if necessary.
- Place white tape at temporary site 05EFP24 to alert the helicopter pilot not to drop fuel in the vicinity of the historic structure.
- Prior to ignition, treat (remove) vegetation that has potential to fall on the historic structure.

Noxious Weeds/Invasive Species

- Wash all vehicles entering the project area within a designated staging area to avoid transmission of noxious weed seeds.

Residual Smoke

Maintain residual smoke within acceptable standards by:

- Reducing the number of acres burned per day, or
- Adjusting the ignition timing and/or duration, or

- Moving ignition sites to more desirable burn units/areas (e.g., hotter, drier (reduces amount of smoke) and/or different aspect (increase air movement)), or
- Waiting for more favorable atmospheric conditions to resume ignition.

Rare Plants

- Do not actively ignite within rock outcrops, or low or big sagebrush habitats.

Sensitive Wildlife

- Do not actively ignite fuels within rock outcrops. These habitats support potential daytime roost sites for bat species. Additionally, old pinyon stands are located in these habitats and may also provide for daytime bat roost sites.
- Avoid ignition in Elkhorn Canyon where sage grouse occur. Move the treatment boundary 100 meters uphill from known populations.
- Do not actively ignite big or low sagebrush habitats.

Wildlife/MIS Species

- Seed with native species if natural vegetative recovery does not meet recovery objectives

Migratory Birds

- Leave and maintain large, cone-bearing pinyon trees (75 years or older) in patches within the treatment area. Large expansive stands of pinyon occur adjacent to the project area.
- Maintain open, mature pinyon/juniper woodlands with shrubby understory on moderate, rocky slopes and canyon mouths. Maintain small “pockets” of pinyon/juniper at the head of canyons for breeding habitat.
- Leave areas of pinyon/juniper woodlands untreated to maintain a minimum of 50:50 pinyon to juniper ratio or greater pinyon percentage.
- Manage for snags, dead limbs, dead tops, and shrub cover within the project area.

Public Safety

- Alert the media prior to implementation
- Close the project area to the public during ignition operations. Sign access points (Monitor Valley Road), and station road guards.
- Conduct a thorough reconnaissance of the project area prior to ignition to insure no Forest users are in the immediate area.

MONITORING

Monitoring is proposed to 1) assess the effectiveness of burn implementation (in achieving objectives); 2) identify unintended impacts to resources; and 3) determine success in achieving desired vegetation re-establishment. Lesson learning would be applied to similar future projects.

Archeology

- Prior to project implementation place thermal tiles in various locations on the following sites and off-site: 26NY665, 4070405549, 5550, 5630, 5575, 5576, and 5566.

- Conduct post-fire monitoring at site 26NY665, temporary site 05EFP24, 4170405549, 5556, 5575, and 5576, as well as anywhere obsidian was replaced that needs to be collected.
- Establish pre and post-burn photo points.
- Share site monitoring results with SHPO.

Noxious Weeds

- Perform a post-burn assessment. Eradicate or minimize weeds, consistent with the Humboldt-Toiyabe Noxious Weed Management and Control Program.

Migratory Birds

- Conduct breeding bird surveys pre and post-treatment to determine species presence and breeding status; monitor over time to determine bird responses to the treatment.

Vegetation

- Monitor re-establishment of the shrub and herbaceous layers. During years one, three, and ten following implementation, analyze species composition, tree height (HT), diameter at breast height (DBH), stand density index (SDI), trees per acre (TPA) above DBH, and TPA below DBH, fuel loading, and treatment patterns.

CHAPTER 3: AFFECTED ENVIRONMENT

WILDLIFE

Migratory Birds

The Migratory Bird Treaty Act prohibits taking of migratory birds, their parts, nests, eggs, and nestlings. Executive Order 13186, signed January 10, 2001, directs federal agencies to protect migratory birds by integrating bird conservation principals, measures, practices, adverse impacts on migratory birds, and resources when conducting agency actions.

Additional direction comes from the Memorandum of Understanding (MOU) between USDA Forest Service and US Fish and Wildlife Service, signed January 17, 2001. The purpose of this MOU is to strengthen migratory bird conservation through enhanced collaboration, in coordination with state, tribal and local governments. The Forest Service is obligated to strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent the further loss or degradation of remaining habitats on National Forest System lands. This includes identifying management practices that impact populations of high priority migratory bird species, including nesting, migration, or over-wintering habitats, on National Forest System lands, and developing management objectives or recommendations that avoid or minimize these impacts. This will help inform future specific protocols called for in an MOU implementing the Executive Order.

Nevada has more than 240 breeding bird species with close to 400 bird species having been reported in Nevada. The Great Basin Bird Observatory (GBBO) initiated the Nevada Bird Count (NBC) program in 2002 to measure bird abundances and densities across the state in thirteen distinct habitat types using standardized methods. Species distributions were determined from Nevada Breeding Bird Atlas and NBC data collected from 1999 to 2004. The NBC's objectives include monitoring of bird population trends, determining bird abundance patterns that can inform habitat management and implementation projects in Nevada, and monitoring bird populations for habitat implementation projects, such as a change in land management or active habitat restoration (GBBO 2005). The abundance measurements calculated average bird sighting per 40 hectares for each primary habitat type transect may be used as a reference for expected bird abundances when evaluating on-the-ground habitat projects (GBBO 2005)(See Table in Appendix 5).

Two GBBO Nevada Bird Count within similar pinyon/juniper habitat and elevations are located within 20 miles from the proposed project area.

- Saulsbury Basin, Monitor Mountain Range: priority birds identified on Transect PJ-559 included pinyon jay, black-throated gray warbler, and gray flycatcher. Pinyon jays were observed twice as single individuals and as a group of three. Black-throated gray warblers were observed three times as individual birds. None of these priority bird species were determined to be breeding (See Table in Appendix 6).
- Manhattan, Monitor Mountain Range: priority birds identified on Transect PJ-5116 included pinyon jay, black-throated gray warbler, mountain bluebird, and gray vireo.

Pinyon jays were observed once as a single individual. Black-throated gray warblers were observed five times all as individual birds. Mountain bluebird was observed once as a single bird. Gray vireo was observed once as a single bird. None of these priority bird species were determined to be breeding (See Table in Appendix 7).

Based upon these Nevada Bird Count transects and Breeding Bird Surveys, the following birds are expected to occur within the project area: pinyon jay, gray vireo, black-throated gray warbler, gray flycatcher, and gray vireo. Other pinyon/juniper associated bird species may also be present.

Pinyon Jay

In Nevada, pinyon jays are sporadically distributed through the pinyon/juniper belt extending from the Humboldt River south into the mountain ranges of the Mohave Desert, and ranging from the Sierra Nevada to the Utah border. Pinyon pine nuts are the pinyon jay's primary food source with abundant crops thought to stimulate pinyon jay breeding, which is done semi-colonial. Since pinyon cone production is highly variable with spotty distribution from year to year, flocks will wander widely in search of abundant pinyon nut crops.

Limited breeding bird survey data indicate that the pinyon jay has experienced a population decline in the Basin and Range province since 1966 of -4.6% (Sauer et al. 2005). Pinyon/juniper woodlands dominate the project area and cumulative effects areas and provide suitable nesting and foraging habitat for this species during pinyon pine nut bearing years.

Gray Vireo

This insectivorous bird's preferred habitat in Nevada is open pinyon/juniper forest, particularly occurring along desert washes with an understory of shrubs, such as bitterbrush and cliffrose. Preferred vegetative structure is sparse to open canopy of mature pinyon/juniper woodland. Preferred topography includes rocky canyon slopes and bottoms with moderate to steep slopes. In Nevada, the gray vireo is typically a limited range, low-density species.

No breeding bird survey data exist for this species to determine population trends. The pinyon/juniper woodland within the project area does not contain the preferred vegetative structure of sparse to open canopy of mature pinyon/juniper woodlands.

Black-Throated Gray Warbler

In Nevada, the black-throated gray warbler breeds throughout the state from the Spring Mountains in southern Nevada to the Carson Range in Washoe County, east to Great Basin National Park in White Pine County and north again to the Idaho border in Elko County. In most of Nevada, the species appears closely tied to the more arid pinyon-juniper habitats. Black-throated gray warbler's breeds in the pinyon-juniper belt across the state, with an apparent preference for fairly dense mature stands of pinyon/juniper.

This species is an insectivore, gleaning directly from the dense foliage of pinyon/juniper. Wildfires that consume tree canopies may be detrimental to the species, but controlled burning may not bear a significant negative impact.

