BURNED AREA EMERGENCY STABILIZATION PLAN

2007 MURPHY COMPLEX: WILDHORSE ZONE

WILDLIFE RESOURCE ASSESSMENT

I. Objectives

- Assess effects of the fire and suppression actions to Federally listed Threatened and Endangered species and their habitats.
- Conduct Section 7 emergency consultation with the U. S. Fish and Wildlife Service as needed.
- Prescribe emergency stabilization measures and/or monitoring.
- Assess effects of proposed stabilization actions to listed species and habitats.
- Assess effects of the fire and suppression actions to Forest Service R4 sensitive species, their habitats, and water developments.

II. Issues

A. **Human Health and Safety:** No issues in this category.
B. Soil/Watershed Stabilization: No issues in this category.
C. T&E Habitat Stabilization/Recovery: Two federally listed species (bald eagle and bull trout) and their habitat occur within, downstream, or immediately adjacent to the fire area. One candidate species (Columbia spotted frog) and its habitat occur within the fire area.
D. Cultural Heritage Resources: No issues in this category.
E. **Invasive Plants:** No issues in this category.

III. Observations

A. Background Information

The Murphy Complex: Wildhorse Zone burned 95,163 acres. Land ownership within the fire area includes 91,124 acres of land managed by the Forest Service, 2,137 acres managed by the State of Nevada, 1,657 acres that are privately owned, and 245 acres managed by the Bureau of Land Management (BLM). This fire was ignited by dry lightning and burned between July 16 and August 03, 2007. Elevations within the Murphy Complex: Wildhorse Zone range from 1,494 to 2,880 meters. Live fuel moistures at the time of the fires were 79-124%; record low live fuel moistures were prevalent throughout the fire area. Fine fuels were fully cured. Humidity ranged from a maximum of 44 percent to minimum of 4 percent. The fire was primarily wind driven during the day and burned with low intensity at night. The vast majority of the burned area was circumscribed with dozer line, but some portions of the fire perimeter burned out due to lack of fuels. Containment was substantially facilitated by rainfall that occurred on 07-26-07. Overall, the burned area within the Murphy Complex: Wildhorse Zone experienced low to moderate fire intensity with some very small patches of high fire intensity. Most of the fire includes a mosaic pattern of burned area interspersed with patches of unburned.

Approximately 30.6 miles of dozerlines were constructed to suppress the fires in the Murphy Complex: Wildhorse Zone. A total of 30.1 miles of dozerline was constructed on Forest Service managed lands; 0.5 mile of dozerline was constructed on private property. Ground-based resources deployed on the Murphy Complex: Wildhorse Zone included 14 bulldozers, 44 fire engines, and 15 water tenders during the peak of suppression efforts. Air support included 6 helicopters (3 from the National Guard and 3 assigned to the Murphy Complex: Wildhorse Zone incident management team), and SEATs from the Elko Regional Airport and Wells, NV. Helicopter bucket water drops were used extensively on the Murphy Complex: Wildhorse Zone. A total of approximately 18,000 gallons of Phoscheck™ LC97A fire retardant were dropped on the Murphy Complex: Wildhorse

Zone, primarily by SEATs based out of Elko and Wells, NV. None of the retardant drops were within 300 feet of surface waters. Burn-out operations occurred along the east side of the 931 road and other areas during fire suppression operations on the Murphy Complex: Wildhorse Zone.

HABITAT and WILDLIFE RESOURCES

The Sagebrush/grass habitat type is the most prevalent within the Complex and occurs at all elevation ranges. Representative sagebrush species include: Basin big sagebrush, black sage, low sage, and mountain big sage. Associated grass species include: Idaho fescue, blue bunch wheat grass, Sandberg's blue grass, bottlebrush squirrel tail, western wheat grass, and basin wild rye.

The Mountain shrub habitat type can be found in the mid to upper elevations within the Complex. This is represented by various sage species, bitterbrush, with occasional scattered snowberry and serviceberry. Associated grass species are blue bunch wheat grass and Idaho fescue.