Limited breeding bird survey data indicate increasing trends for black-throated gray warbler in the Basin and Range province since 1966 of 5.2% (Sauer et al. 2005). The preferred habitat of dense mature stands of pinyon/juniper exists within pockets throughout the project area.

Juniper Titmouse

In Nevada, the juniper titmouse is found in pinyon/juniper woodlands from Interstate 80 south to the Colorado River. Snags and heart rot are assumed to be important to provide nesting cavities. Dense foliage and closed canopies are preferred, while a thin understory and ground cover are preferred for some foraging activities.

Limited breeding bird survey data indicate a slight, non-significant downward trend for this species in the Basin and Range province.

No juniper titmice were observed on two NBC transects in similar habitats within a 20 mile radius, although they are expected to occur within the project area. The preferred habitat of dense pinyon foliage with closed canopies and thin understory and ground cover is located throughout the project area.

Yellow Warbler

Yellow warblers breed from northern Alaska and Canada southward to the central United States; West into Mexico; from southern Florida, throughout the Caribbean and Central American coasts, to northern South America. Yellow warblers winter in Mexico, Central and South America. Preferred habitat is wet, deciduous thickets, especially in willows or shrubby areas. The yellow warbler forages on insects, and occasionally on fruit. This species captures insects by gleaning, flycatching, and hovering. Their nest is a deep cup of grasses and bark, covered on the outside with plant down and fine fibers, lined with fur or fine plant fibers or placed in upright fork of shrub or tree. The species is widespread and abundant; no clear continent wide trend in populations has been identified (Sauer et al. 2005).

No yellow warblers were observed on two NBC transects in similar habitats within a 20 mile radius, although they may occur within the willow dominated riparian area in Elkhorn Canyon that occurs within the project area. Preferred habitat is limited to approximately a one mile stretch of willow dominated riparian habitat located within the lower third of Elkhorn Canyon that will not be impacted during treatment. The treatment units are buffered against the riparian habitat and riparian habitats will not be treated.

Since preferred potential habitat will not be actively ignited during treatment, the Elkhorn Canyon Fuel Reduction Project would cause no direct, indirect or cumulative effects on yellow warbler or its habitat and it will not be discussed further in this document.

Gray Flycatcher, Western Bluebird, Virginia's Warbler, and Scott's Oriole

All these species spend some of their time in pinyon/juniper woodland habitats. The Nevada Partners in Flight Conservation Plan states that if management objectives for the priority bird species

already discussed are met, the habitat needs of these species will also be met. Additional breeding bird survey data needs to be collected for these species in pinyon/juniper habitats.

Based on these two NBC transects in similar habitats, gray flycatchers were observed on the south Monitor Range. Other species included in this section were not observed but may be present in the project area.

Management Indicator Species

Mule Deer

Mule deer are the most abundant big game animal in Nevada and the most widely distributed big game animal in North America. Mule deer occupy a variety of habitat types throughout the west. In Central Nevada, mule deer preferred summer range consists of a mosaic of various-aged, high elevation vegetation that provides for preferred browse, cover, and water. Mule deer were not common in Central Nevada prior to the arrival of settlers in the 1860's. Following the introduction of livestock grazing, which positively affected deer browse forage species, deer herds began to increase. Population peaks have been observed in the mid-60's and 80's, followed by declines in mule deer numbers. Nevada Department of Wildlife (NDOW) data indicates that mule deer herds are stable or on the increase in Central Nevada, most likely due to favorable precipitation years and mild winters.

The project area is considered low-quality winter mule deer habitat. The project area is water limited and preferred browse species patchy. The pinyon/juniper woodlands have been identified as having a canopy coverage that has passed a threshold for understory maintenance. Crucial understory winter browse species have been reduced over time to patches within the project area, thus limiting the numbers of wintering mule deer that the habitat will support.

It is also suspected that sagebrush habitats have been fragmented with the expansion of the pinyon/juniper woodland, and have surpassed a threshold for mule deer to utilize within the project area.

Threatened And Sensitive Species

Greater Sage-Grouse

Greater sage grouse are associated with sagebrush-dominated rangelands for all their seasonal habitat requirements. The sage grouse use sagebrush for food, thermal cover, hiding cover, and nesting. Males form leks on relatively open areas within the sagebrush habitat at sites within or adjacent to potential nesting habitat. Nesting and brood-rearing habitat is usually located within two miles of the lek site (Holloran and Anderson 2005). Sage grouse nests are typically placed under sagebrush shrubs having larger canopies and more ground and lateral cover. Characteristics of sage grouse winter habitats are relatively similar throughout most of the species' range. During winter, sage grouse feed almost exclusively on leaves of sagebrush.

Within the past ten years, two known active sage grouse leks in the vicinity of the project area have become inactive.

- An active sage grouse lek, identified as Elkhorn Spring Lek was located within Monitor Valley approximately 1.5 miles west of the proposed project area in 1997. This lek location was added to the annual monitoring performed by the Bureau of Land Management and Nevada Department of Wildlife at that time and was surveyed annually. The last positive sage grouse count was in 2001 with a total count of 12 birds (10 males and 2 females). Surveys were conducted in 2002, with no birds seen on the lek, but fresh sage grouse scat observed in the area. The lek was surveyed in 2004, with no activity detected.
- The second lek, identified as White Rock Canyon Lek, located two miles southwest of the project area was last active in 1995 with a total count of 7 male grouse. Currently, the existing sage grouse habitat within the project area is limited and is being fragmented by pinyon/juniper encroachment.

Observations of seasonal movements or habitats used by sage grouse in the project area are limited to leks. With limited riparian habitats within or adjacent to the proposed project area, the brood rearing habitat is undetermined. Sage grouse or their sign have not been detected within the project area boundary over the past year, and previous reviews or inventory for sage grouse habitat use within the project area has not been performed due to limited habitat.

Sagebrush habitats within the proposed project area are limited to the lower elevational benches, located within main drainages in Elkhorn Canyon and Wattles Creek watershed. The pinyon/juniper woodland dominates the mid-elevational band between the lower sagebrush community and the higher low sagebrush community. It is suspected that sagebrush habitats have been fragmented with the expansion of the pinyon/juniper woodland area, and have surpassed a threshold for the sage grouse to utilize their preferred sage brush habitats within the project area.

Spotted Bat and Townsend's Big-Eared Bats

Both bat species use a variety of habitats including pinyon/juniper, mixed-conifer forests, ponderosa pine, and grasslands/pastures. Spotted bats are dependent on rock cliff faces for roosting, while Townsend's prefer roosting in caves, mine shafts, abandoned buildings and rocky outcrops. Foraging habitat for both species includes riparian areas, forested edges, pinyon/juniper woodlands, meadows, and agricultural fields (Priday and Luce 1999, Spahr et al. 1991). The availability of suitable roost sites and riparian foraging habitats are the main limiting factors for these two species.

Cliffs for roosting bats are available within and adjacent to the project area. No occurrences or observation of either of these bat species has been documented. Old buildings and historical mine workings are not present in or adjacent to the project area but suitable roosting habitat is available within the Belmont Mining District, located approximately 7 miles away. The project area can be considered foraging habitat, although riparian habitats are limited and the pinyon/juniper woodlands lack a diverse, robust understory that would support a variety of insect prey species.

Pygmy Rabbit

Pygmy rabbits are associated with big sagebrush and rabbitbrush dominated communities, which

they use for food and cover (Flath 1984, Green and Flinders 1980a). These habitats are characterized by deep, well developed soils within the elevational range of 4,494 to over 7,004 feet in Nevada (Green and Flinders 1980a). However, a pygmy rabbit population was identified at 7,450 feet in Corcoran Canyon, Toquima Range during a June 2004 survey (Enviroscientists 2004). Pygmy rabbits may be active at any time of day, although, they are generally most active at dusk and dawn. Pygmy rabbits are restricted to areas with heavy shrub cover (Bradford, 1975; Green and Finders, 1980a): they are seldom found in areas of sparse vegetative cover, and seem to be reluctant to cross open space (Bradford 1975). The primary food of pygmy rabbits is big sagebrush, which may comprise up to 99 percent of the food eaten in the winter. Grasses and forbs are also eaten from mid- to late summer (Bradford 1975, Green and Flinders 1980b). The pygmy rabbit is the only native leporid that digs their own burrows. Burrows are usually located on slopes at the base of sagebrush plants, and face north to east (Green and Flinders 1980a). In areas where soil is shallow, pygmy rabbits live in holes among volcanic rocks, stone walls, around abandoned buildings, and in burrows made by badgers and marmots (Bradford 1975, Green and Flinders 1980a). During periods when the snow has covered most of the sagebrush, pygmy rabbits tunnel beneath the snow to find food. The breeding season of pygmy rabbits is very short. In Idaho it lasts from March through May; in Utah, from February through March (Chapman et al. 1982).

Limited potential habitat is available in the proposed project area. Presence/absence surveys conducted on October 22, 2004 detected no pygmy rabbits or pygmy rabbit sign in Elkhorn Canyon big sage bottom nor Wattles Creek big sage bottom.

Sagebrush habitats within the proposed project area are limited to the lower-elevational benches, located within main drainages in Elkhorn Canyon and Wattles Creek watershed. It appears that the sage brush habitats have been fragmented and reduced with the expansion of the pinyon/juniper woodland area, and have surpassed a threshold for the pygmy rabbits to utilize their preferred sage brush habitats within the project area.

VEGETATION

Table 1: Acreage of Dominant Vegetative Types within the Project and Cumulative Effect Areas.

Vegetation Type	Project Area Acres (%)	Cumulative Effect Area Acres (%)
Cottonwood	0.0 (0.0)	11.0 (>1.0)
Curl-leaf Mountain Mahogany	1,653.0 (16.0)	3215.0 (9.0)
Mountain Brush/Mixed Sagebrush*	681.0 (6.0)	5406.0 (12.0)
Pinyon-Juniper Woodlands	8,122.0 (77.0)	33,202.0 (76.0)
Whitebark/Limber Pine	0.0 (0.0)	30.0 (>1.0)
Desert Shrub	0.0 (0.0)	14.0 (>1.0)
Riparian Shrub	26.0(>1.0)	175.0(>1.0)
Rockslides/Barren/Other	6.0(>1.0)	43.0 (>1.0)
TOTAL	10,488.0	42,114.0

* Mountain brush/mixed sagebrush type includes Wyoming Big, Low, Black, Basin Big, and Mountain Big Sagebrush.

Pinyon-Juniper Woodlands

The project area is dominated by pinyon-juniper woodlands (Table 1, 77.0%) and is typically in early Developmental Phase II with some portions in Phase III (Map 2). Developmental Phase II is characterized by active expansion, moderate to high fruit production, active tree recruitment, and a nearly intact understory layer (Miller *et al.* 2000). Conversely, Phase III is characterized by reduced expansion, low to moderate fruit production, limited tree recruitment, and a dead/thinning understory (Miller *et al.* 2000). Areas dominated by Developmental Phase III are typically located in rock outcrops and rocky ridgelines, where fire generally does not occur.

Within the Great Basin, pinyon-juniper community types have expanded their range greatly since settlement, primarily in the last 100 years (Barney and Frischknecht 1974). It has been suggested by many researchers/managers that the cause of the pinyon-juniper expansion, either indirectly or directly, is the exclusion of fire. The expansion has been primarily into the shrub-grass community types located in lower elevations; however, aspen, cottonwood and high elevation shrub-grass communities have also been affected by the expansion. If unmanaged, trees become dominant and eventually crowd out herbaceous and shrub species (Barney and Frischknecht 1974). Specifically, the increasing densities of pinyon-juniper will reduce light, water and nutrient availability, which can cause a decline in understory shrub and herbaceous vegetation (Naillon *et al.* 1999, Miller *et al.* 2000, Chambers *et al.* 2004, Johnson 2005). Regeneration of understory forbs, grasses and shrubs will become dependant on residual seed sources; however, if residual seed sources are not capable of supporting regeneration, an alternative seed source will be required. This loss in productivity/density reduces the carrying capacity of both domestic and wild animals (Burns 1989, Bunting 1987). Furthermore, overcrowded stands of pinyon-juniper have led to increased competition for limited resources (e.g., light, water and nutrients), which could increase the occurrence of insect (*Ips*)/disease outbreaks (Skelly and Christopherson 2002). Creating a diverse mosaic of age classes and structures will help alleviate competition, thus reducing the probability of insect/disease outbreaks.

The dominance of pinyon-juniper within the project area has decreased the heterogeneity of the landscape structure. Consequently, natural openings, and fuel continuity are potentially out of their natural range of variability (NRV) which could lead to large-scale fires. Specifically, as pinyon and juniper have become dominant within the project area, the risk of fire hazard has increased (Bunting 1987). Therefore, a reduction of pinyon-juniper fuel loading is needed to lower the possibility of large-scale catastrophic fires.

Pinyon Nuts and Fuelwood Harvest

The project area is located in the Central Monitor Commercial Pine Nut Harvest Unit, which is approximately 52,718 acres in size. The Unit sold in 2006, and picking predominantly occurred in Willow Creek (approximately 2 mile swath) and House Canyon (approximately 1 mile swath). The commercial pine nut harvest concentrated along major roadways with high pine nut densities.

Excluding designated Wilderness, private fuelwood collection can occur anywhere within the Austin and Tonopah Ranger Districts. Approximately, 1,884,790 acres (e.g., non-wilderness) are available for fuelwood harvesting. Most private fuelwood harvesters concentrate along major roadways where

there is easy accessibility. Currently, there are no commercial fuelwood harvests within either Austin or Tonopah Ranger Districts.

Cottonwood Communities

Cottonwood community types within central Nevada are typically dominated by Black Cottonwoods (*Populus trichocarpa*). These species are very shade intolerant - growing best in full sunlight; therefore, cottonwood community types are disturbance dependant (Debell 1990). Specifically, disturbance reduced the competition for light, water and nutrients by creating canopy openings and removing competing species. Based on the RSAC vegetation layer there are no cottonwood or aspen community types within the project area; however there is cottonwood within the cumulative effect area (Table 1, > 1.0 %). The nearest cottonwood stand is approximately 247m (~ 0.15miles) to the southeast of the project area. Any disturbance would potentially benefit this community type.

Mountain Brush/Mixed Sagebrush and Riparian Shrub

Within the project area there are approximately 681 acres of the mountain brush/mixed sagebrush community type and 26 acres (> 1.0%) of Riparian shrub (Table 1). The mountain brush/mixed sagebrush type includes Wyoming Big, Low, Black, Basin Big, and Mountain Big Sagebrush which have a range of canopy heights (low to high).

The riparian shrub community type is a combination of grass and shrubs. Both community types are typically disturbance dependant. Currently, pinyon-juniper expansion (due to lack of disturbance) has affected the structure and function of these community types. Structurally, there is an increase in canopy closure, canopy levels (e.g., 2+ canopy layers), and fuel continuity. Functionally, sagebrush, brush, forb and grass species which typically dominate this type have generally reduced dominance, reproductive capability/viability,

Mountain Mahogany

Mountain mahogany is the second dominant community type within the project area. The dominant species within this community type is curlleaf mountain mahogany (*Cercocarpus ledifolius*). This species occurs throughout the Rock Mountains and the Intermountain west in shrub ecotones/brush communities, in open forests, on ridgelines, and on rock outcrops (Marshall 1995). Curlleaf mountain mahogany can depend on fire or other disturbances to reduce conifer competition and produce favorable soil conditions for seedling establishment (Marshall 1995). Within the mountain mahogany type there have been limited disturbances.

Noxious Weeds

Noxious weeds were not identified during field surveys or site visits. Cheatgrass of low densities has been detected outside the project area, and is not expected to expand its current range.

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

WILDLIFE

PROPOSED ACTION (Direct and Indirect Effects)

Migratory Birds

Individual birds addressed in this document may be present in the project area and the Cumulative Effects Area (CEA). Density estimates are extrapolated from the GBBO 2005. Although they do not take habitat quality into account, they are the best scientific information on bird species abundance and densities within the pinyon/juniper woodland habitat in Nevada. The analysis of effects will be based upon alteration of potentially suitable habitat available within the CEA.

For all species below, active burning will occur outside of the breeding season, so there will be minimal or no impact on nesting birds. In addition, the project area comprises less than 1.5% of the pinyon/juniper woodland habitat in the Monitor and Hot Creek Ranges. The goal of the project is to reduce between 30% and 80% of the pinyon/juniper woodlands to re-establish a shrub and herbaceous understory. Prescribed fire will be used to obtain a mosaic creating patches 5-500 acres in size but some may be larger than 500 acres in size. This will allow for pinyon pine persistence and allow for understory shrub and herbaceous cover to increase.