The big sagebrush cover type is located on hill slopes throughout the burned area. The dominant species of big sagebrush is mountain big sagebrush. Vegetative cover is generally less than 90%. Associated shrub species include bitterbrush, serviceberry, snowberry, snowbrush, low sagebrush, whorled buckwheat, sulfur buckwheat and wax current. Herbaceous species include Sandberg's bluegrass, bluebunch wheatgrass, Idaho fescue, Letterman's needlegrass, arrowleaf balsamroot, spotted stickseed, longleaf phlox, stoneseed, cinquefoil, yarrow, silver lupine, milkvetch or locoweed, biscuitroot, sego lily, Indian paintbrush, Rydberg's penstemon, hawksbeard, Columbia ragwort, Geyer's onion, and threadleaf fleabane.

Aspen woodland habitats are found in riparian drainages and on hill slopes from about 6000 to 9000 feet elevation. Stands average in size from about five acres to several hundred acres and are comprised of one to several clones. These woodlands are multi-layered, consisting of a tree layer, shrub layer and herbaceous layer. Vegetative cover usually exceeds 150%. The overstory consists primarily of aspen, sometimes with conifers such as subalpine fir, limber pine or Rocky Mountain juniper. The shrub layer consists of snowberry, serviceberry, currant or gooseberry, chokecherry, gray alder and Oregon grape. The understory herbaceous layer is primarily shade tolerant, tall forbs and grasses.

Juniper woodland habitats are situated on dry, rocky slopes and ridges scattered within the burned area. The species is Utah juniper possibly with some Western juniper hybridization. Vegetative cover is typically less than 75%. Surface pavement and rock is common. Common understory species include early sagebrush, mountain big sagebrush, bitterbrush, serviceberry, Sandberg's bluegrass, bluebunch wheatgrass, Idaho fescue, Letterman's needlegrass, lava aster, dusty maiden and threadleaf fleabane.

Riparian habitats are generally delineated into lentic (standing water) and lotic (running water) areas. Lentic riparian areas include springs, seeps, wet and mesic meadows. Vegetation in both lentic and lotic areas generally include: sedges, rushes, aspen, willow species, alder, and cottonwood species. The stream habitat is that area included within the active stream channel, specifically the portion of the stream with flowing water.

Cliff and Talus slope habitat types compromise a small portion of habitat within the Complex. In general, plants are absent from the rock faces. Although direct impacts to this habitat from the fire is minimal; habitat used in association with cliffs and talus was directly impacted.

A wide range of birds, mammals, reptiles and amphibians are known to occur in the affected area, including approximately 100 bird, 70 mammal and several reptile and amphibian species that use the habitats found within the fire area.

B. Reconnaissance Methodology and Results

Information for this assessment is based on a review of relevant literature, field observations of wildlife, habitat inventory information, consultation with U. S. Fish and Wildlife Service (USFWS) Reno Office staff, personal communication with Mountain City R.D. staff, and Nevada Division of Wildlife (NDOW) personnel. Information on the effects of the fire came from interviews with resource advisors assigned to the incident, fire behavior narratives, and fire area reconnaissance on July 31-August 02, 2007. To better understand the species and habitat information discussed in this wildlife assessment, it is important to review the BAER Vegetation Assessment. That report contains more detailed descriptions of pre-fire vegetation and estimates of post-fire vegetative recovery.

The following information summarizes fire effects to vegetation in the Murphy Complex: Wildhorse Zone. The vegetation mortality refers to top kill of all the plants and does not necessarily mean that the plant crowns and roots are dead. Important information on vegetation mortality and recovery and post fire watershed response are referenced briefly in this wildlife assessment. Detailed information is included in the Murphy Complex: Wildhorse Zone Burned Area Emergency Stabilization Plan Vegetation and Hydrology Assessments.

MURPHY COMPLEX: WILDHORSE ZONE FIRES
VEGETATION MORTALITY BY VEGETATION TYPE in acres

VEGETATION TYPE	MORTALITY				
	Unburned	**Low**	**Moderate**	**High**	**TOTAL**
Aspen Woodlands	3701	2278	2052	3	8034
Riparian Woodlands and Meadows	811	3209	1482	106	5608
Coniferous Forest	196	107	126	0	429
Mixed Montane - Deciduous Shrubland	1351	2639	2647	68	6705
Agricultural Pastureland	112	76	203	0	391
Juniper Woodlands	116	231	131	22	500
Big Sagebrush Shrubland	10848	36904	15097	951	63800
Low Sagebrush Steppe	1369	6468	1011	30	8878
Curl-leaf Mountain Mahogany Woodland	19	486	174	1	680
Perennial Forb – Sparsely Vegetated	0	5	6	0	11
Introduced Annuals	0	35	8	0	43
Barren (rock)	24	0	0	0	24
Surface Water	60	0	0	0	60
TOTALS	18607	52438	22937	1181	95163

NOTE: All the numbers displayed in this table are estimates; small tally discrepancies are due to rounding errors between various types of databases used for this analysis.