Pinyon Jay

Based upon the maximum amount of habitat that could be treated in the project area, an estimate of up to 1,593 pinyon jays may be impacted by the proposed treatments. An estimate of 112,695 pinyon jays may occur in pinyon/juniper throughout the Monitor and Hot Creek Ranges.

Using prescribed fire to obtain a mosaic burn creating openings averaging 5-500 acres in size, with some areas larger than 500 acres, will allow for pinyon pine persistence throughout the project area and allow for understory shrub and herbaceous cover to increase. Smaller openings within the pinyon/juniper woodlands provide the optimum benefits for pinyon jays. In addition, pockets of live vegetation among the burned areas will provide a seed source for vegetative recovery and provide edge habitat for wildlife.

Gray Vireo

Based upon the maximum amount of habitat to be treated in the project area, an estimate of up to 325 gray vireos may be impacted by the proposed treatments. An estimate of 23,019 gray vireos may occur in pinyon/juniper throughout the Monitor and Hot Creek Ranges.

The most likely location for this species to nest within the project area is at the mouth of Elkhorn Canyon, which will be avoided. Potential vegetative recovery within the project area should favor the re-establishment of the shrub and herbaceous component in a sparse to open woodland canopy, which is the habitat that the gray vireo prefers.

Black-Throated Gray Warbler

The pinyon/juniper woodlands that black-throated gray warbler could potentially use for foraging and nesting would be treated by prescribed fire. Based upon the maximum amount of habitat to be treated in the Project Area, an estimate of up to 1,319 black-throated gray warblers could be impacted by the proposed treatment. An estimate of 59,944 black-throated gray warblers may occur in pinyon/juniper throughout the Monitor and Hot Creek Ranges.

This species appears to have a preference for dense mature stands of pinyon/juniper. The mosaic pattern of burning will allow for the persistence of mature dense stands of pinyon/juniper habitat within the project area.

Juniper Titmouse

The pinyon/juniper woodland that juniper titmouse could potentially use for foraging and nesting would be treated by prescribed fire. Based upon the maximum amount of habitat to be treated within the Project Area, an estimate of up to 152 juniper titmice could be impacted by the proposed treatments. An estimate of 28,773 juniper titmice may occur in pinyon/juniper throughout the Monitor and Hot Creek Ranges.

This species prefers dense foliage, closed canopies and a thin understory. Snags and heart rot are important for cavity nesting. The mosaic pattern of burning will allow for the persistence of mature dense stands of pinyon/juniper habitat within the project area. Snags will be created by the burn and will provide potential nesting habitat at a future date.

Effects Summary

Implementation of the project would alter potential foraging habitat for neotropical migratory priority species. Opening the pinyon/juniper woodland stands would promote foraging opportunities for the gray vireo by increasing the understory diversity and habitat for insect prey species. Stands of mature pinyon pine would be left for the pinyon jay, black-throated gray warbler, and the juniper titmouse, which prefer closed canopies for nesting and foraging. Other priority species are assumed to benefit if the habitat requirements are suitable on the species analyzed. The proposed project activities are compatible with the recommendations for maintaining habitat for these neotropical migrants in concert with other wildlife species addressed in the Biological Evaluations for Sensitive Vertebrate and Botanical Species.

Implementation of the proposed project has a goal of maintenance of the pinyon/juniper woodland habitat within the project area. Reducing fuel loads and treating the pinyon/juniper woodland in a mosaic pattern will provide opportunities for understory vegetation and retain existing pinyon/juniper stands to compliment all habitat needs for discussed neotropical migratory bird species.

As a result of this evaluation the proposed Elkhorn II Prescribed Burn Project may impact individual neotropical migratory bird species, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. The project area includes less than 1.5% of the pinyon/juniper woodland habitat within the Monitor and Hot Creek Ranges.

Management Indicator Species

Mule Deer

Creation of openings averaging 5-500 acres in size (with some areas larger than 500 acres) in a mosaic pattern will allow for pinyon/juniper persistence throughout the project area for hiding and thermal cover. It will also allow for understory shrub and herbaceous cover to increase, increasing forage availability. Smaller openings within the pinyon/juniper woodlands provide the optimum benefits for mule deer. Leaving pockets of live vegetation among the burned areas will provide a seed source for vegetative recovery, and provides edge habitat for wildlife. Onsite, natural regeneration of vegetation is expected to be sufficient to meet management objectives.

The proposed project has not been identified as a crucial area for wintering mule deer with mule deer densities considered low. Mule deer have become habituated to use traditional winter range areas outside of the proposed project area.

Burn preparation and fire ignition activities would impact a few individual mule deer during implementation. Reductions in pinyon-juniper stand density would occur, but sufficient hiding and thermal cover would be maintained. Long-term increases in shrub and herbaceous browse species would substantially improve forage conditions within the project area. Habitat improvements Populations of mule deer would be maintained at current levels by implementing the proposed project.

Threatened And Sensitive Species

Greater Sage-Grouse

Project design excludes fire ignition in mountain big sage habitats and riparian corridors, key sagegrouse habitats. Sage grouse that may be present in sagebrush habitats (low or high elevation) and along woodland edges within the project area would be temporarily disturbed or displaced by prescription activities that include burning and helicopter operations. This disturbance would be short-term and would be limited to a burn unit or a group of burn units adjacent to each other.

The proposed project would provide long-term benefit to sage grouse by increasing the sagebrush habitat component for foraging, nesting, summer, and winter habitats.

Spotted Bat and Townsend's Big-Eared Bats

Project design and mitigation measures exclude fire ignition in riparian corridors and rock outcrops, which provide key foraging and roost habitats for bats. In addition, 20%-70% of pinyon/juniper woodland habitats would not be burned, and would also continue to provide foraging habitat. All prescription activities (aerial operations) would be performed during daylight periods. Active burning into the evening and the presence of smoke may deter bats from foraging within the project area during active burning. This disturbance would be short-term over the period of burn activities and would be limited to a burn unit or a group of burn units adjacent to each other. Bats would benefit in the long term from an increase in the insect prey base of the project area.

Pygmy Rabbit

Pygmy rabbits have not been detected within the project area. Therefore, the potential for short-term impacts to individual pygmy rabbits is negligible. Habitat quality is currently low, due to the expansion of the pinyon-juniper woodland and consequent fragmentation of key sagebrush habitats... Over the longer-term, the burn would re-establish sage brush habitats and herbaceous understory, improving pygmy rabbit habitat.

Cumulative Effects on Wildlife Species

Migratory Birds

The Cumulative Effects Area (CEA) delineated for migratory bird species for this project includes 474,000 acres of pinyon/juniper woodland habitats that currently exist within the Monitor and Hot Creek Ranges on National Forest System Lands. This pinyon/juniper habitat has a variety of canopy coverages, densities, fuel loadings, and supporting understory vegetation that provides foraging and nesting habitat for the Nevada Partners in Flight priority species that use the pinyon/juniper woodland habitat. The CEA represents a large landscape surrounding the project where past, present, and future management actions by humans have or may occur.

Past and ongoing activities within this area that most likely have impacted the vegetative component of the project area include: livestock grazing, historical mining camps supporting a logging industry (charcoal from pinyon) for Belmont, and fire suppression. The Austin/Tonopah Ranger District is currently in the first of two years of a fuels, range, and wild horse and burro assessment for the Monitor and Hot Creek Ranges on National Forest system Lands.

Historic livestock grazing impacted riparian areas and upland habitats by removing/or altering the vegetative component (cover and diversity). This likely reduced vegetative cover and altered vegetative communities, especially near water sources. Historic pinyon pine harvest in the late 1800's selected for mature trees to provide charcoal to support mining operations. A number of old logger camps and cut stumps from this area remain today. This historic harvest was performed throughout the lower elevations of the CEA and appeared to be effective creating a mosaic of cut pinyon thus allowing for an increase in the shrub and herbaceous component, which benefited the browse/herbaceous community. Fire suppression has allowed pinyon-juniper to encroach into big sagebrush/bunchgrass vegetative communities. With the closing of the canopy of pinyon-juniper woodland, the understory including herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances. This encroachment has resulted in a significant reduction in the shrub and herbaceous vegetative community and the potential for sensitive plant habitats.

Present and future activities within the CEA that may have impacts on habitats include: 1) landscape assessment for the purpose of a fuels reduction program on the Monitor and Hot Creek Ranges; 2) future prescribed burning, if deemed appropriate following fuels assessment; 3) maintenance of the successfully burned areas to support sage brush and associated species; and 4) increased public recreation, primarily wildlife viewing and recreational hunting.

Future maintenance or expansion of sage brush habitat or greater sage grouse habitat would be supported by the South Central Sage Grouse Conservation Plan and would likely involve additional treatments of pinyon/juniper habitats by mechanical means or prescribed fire.

Threatened, Sensitive, And Management Indicator Species

The Cumulative Effects Analysis Area for the Elkhorn II Prescribed Burn Project includes all public lands within the boundaries of the Tonopah Ranger District South of forest road 093 in the Barley Creek drainage and North of forest road 162 in McCann Canyon. This area is approximately 52,600 acres in size and includes a range of vegetative communities that may occur within the project area. In this area, 41,342 acres is classified as pinyon/juniper (~75%). This area also includes activities and management actions that are authorized on public lands within the boundaries of the CEA. Lands outside of this boundary are generally lower elevations with the corresponding vegetative communities associated with those elevations. Within the effects discussion for each section, only those activities or actions that are likely to result in cumulative effects will be discussed. Past and ongoing activities within this area that most likely have impacted wildlife habitat include: livestock grazing, historical mining camps supporting a logging industry (charcoal from pinyon) for Belmont, and fire suppression.

Historic livestock grazing impacted riparian areas and upland habitats by removing/or altering the vegetative component (cover and diversity). This likely reduced the species richness and populations of small mammal, avian, and insect populations.

Historic pinyon pine harvest in the late 1800's selected for mature trees for the purpose of providing charcoal to support mining operations. A number of old logger camps and cut stumps from this area remain today. This historic harvest was performed throughout the lower elevations of the CEA and appeared to be effective creating a mosaic of cut pinyon thus allowing for an increase in the shrub and herbaceous component, which benefited a variety of wildlife species but particularly mule deer.

Fire suppression has allowed pinyon-juniper stands have encroached into big sagebrush/bunchgrass vegetative communities. With the closing of the canopy of pinyon-juniper woodland, the understory including herbaceous and shrub understory will lose the resilience to respond after wildfire or other disturbances. This encroachment has resulted in a significant reduction in the shrub and herbaceous vegetative community, and increases in pinyon and juniper stand densities.

Present and future activities within the CEA that may have impacts on wildlife habitats include: 1) additional prescribed burning; 2) maintenance of the successfully burned areas to support sage brush and associated species; and 3) increased public recreation, primarily mule deer and elk hunting.

Livestock grazing on the Monitor Allotment would continue to operate as identified in the Annual Operating Plan. Livestock use of the proposed project area following vegetative establishment would increase with the improvement in the understory shrub and herbaceous component resulting from the prescribed fire project.

Future maintenance of sage brush habitat would include additional removal of pinyon/juniper by mechanical means or prescribed fire.

NO ACTION ALTERNATIVE (Direct and Indirect Effects)**Migratory Birds**Pinyon Jay

If no action is taken, pinyon jays would likely not be affected over the short-term. However, given the high potential for future catastrophic fires in dense pinyon-juniper stands, a stand-replacing wildfire event would likely substantially reduce pinyon jays habitat in the longer term.

Gray Vireo

A pinyon-juniper dominated landscape reduces the preferred foraging areas for gray vireos but increasing tree densities may actually benefit vireos (Schlossberg 2006). However, this could be detrimental as increased tree density may lead to more high-intensity fires and gray vireos tend to avoid areas void of trees (Schlossberg 2006).

Black-Throated Gray Warbler

Black-throated gray warblers will continue to use pinyon-juniper stands as they are currently available. Not conducting the proposed action will likely minimally impact black-throated gray warblers unless a catastrophic fire event occurs resulting in the removal of most of the pinyon-juniper woodland habitats.

Juniper Titmouse

Not conducting the proposed action will slow the creation of senescent trees and dead limbs that are preferred by juniper titmice (Pavlacky Jr. and Anderson 2001). Cavity creation will also be reduced without the addition of fire.

Management Indicator SpeciesMule Deer

Mule deer currently occupy the project area at very low densities due to suboptimal habitats. Over the short-term, foraging opportunities would continue to degrade, as pinyon-juniper encroachment expands, and understory shrubs and herbaceous vegetation declines. Over the longer-term, seed sources for understory shrub and herbaceous vegetation will further decline, and catastrophic wildlife could severely reduce both forage and cover.

Threatened And Sensitive SpeciesGreater Sage-Grouse

In the short-term, pinyon pine and juniper encroachment would continue, further reducing suitable nesting, foraging, and roosting habitat in sagebrush and riparian communities. Over the longer-term, understory seed sources would decline, and catastrophic ground fires could reduce sagebrush cover and hinder sage grouse populations.

Spotted Bat and Townsend's Big-Eared Bats

In the short-term, persistent pinyon and juniper encroachment into sagebrush shrubland and riparian corridors would minimally affect foraging and roosting habitats for either the spotted bat or the Townsend's big-eared bat. Over the longer-term, catastrophic wildfire could reduce the riparian and woodland habitats supporting insects that bats forage upon.

Pygmy Rabbit

In the short-term, continuing encroachment of pinyon-juniper would likely further reduce the pygmy rabbit habitat further. Tree encroachment increases the number of potential raptor perch sites and more habitat fragmentation. Over the longer-term, understory seed sources would decline, and catastrophic ground fires could severely reduce sagebrush habitat and hinder pygmy rabbits.

VEGETATION

PROPOSED ACTION (Direct and Indirect Effects)

Pinyon-Juniper Woodlands

Potential direct and indirect effects on the pinyon-juniper community types include:

- 1) Reduced pinyon-juniper fuel loading within the project area sufficient to lower the probability of large-scale catastrophic wildfires. In addition to reducing overall fuel loads, the mosaic pattern of the prescribed burn would slow fire spread.
- 2) Increased vegetative (species, age class, and structural) diversity and reduced pinyon-juniper expansion within the project area. Currently, pinyon-juniper expansion is reducing the productivity and density of understory shrub and herbaceous species. This loss in productivity/density reduces the carrying capacity of both domestic and wild animals (Burns 1989, Bunting 1987).
- 3) Reduce potential of large scale insect and disease outbreaks. Overcrowded stands of pinyon-juniper increase competition for limited resources, which increases the probability of large-scale insect (*Ips*)/disease outbreaks (Skelly and Christopherson 2002). Creating a diverse mosaic of age classes and structures would help alleviate competition, thus reducing the probability of insect/disease epidemics.

Pinyon Nuts and Fuelwood Harvest

Opportunities for fuelwood harvest and pine nut collection with the 700,000+ acre Monitor Range far exceed demand. Loss of opportunities in the relatively small (10,490 acres) project area would not affect commercial or non-commercial fuelwood sales.

Cottonwood Communities

Cottonwood communities would not be affected by the proposed action because all cottonwood stands are located outside of the project area.

Mountain Brush/Mixed Sagebrush and Riparian Shrub

The proposed action does not actively ignite fire in sagebrush or mountain brush communities, minimizing impacts on existing stands. The proposed action would create mosaic pattern openings

within the pinyon-juniper woodland, promoting natural regeneration of sagebrush and mountain shrub communities from onsite seed.. A combination of surviving herbaceous/shrub species (in burned area) and plants in adjacent unburned areas may potentially provide an adequate seed source and dispersion distance for successful regeneration. If limited natural regeneration or the invasion of noxious weeds occurs, the proposed action provisions for noxious weed control and seeding of native species would support the reestablishment of sagebrush and mountain shrub communities..

Mountain Mahogany

The proposed action does not actively ignite fire in mountain mahogany communities, minimizing impacts on existing stands. The proposed action would create mosaic pattern openings within the pinyon-juniper woodland, promoting natural regeneration of sagebrush and mountain shrub communities from onsite seed.. A combination of surviving herbaceous/shrub species (in burned area) and plants in adjacent unburned areas may potentially provide an adequate seed source and dispersion distance for successful regeneration. If limited natural regeneration or the invasion of noxious weeds occurs, the proposed action provisions for noxious weed control and seeding of native species would support the reestablishment of mountain mahogany communities.

Noxious Weeds

The risk of invasion by noxious weeds is very low in the project area, due to elevations exceeding 7,500 feet. Proposed action monitoring and mitigation strategies would minimize the risk of establishment and spread..