MURPHY COMPLEX: WILDHORSE ZONE
VEGETATION MORTALITY in acres

OWNERSHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
Forest Service	17798	51088	21478	762	91126
Nevada	464	1022	532	119	2137
Private	291	344	799	222	1656
BLM	4	0	160	80	244
Total	18557	52454	22969	1183	95163

MURPHY COMPLEX: WILDHORSE ZONE
SOIL BURN SEVERITY in acres

OWNERSHIP	UNBURNED	LOW	MODERATE	HIGH	TOTAL
Forest Service	18342	64339	8402	41	91,124

Nevada	382	1519	236	0	2,137
Private	429	1126	102	0	1,657
BLM	140	103	2	0	245
Total	19293	67087	8742	41	95,163

The purpose of this assessment is to discuss the potential effects of fire, suppression actions and proposed emergency stabilization activities to federally listed species. The federally threatened bald eagle and bull trout are the only federally listed species known to occur within, downstream, or immediately adjacent to the burned areas. Additional candidate and special status species are addressed at the request of NDOW and Mountain City R.D. Biologists.

This assessment is not intended to definitively answer the many species effects questions that are inevitably raised during an incident such as the Murphy Complex: Wildhorse Zone Fire. The focus of this assessment is to determine the potential for immediate, emergency actions that may be necessary to prevent further impacts to federally listed species and their habitats occurring within the fire area. Because of the importance of this area to several special status species, there may be a need to analyze long-term and cumulative effects of this and the numerous other large fires that have occurred in the area this year and previously.

C. Findings

1. **Human Health and Safety.** No findings for this category.
2. **Soil/Watershed Stabilization.** No findings for this category.
3. **T&E Habitat Stabilization/Recovery:**

Direct effects as described in this report refer to individual mortality, harm, or disturbance that result in significant disruption of essential feeding, breeding, or sheltering behavior. Indirect effects refer to modification of habitat and/or prey species and possible subsequent effects to the species.

BULL TROUT

The Jarbidge River Distinct Population Segment (DPS) of bull trout (*Salvelinus confluentus*) was listed as threatened under the Endangered Species Act on April 8, 1999 (64 FR 17110).

The biology, ecology, population status, and habitat conditions of bull trout are described in:

- the Draft Bull Trout Recovery Plan (FWS 2004),
- and the Proposed Designation of Critical Habitat for the Jarbidge River bull trout DPS (69 FR 35767, June 25, 2004; as corrected by 69 FR 43058, July 19, 2004).

Draft Bull Trout Recovery Plan (FWS 2004): Murphy Complex: Wildhorse Zone Fire and associated suppression activities occurred immediately adjacent to the Jarbidge River core area, which is comprised of six local populations within the Jarbidge DPS. However, the Murphy Complex: Wildhorse Zone Fire did not burn into occupied bull trout spawning/early-rearing habitat and none of the fire suppression activities occurred within the six identified local population watersheds. It should be noted that the FWS (2004, pg. 30) indicates that there are no physical barriers preventing fish movement between the Jarbidge and Bruneau Rivers, and recommends [telemetry] research to confirm whether migratory adults use over-wintering habitat in the Bruneau River. This information suggests a strong probability that sections of the Bruneau River provide over-wintering habitat for fluvial (migratory) bull trout.

Critical Habitat: The Proposed Designation of Critical Habitat (69 FR 35767, June 25, 2004; as corrected by 69 FR 43058, July 19, 2004) identified the Jarbidge River as proposed critical habitat for bull trout. However, the "final" Designation of Critical Habitat (56212 Federal Register / Vol. 70, No. 185 / September 26, 2005) identified no critical habitat for the Jarbidge River bull trout DPS.