Cumulative Effects

Cumulative Effects Area

The Cumulative Effects Analysis Area for the Elkhorn II Prescribed Burn Project includes all public lands within the boundaries of the Tonopah Ranger District South of forest road 093 in the Barley Creek drainage and North of forest road 162 in McCann Canyon. This area is approximately 42,114 acres in size and includes a range of vegetative communities that may or may not occur within the project area (Table 1). This area also includes activities and management actions that are authorized on public lands within the boundaries of the Cumulative Effects Area. Lands outside of this boundary are generally lower elevations with the corresponding vegetative communities associated with those elevations. Below are past, present and potential future management actions, projects or other activities which may result in cumulative effects within the analysis area. Within the effects discussion for each section, only those activities or actions that are likely to result in cumulative effects will be discussed.

Mining/Mineral Exploration

There are no past (known), current and/or potential mining activities in the project area; however, there are three pending and three closed mining activities within the cumulative effects area. The three closed operations include Keradamex Windy Canyon Project (1981), Golden Chalice Uke project (1992) and Greenwich Resources King Solomon Project (1984). The pending projects include the Golden Chalice Aphro Hill project, Golden Chalice Uke project, and Cougar Gold King Solomon project. Below are further descriptions of the past and potential projects:

- 1) Keradamex Windy Canyon project: 5 drill pads at 50 x 50 ft each, plus 2800 ft of new road constructed (no width given, using 10-ft average width for these calculations), plus a small catchment pond of 50 x 35-ft, so all that adds up to a total of just under 1 acre (0.97) of disturbance, completed in 1981.
- 2) Golden Chalice Uke project: is 10 holes and 5,025-ft of new road construction, or approximately 4.37 acres disturbance – completed in 1992.
- 3) Greenwich Resources King Solomon project: 10 holes and 1,545-ft of road construction, or approximately 0.75 acres disturbance – completed in 1984.
- 4) Cougar Gold King Solomon project: 10 holes and 1,545-ft of existing road maintenance (they're re-drilling the same 10 holes of Greenwich's project, using the same un-reclaimed roads, etc.), so again, approximately 0.75 acres disturbance (but the same 0.75 acres as above).
- 5) Campbell, Lyle Trust claims project: approx 1/2 acre disturbance.
- 6) Golden Chalice Aphro Hill project, approximately 5100 ft of new road and 9 drill site and approximately 4.26 acres of disturbance

Due to the small project sizes, the past mining activities have had limited impacts on the vegetation communities within the cumulative effect area. In addition, the potential mining activities are of small size and will probably not have significant effects on vegetation communities. These projects are small and located out of the project area reducing the possibility of further impacting the project area.

Livestock Grazing

The project and cumulative effects area are both located in the Monitor Complex allotment which is active (Table 2). The allotment is approximately 119,119 acres.

Table 2. The current type of livestock, permitted season of use, permitted numbers and grazing season within the Monitor Complex allotment.

Allotment	Status	Type of Livestock	Permitted Season of Use	Permitted Numbers	Grazing System
Monitor Complex	Active	Cattle	5/15 – 9/15	130	Rest Rotation

Utilization studies conducted in the Monitor Complex Allotment were 6-20 percent in the uplands and 45-50 percent in the riparian areas which indicate that the allotments are within Forest Service permitted standards (Table 3). Vegetation condition data indicates that the Monitor Complex Allotment is in desirable condition (e.g., plots were in moderate condition).

Table 3. Current permitted utilization standards for Monitor Complex.

Allotment	Riparian Herbaceous Utilization Standard (%)	Upland Herbaceous Utilization Standard (%)	Riparian Shrub Utilization Standard (%)	Upland Shrub Utilization Standard (%)

Monitor Complex	55	45	25	40
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To allow for re-establishment of native grasses, forbs, and shrubs, livestock grazing will be rested for a minimum of two seasons following the prescribed burn– as directed by the Forest Plan. The rest period should mitigate any re-establishment issues; however, monitoring will be needed to ensure that impacts of livestock re-admittance into the allotment. Furthermore, within the project area riparian areas (generally used more by livestock) will not be actively be burned potentially reducing impact of livestock.

Fuelwood Harvest

There have been no past commercial fuelwood harvests in the project or cumulative effects are and there are none in the foreseeable future. Non-commercial fuelwood harvesters are allowed to collect fuelwood throughout the project and cumulative effects.

Prescribed Fire/Vegetation Treatments

The project area was previously burned in 2005 (Elkhorn I) and there are no projects planned within the cumulative effects/project area in the foreseeable future. The first entry, Elkhorn Canyon Prescribed Burn (Elkhorn 1), was designed to treat approximately 30%-80% of 6,965 acres (Units 1-3). The burn was implemented in the spring and fall of 2005, successfully treating 1,900 acres, 27% of the 3 treatment units. The current proposal, Elkhorn 2, expands the project boundary to incorporate 10,490 acres, while maintaining the 30-80% treatment objective (Units 1-4). The size-range of treatment openings would expand to 5-500 acres (from 20-200 acres). Results from the burn include opening of canopy and re-establishment of some aspen stands.

The cumulative effects of the Elkhorn I and Elkhorn II burns should increase the forbs, grasses, aspen, and shrubs, reduce fire hazard, increase biodiversity, and increase wildlife habitat quality/quantity. These effects meet Forest Plan objectives.

Dispersed Recreation

There are limited dispersed camping activities within the project area and the burn areas will concentrate in areas outside of the riparian corridors; therefore any effects by camping will be limited.

NO ACTION ALTERNATIVE (Direct and Indirect Effects)

Pinyon-Juniper Woodlands

Over the short-term, expansion of pinyon-juniper would persist, leading to increased fuel loading, decreased biological diversity, decreased productivity (pinyon, juniper, grasses, forbs and shrubs), decreased wildlife habitat diversity, and increased fire hazard. Over the longer-term, catastrophic wildfire would likely consume existing trees, potentially including older trees that have typically been protected from wildfire as a consequence of their isolated location on rock outcrops and rocky ridgelines.

Pinyon Nuts and Fuelwood Harvest

Opportunities for fuelwood harvest and pine nut collection with the 700,000+ acre Monitor Range far exceed demand. Short-term availability of the relatively small (10,490 acres) project area for these uses would likely not affect sale offerings. Similarly, long-term loss of the pinyon-juniper woodland in the project area due to catastrophic wildfire would likely not affect sale offerings.

Cottonwood Communities

Over the short-term, cottonwood communities (located outside of the project area) would not be affected. Over the longer-term, catastrophic wildfire within the project area and surrounding pinyon-juniper woodlands would likely reduce or eliminate these cottonwood communities.

Mountain Brush/Mixed Sagebrush and Riparian Shrub

Over the short-term, pinyon-juniper woodland expansion would continue, further infringing upon sagebrush and mountain brush communities. Over time, seed sources for the sagebrush and mountain brush communities would decline under the expanding pinyon-juniper woodland, and catastrophic wildfire would severely impact existing sagebrush and mountain brush communities.

Mountain Mahogany

Over the short-term, pinyon-juniper woodland expansion would continue, further infringing upon mountain mahogany communities. Over time, seed sources for the mountain mahogany communities would decline under the expanding pinyon-juniper woodland, and catastrophic wildfire would severely impact mountain mahogany communities.

Noxious Weeds

The risk of invasion by noxious weeds is very low in the project area due to elevations exceeding 7,500 feet.

Cumulative Effects

Under this alternative no treatments would occur within the project area. Pinyon-juniper woodlands would continue to expand, increasing the potential risk of large scale catastrophic wildfires and epidemic insect and disease outbreaks. Loss of sagebrush and mountain shrubs would further reduce the diversity of wildlife habitat. Furthermore, this alternative would not be consistent with the Forest Plan, Healthy Forest Initiative, and the Healthy Forest Restoration Act (U.S. Senate and House of Representatives 2003) and would continue to provide risk of catastrophic wildland fire to the watershed.

ENVIRONMENTAL JUSTICE

Executive Order 12898 requires federal agencies to consider impacts of proposed actions on minority and low-income populations.

Minority Populations

The African-American population represents approximately 1.2 percent of the total population of Nye County. The Hispanic population represents approximately 8.4 percent of the total population of Nye County. American Indian, Asian, and Pacific Islanders comprise 2.0, 0.8, and 0.3 percent of the population, respectively (US Census 2000). For Nevada as a whole, African Americans and Hispanics represent 6.9 and 22.9 percent respectively, of the population. American Indian, Asian, and Pacific Islanders constitute 1.3, 5.7, and 0.6 percent of the population respectively (US Census 2004).