The Murphy Complex: Wildhorse Zone burned area and associated suppression activities occurred outside of all potential and occupied bull trout spawning/rearing habitat in the Jarbidge River. Although bull trout occupy each of the identified six local population watersheds, none have been found in Buck Creek, Columbet Creek, or Dorsey Creek – the Jarbidge River tributary drainages overlapped by the Murphy Complex: Wildhorse Zone fire perimeter. Bull trout may use the Jarbidge River downstream from these tributaries as migratory and over-wintering habitat, but this habitat is outside the scope of potential effects from this wildland fire incident. Therefore, the Murphy Complex: Wildhorse Zone Fire and associated suppression activities had no spatial overlap or potential to affect bull trout or their habitat within the Jarbidge River core area.

DIRECT EFFECTS: There were no known direct impacts to bull trout due to the fire or suppression activities. No sightings or mortalities of bull trout were reported by fire suppression personnel or resource advisors assigned to the Murphy Complex: Wildhorse Zone.

INDIRECT EFFECTS: The Murphy Complex: Wildhorse Zone Fire and associated suppression actions did not spatially overlap identified bull trout local population watersheds in the Jarbidge River DPS (e.g. no exposure). Therefore, there were no indirect impacts to bull trout due to the fire or suppression activities.

None of the BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed within identified bull trout local population watersheds in the Jarbidge River DPS. Therefore, there were no indirect impacts to bull trout from the proposed BAER treatments.

EFFECTS DETERMINATION: The Murphy Complex: Wildhorse Zone Fire, associated suppression actions, and proposed BAER treatments were determined to have “no effect” to bull trout, given there was no spatial overlap between the disturbance mechanisms and the local population watersheds identified in the draft bull trout recovery plan.

BALD EAGLE

The bald eagle (*Haliaeetus leucocephalus*) was listed as endangered in 1967 (32 FR 4001) and was downlisted to threatened in 1976 (41 FR 28525). No critical habitat is designated for the bald eagle. The bald eagle is an agile hunter and feeds mainly on fish, waterfowl, and mammals (Sibley 2003). Two key habitats have been identified for bald eagles, the nesting territory and wintering habitat. Nesting territories are typically associated with large rivers, lakes, reservoirs, or ponds that produce fish (Marcot et al. 1997, page 1578). Territories are used in successive years and may include more than one nest site. In the Interior Columbia Basin area, nest stands consist primarily of conifer stands with large trees. Wintering habitat is found where fish, waterfowl, and ungulate carrion provide a source of food. Perch and roost sites are key habitat features of winter range.

The analysis area for the bald eagle is the vicinity of Wildhorse Reservoir. Bald eagle winter habitat occurs in conjunction with the Owyhee River corridor and adjacent ungulate winter range. The Wildhorse ICP and helibase were within the foraging area for the only nesting pair of bald eagles in Elko County. However, the Wildhorse bald eagle nest site is over five miles north of the Wildhorse ICP and helibase. According to NDOW biologists, this pair of eagles did not successfully fledge any chicks in 2007. The flight path of fire suppression and reconnaissance missions during the incident was eastward from the Wildhorse helibase.

DIRECT EFFECTS: There were no known direct impacts to bald eagles due to the fire or suppression activities. No sightings or mortalities of bald eagles were reported by fire suppression personnel or resource advisors assigned to the Murphy Complex: Wildhorse Zone.

INDIRECT EFFECTS: Given the helibase was over five miles south of the bald eagle nest site on Wildhorse Reservoir and the flight path taken by fire suppression and reconnaissance flights was eastward, there were no indirect impacts to bald eagles from the fire or suppression activities.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed within potential summer and winter foraging habitat for bald eagles. These activities will result in increased human presence within potential bald eagle foraging habitat through August 2007. However, the proposed BAER treatment implementation will occur on discrete portions of the burned area during discrete time intervals over the course of one year. This sporadic human presence is not expected to disrupt bald eagle foraging across the majority of the burned area at any one time.

EFFECTS DETERMINATION: Based upon the distance between the nest site and the helibase and burned area, the Murphy Complex: Wildhorse Zone Fire, associated suppression actions and proposed BAER treatments were determined to have "no effect" on bald eagles.

CANDIDATE SPECIES

COLUMBIA SPOTTED FROG

In 1989, the U.S. Fish and Wildlife Service (USFWS) was petitioned to list the Columbia spotted frog (*Rana luteiventris*) under ESA (54 FR 42529). The USFWS ruled on April 23, 1993, that the listing of the Columbia spotted frog was warranted and designated it a candidate for listing with a priority 3 for the Great Basin population, but was precluded from listing due to higher priority species (58 FR 27260). The major impetus behind the petition was the reduction in distribution apparently associated with impacts from water developments and the introduction of nonnative species in Nevada. On September 19, 1997 (62 FR 49401), the USFWS downgraded the priority status for the Great Basin population of Columbia spotted frogs to a priority 9, thus relieving the pressure to list the population while efforts to develop and implement specific conservation measures were ongoing. As of January 8, 2001 (66 FR 1295-1300), however, the priority ranking has been raised back to a priority 3 due to increased threats to the species. This includes Great Basin Columbia spotted frog populations in both northeastern Nevada and the Toiyabe Range. The Regional Forester's list (2003) designated Columbia spotted frogs as a sensitive species in Region 4.

The biology and ecology of the northeastern Nevada subpopulations of the Great Basin population of Columbia spotted frogs are described in CSFTT (2003).

Columbia spotted frogs are aquatic and typically occur in or near permanent bodies of water such as lakes, ponds, slow moving streams, and marshes. The frogs generally occur along the marshy edges of such sites where emergent vegetation (e.g., grasses, sedges, cattails, etc.) is fairly thick and where there is an ample amount of dead and decaying vegetation. Some occupied sites may also have a layer of algae or small vegetation (e.g., duckweed) on the surface of the water. During summer months, they may travel away from breeding sites, but are still typically associated with aquatic sites with vegetated margins. Given the altitudinal range of the Colombia spotted frog, which is up to 9,850 feet (3,002 meters), occupied aquatic sites may be surrounded by a wide variety of terrestrial vegetation including mixed coniferous and sub-alpine forests, grasslands, and shrub-steppe communities (Species Account, Wildlife Review 2006).

Columbia spotted frogs have been found to be highly associated with presence of willows, which they use for cover, and submerged vegetation (Munger et al. 1998). They may move considerable distances from water following the breeding season, often frequenting mixed conifer and sub-alpine forests, grasslands, and brushlands of sage and rabbit brush if puddles, seeps or other water is available. Adult spotted frogs feed on invertebrates, generally within one-half meter of shore on dry days. During and after rains, they may move away from permanent water to feed

in wet vegetation or ephemeral puddles (Licht 1986). Spotted frogs hibernate during winter and emerge when open water becomes available, generally during spring thaw. Spotted frogs breed from late February to early July. A water temperature of 40 degrees Fahrenheit (4 degrees Centigrade) seems to be the critical temperature for emergence from hibernation (Morris and Tanner 1969), which may occur as early as the first part of April.

Columbia spotted frog habitat has undergone broad-scale changes throughout its range. Humans have had a considerable influence on plant communities in the western United States and profound changes to streams, lakes, ponds, and associated riparian habitat have been noted since European settlement of the west. Similarly, riparian and wetland habitat conditions have generally declined across the Interior Colombia Basin (Wisdom et al. 2000). Human-related factors affecting these resources include livestock grazing, timber harvest, fire suppression, irrigation, hydroelectric-power, mining, flood control projects, introduction of exotic plants and others. Southern isolated populations in the Great Basin are declining and face major threats, including habitat loss/degradation (especially dewatering), exotic species, and possibly global climate change (NatureServe 2000).

Aquatic and riparian habitat conditions typically are correlated with the condition of adjacent and surrounding uplands. Estimating the condition of spotted frog habitats can be assessed by estimating the condition of source habitats that contain the aquatic environments where Columbia spotted frogs are most often found and extrapolate from this information to estimate broad-scale changes for spotted frog source habitats. Columbia Basin-wide, generally declining trends for source habitats that spotted frogs would be associated with ranged from declines in 59 percent to over 70 percent of watersheds. Attributes of source habitat declines for these watersheds relevant to an evaluation of trends for spotted frog source habitats include: decreasing amounts of large woody debris, increased vulnerability to stand-replacing fire, departures in vegetation structure and compositions that increase potential for soil erosion, source habitat declines, increases in abundance and distribution of exotic plants, and high levels of disturbed soil. Each of these attributes could adversely affect water quality and other aspects of Columbia spotted frog source habitat and ultimately reduce the quality and quantity of source habitat for this species.