In accordance with EPA's Environmental Justice Guidelines, these minority populations should be identified when either of the following exist:

- The minority population of the affected area exceeds 50 percent; or
- The minority population of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

Neither population of African Americans, Hispanics, American Indians, Asian or Pacific Islanders exceeds 50 percent of the population and none of the populations percentages within Nye County is "meaningfully greater" than the minority population in the general population, in this case the State of Nevada. Therefore, for the purposes of screening for environmental justice concerns, the identified populations defined in EPA's guidance do not exist within the project area.

Low-Income Population

The median household income in Nye County, according to 2000 census data, of \$36,024 (US Census 2000) was lower than that for the State of Nevada (\$44,581) for the same time period. According to the 2000 census data the percentage of individuals below the poverty level in Nye County was 10.7 percent while in the State of Nevada the percentage was 10.5 percent (US Census 2000). This data indicates that although Nye County has a median household income lower than the state average, the data for individuals below the poverty level is near the average for the State of Nevada and therefore Nye County is not a low income area, as defined in the EPA's guidance. Therefore, for the purposes of screening for environmental justice concerns, the identified populations defined in EPA's guidance do not exist within the project area.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

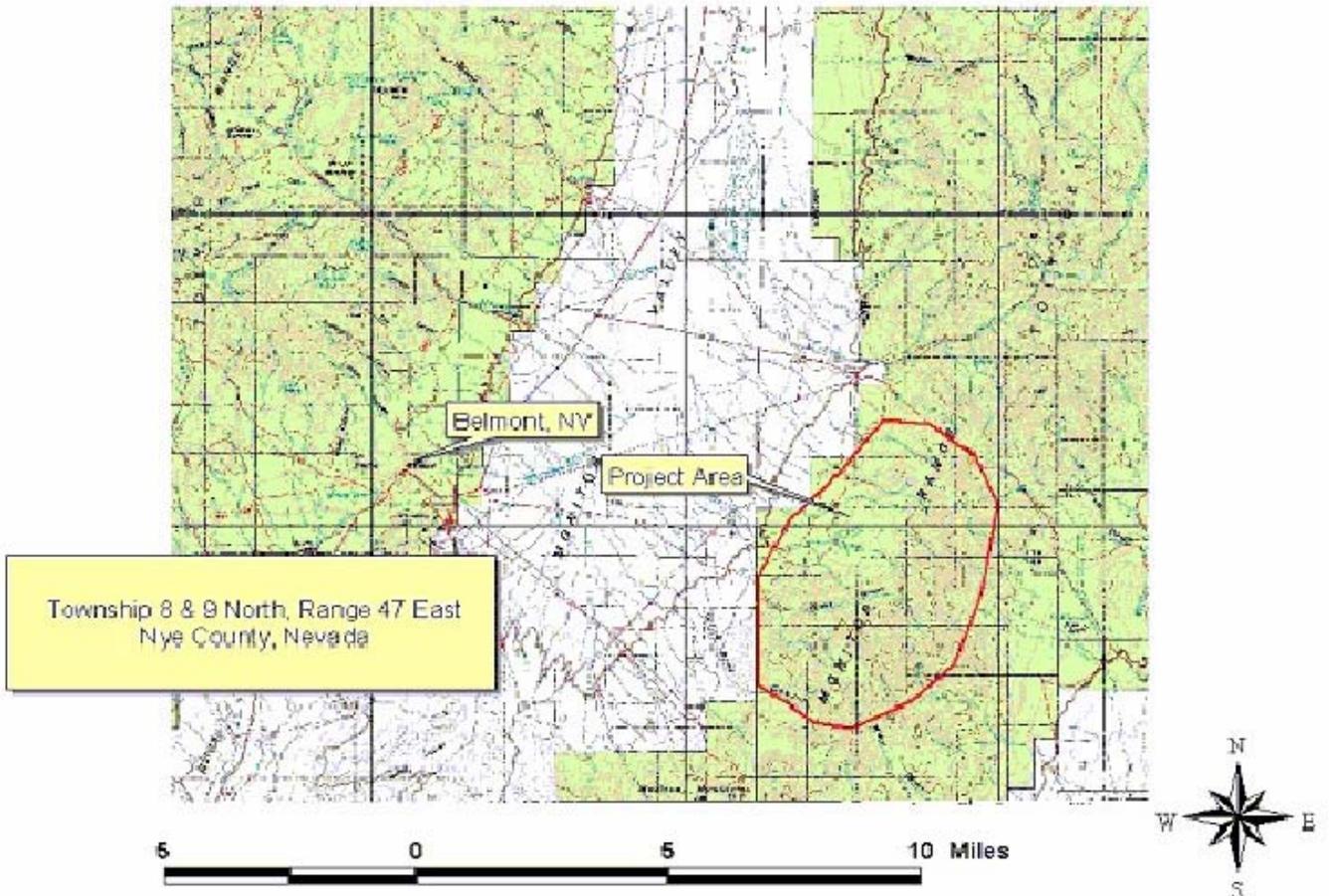
- This project is in compliance with the **Toiyabe National Forest Land and Resource Management Plan 1986 as amended**.
- This project is in compliance with the **Clean Water Act**. The project area contains very limited riparian areas and water resources. Treatments will not occur within riparian areas. The project does not involve the filling, alteration or modification of any waterway or riparian area.

- This project is in compliance with the **Clean Air Act, 1977 as amended**. Mitigation measures have been established on pages 7-8, to minimize the potential impacts from smoke. All required permits will be secured to ensure compliance with federal and state laws. There are no Class I airsheds within 200 miles of the project area and there will be no effect on any class I airshed.
- This project is in compliance with **Executive Orders 11988 and 11990 of May, 1977**. This project will have no effect on any wetlands or floodplains.
- This project is in compliance with the **Endangered Species Act (ESA) of 1973, as amended**. There will be no effect on threatened or endangered species as a result of this project (see EA pages 20-22, and Biological Evaluation located in the project record).
- This project is in compliance with the **American Antiquities Act of 1906 and the Historic Preservation Act of 1966**. There will be no adverse effects on any historic properties as a result of the proposed action (see concurrence letter from the Nevada State Historic Preservation Office dated July 23, 2007 which is located in the project record).

CHAPTER 5: LIST OF PREPARERS

NAME	POSITION	RESPONSIBILITY
Steve Williams	District Ranger Austin-Tonopah Ranger Districts	Responsible Official
Jose Noriega	District Ranger Santa Rosa Ranger District	ID Team Leader
Mary Bresee	Forester Central Zone	Vegetation
Carol Carlock	Fuels Management Specialist Central Zone	Fire and Fuels
Alyce Branigan	Archeologist Humboldt-Toiyabe National Forest	Heritage Resources
Adam Ryba	Wildlife Biologist Austin-Tonopah Ranger Districts	Wildlife and Sensitive Plants
Lance Brown	Former Wildlife Biologist Austin-Tonopah Ranger Districts	Wildlife and Sensitive Plants

APPENDIX 1: PROJECT AREA MAP



APPENDIX 2: ISSUES

The basis for determination of issue significance is described below.

Affected Resource	Summary of Impact
Soils/Erosion	<p>Prescribed fire would remove vegetation cover for a short period of time, resulting in some risk for soil erosion. The mosaic nature of the treatments would minimize the risk which would be short term in nature. Handline construction is not proposed. Due to the limited amount of potential disturbance, the short-term nature of the project, and the use of best management practices the amount of increased soil disturbance and erosion is expected to be very minor.</p> <p>Non-significant issue</p>
Air Resources	<p>Burning would create smoke within the project area and adjacent areas. Residual smoke from smoldering vegetation may continue into the evening and early morning hours. However, these impacts would be short term in nature, and would have no effects on Class I Airsheds or populated areas. The project would fully comply with state air quality laws.</p> <p>Non-significant issue</p>
Wilderness	<p>There are no designated Wilderness areas within the Project Area. Impacts to the near-by Table Mountain Wilderness Area are not anticipated.</p> <p>Non-significant issue</p>
Vegetation	<p>Prescribed fire would create a diverse mosaic of vegetation communities of various age classes within the project area. Pinyon-juniper woodland coverage would decline, while sagebrush and mountain brush communities would be restored.</p> <p>Individuals or small pockets of mountain mahogany, mountain big sagebrush and aspen may be burned. However, the absence of ignition in these stands will minimize losses.</p> <p>Significant issue</p>
Old Growth	<p>Old growth pinyon-juniper could potentially benefit from the use of prescribed fire. Currently, pinyon-juniper stands are densely crowded and therefore are experiencing increased light, water and nutrient competition. Creating a mosaic will reduce competition, potential for insect/disease outbreaks and stand replacing fires.</p>