Columbia spotted frogs have been documented in numerous lentic and several lotic sites in the Bruneau River watershed on the Mountain City R.D. of the Humbolt-Toiyabe National Forest. There are robust capture and tagging records from within the Murphy Complex: Wildhorse Zone. These data indicate a fairly stable population trend with annual fluctuations corresponding to water availability and spatially variable densities correlated with succession of beaver complexes.

DIRECT EFFECTS: There were no documented direct impacts to Columbia spotted frogs resulting from the fire or suppression activities. Throughout the vast majority of the Murphy Complex: Wildhorse Zone burned area, the fire resulted in minimal mortality of vegetation associated with lentic and lotic habitats, probably due to higher live-fuel moistures in these areas. However, there were exceptions to this general pattern (such as lower Tennessee Gulch), where the fire may have resulted in direct mortality of individuals or groups of frogs.

Beaver dams and stock ponds were used as water sources for helicopter bucket operations during fire suppression operations throughout the Murphy Complex: Wildhorse Zone. Although unlikely, given the frogs' natural avoidance behaviors and tendency to occupy margins of open-water habitats, the potential for these helicopter operations to have resulted in entrainment and mortality of individual frogs cannot be discounted.

INDIRECT EFFECTS: Post-fire erosion and sediment delivery are expected to result in increased sediment storage in beaver complexes and depositional stream reaches within and immediately downstream from the Murphy Complex: Wildhorse Zone burned area. The resulting sediment deposition is likely to render a portion of the occupied Columbia spotted frog habitat unsuitably

shallow and decrease the macroinvertebrate production of the affected surface waters. This loss of suitable habitat and prey abundance is likely to result in displacement, reproductive failure, and/or mortality of individual frogs in affected sites within the Murphy Complex: Wildhorse Zone burned area. There is also a potential for channel reorganizing events to be triggered by moderate to high-intensity rainfall in extensively burned drainages. Where they affect occupied stream reaches, post-fire channel reorganizing events are likely to extirpate local populations of Columbia spotted frogs and render the affected habitat unsuitable for a prolonged period of time.

Equipment used for water drafting and aerial dipping in support of fire suppression operations was used in multiple water bodies throughout the incident without being sanitized. Surface waters in the vicinity of the Murphy Complex: Wildhorse Zone have not been comprehensively surveyed for aquatic nuisance species, chytrid fungus, or other pathogens. Therefore, the potential for drafting and dipping operations to have spread aquatic nuisance species, chytrid fungus, or other pathogens that may affect Columbia spotted frogs cannot be discounted. Any resulting infestations of aquatic nuisance species, chytrid fungus, or other pathogens have the potential to cause reproductive failure and/or mortality of individual frogs, or extirpation of local populations. Dozer lines and other ground-based suppression tactics implemented within the Murphy Complex: Wildhorse Zone generally avoided riparian habitats. Therefore, no other indirect impacts to Columbia spotted frogs are likely to have resulted from fire suppression activities.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed adjacent to occupied and potential habitat for Columbia spotted frogs. These activities will result in increased human presence adjacent to occupied and potential Columbia spotted frog habitat through August 2007. However, the proposed BAER treatment implementation will occur on discrete portions of the burned area during discrete time intervals over the course of one year. Furthermore, with the exception of improvements to identified road-stream crossings, none of the proposed treatments will occur in lentic or lotic habitats. Improved road-stream crossings will provide for aquatic organism passage, which will improve aquatic habitat connectivity. Construction activities at road-stream crossings may temporarily displace individual frogs via increased turbidity or mechanical disturbance to habitat. Proposed fencing treatments are designed to minimize or avoid livestock grazing impacts for at least two years to allow for natural vegetation recovery of riparian habitats that are critical to the persistence of existing local populations of Columbia spotted frogs.