	<p>In addition, old growth pinyon generally grows on rocky outcrops and/or other areas where fire generally does not occur or occurs at very infrequent fire return intervals. These areas are excluded from ignition because of rare/sensitive plants and because of the inability to carry fire.</p> <p>Since the objective of this project is to create and diverse vegetation mosaics the potential impact to old growth is minimized.</p> <p>Non-significant issue, is addressed within the vegetation analysis.</p>
Rare Plants	<p>Sensitive plant species that have potential habitat or are located in the project area include alpine goldenweed (<i>Tonestus alpinus</i>), arid draba (<i>Draba arida</i>), Goodrich biscuitroot (<i>Cymopterus goodrichii</i>), Rollins clover (<i>Trifolium rollinsii</i>), scorpion milkvetch (<i>Astragalus lentiginosus</i> var. <i>scorpionus</i>), and Toiyabe buckwheat (<i>Eriogonum esmeraldense</i> var. <i>toiyabense</i>). Elkhorn 2 may impact individual plants. However, the project would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species. Project design and specific mitigation measures are intended to limit the impact to these species.</p> <p>Non-significant issue, species have been protected through project design. Effects will be analyzed in the Biological Evaluation.</p>
Noxious Weeds/Invasive Species	<p>Field surveys identified no noxious weeds in the project area. However, populations of cheatgrass were observed in areas leading to the project area. Mitigation, including project vehicle washing, would limit the potential for noxious weeds and invasive species transport during project implementation. Post-burn monitoring would identify treatment needs.</p> <p>Non-significant issue</p>
Public Access/ Recreational Uses	<p>Closure of Forest Road #729 during the burn implementation would result in a short-term loss of access. Treated areas would be visible for approximately 1-2 years and may not be aesthetically appealing to some visitors.</p> <p>Non-significant issue</p>
Cultural Resources	<p>Multiple cultural sites are located throughout the project area. However, project design (crown fire objective) and mitigation (including duff removal and structure protection) would limit damage to these sites. In addition, pre-fire and post-fire temperature data will be collected to assess fire impacts upon</p>

	<p>obsidian.</p> <p>Non-significant issue</p>
MIS Species	<p>Mule Deer occupy the project area. Some temporary displacement of individuals would likely occur during project implementation. Low-intensity ground fire would produce favorable post-fire conditions for natural shrub and herbaceous re-establishment. Increased vegetative diversity resulting from the burn would improve deer habitat within the short-term.</p> <p>Significant issue</p>
Sensitive Wildlife Species	<p>Sensitive species that have potential habitat or are located in the project area include greater sage grouse (<i>Centrocercus urophasianus</i>), spotted bat (<i>Euderma maculatum</i>), and Townsend's big-eared bat (<i>Plecotus townsendii</i>). Prescribed fire could impact individuals, and/or their habitats in the project area. However, constraints on fire ignition in rock outcrops and big and low sagebrush habitats would minimize these impacts. The project would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.</p> <p>Significant issue, Effects will be analyzed in the Biological Evaluation.</p>
Migratory Bird Species	<p>Fuel load reduction and creation of a mosaic vegetation pattern would improve neotropical migratory bird habitats within the project area. Short-term displacement of migratory birds would occur due to the noise and burning activities.</p> <p>Significant issue</p>
Livestock Grazing	<p>The project area includes portions of one allotment (Monitor Complex) which is active. Only the Hunts Canyon Pasture of this Allotment is within the project area. Within this pasture 55 pair of cattle are authorized to graze from 6/1 to 9/15. Treated areas would be rested for a minimum of 2 years following treatment to allow for recovery of vegetation resources. The primary issues raised during scoping regarding livestock grazing involved the effects of grazing on vegetation and other resources and are outside the scope of this analysis. Livestock grazing impacts may be included in the analysis as a cumulative effect.</p> <p>Non-significant issue</p>

APPENDIX 3: REFERENCES

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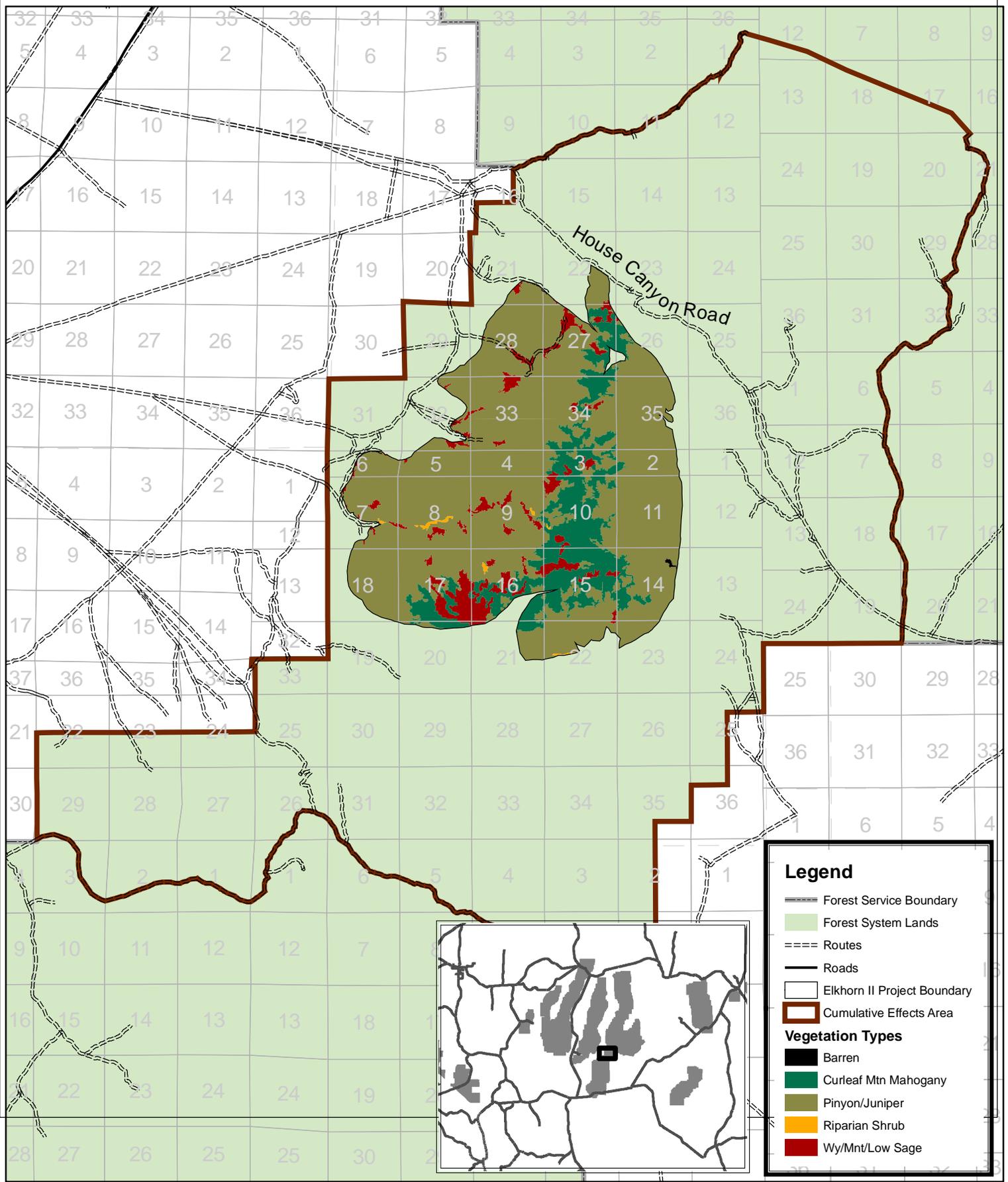
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APPENDIX 4: VEGETATION MAP



Legend

- Forest Service Boundary
- Forest System Lands
- Routes
- Roads
- Elkhorn II Project Boundary
- Cumulative Effects Area

Vegetation Types

- Barren
- Curleaf Mtn Mahogany
- Pinyon/Juniper
- Riparian Shrub
- Wy/Mnt/Low Sage

Map 2. Elkhorn II Vegetation Map

0 60 120 180 240 Miles

1:6,000,000

This GIS Product was compiled from various sources and may be corrected, updated, modified, or replaced at any time. For more information contact: Austin Zone Office, Austin, Nevada (775) 964-2671.

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