EFFECTS DETERMINATION: There is a potential for the proposed BAER treatments at road-stream crossings to temporarily displace individual frogs. The resulting road-stream crossing structures will improve aquatic habitat connectivity. However, the potential for water drafting and dipping operations to have resulted in individual mortalities, introduction of aquatic nuisance species, and/or pathogens during fire suppression on the Murphy Complex: Wildhorse Zone cannot be discounted. Therefore, the determination for Columbia spotted frogs is “likely to adversely affect.”

SPECIAL STATUS SPECIES

GREATER SAGE GROUSE

The USFWS received three petitions (2002-2003) to list the greater sage grouse (*Centrocercus urophasianus*) as threatened or endangered under the Endangered Species Act. In 2005, the USFWS published their 12-month finding that listing was not warranted (70 FR 2244). However, the Regional Forester’s list (2003) designated sage grouse as a sensitive species in Forest Service-Region 4.

The life history and ecology of the greater sage grouse are described in 70 FR 2253-2271. Sage grouse are considered sagebrush “obligates” because they feed almost exclusively on sagebrush and continue to feed on sagebrush throughout the late fall and winter until forbs reappear the following spring. Sage grouse are also dependent on healthy and diverse age structures of sage

brush to provide habitat for successful nesting, brood-rearing and winter-use areas. During the spring, sage grouse utilize forbs, which are high in calcium, phosphorous and protein, to prepare them nutritionally for breeding. Sage grouse chicks rely heavily on forbs and insects in their diets. Habitats that provide a diversity of plant species also support a wide diversity of insects that are essential to chicks. Riparian areas are critical to sage grouse during late brood rearing. As habitats start to dry up, hens usually move their chicks to moister sites where more succulent vegetation is available.

Habitat components that fulfill yearly life requirements for sage grouse include:

1. Lek: strutting grounds found in open areas surrounded by sagebrush where males display in late February through early May to attract females for breeding. Leks and approximately a two-mile radius around the lek are the focal point of the breeding and nesting complex. Areas larger than the two-mile radius may be necessary where sagebrush communities are heavily fragmented.

2. Nesting and early brood rearing habitat: Used in late March through June. Suitable habitat requires nesting cover and food availability and sagebrush stands with a robust understory of grasses and forbs. Bluebunch wheatgrass is preferred because of its growth form. An ample variety, distribution and abundance of forbs, and insects such as ants and beetles, is needed as food for chicks

3. Late brood-rearing habitat: late June through October. Preferred habitat includes healthy riparian areas, wet meadows, and upland plant communities with available food, primarily forbs such as Yarrow (*Achillea*), Buckwheat (*Eriogonum)*, Dandelion (*Taraxicum*), Prickly lettuce (*Lactuca),* False Dandelion (*Agoseris*), Paintbrush (*Castilleja*), Salsify (*Tragopogon*), and Hawksbeard (*Crepis)*

   Forb abundance, diversity and availability are crucial. Close proximity to escape cover (sagebrush) is also important.

4. Winter habitat: November to early March. South-facing and/or wind-swept gentle slopes. Sagebrush (for cover and food) must be available during periods of deep snow.

All types of sage grouse habitat were extensively burned within the Murphy Complex: Wildhorse Zone fire perimeter, including approximately 4,620 acres of sage grouse nesting/early brood rearing habitat, 77,446 acres of winter habitat and 95,163 acres of summer/late brood rearing habitat. No known sage grouse leks occur within the burned area or along the perimeter.

The area within the fire perimeter included approximately 66,000 acres (4%) of the North Fork Sage Grouse Population Management Unit (PMU) and 29,000 acres (11%) of the Islands Sage Grouse PMU. Sage grouse population estimates in the Draft Northeast Nevada Sagebrush Ecosystem Management Plan range from 1,094 to 1,313 for the Islands PMU and 10,046 to 12,055 for the North Fork PMU. Trend estimates are static with a long-term downward trend for both PMUs.

MURPHY COMPLEX: WILDHORSE ZONE FIRES VEGETATION MORTALITY OF SAGE GROUSE NESTING AND EARLY BROOD HABITAT (acres)					
OWNERSHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
Forest Service	43	3822	755	0	4620
Nevada	0	0	0	0	0
Private	0	0	0	0	0
BLM	0	0	0	0	0
TOTALS	43	3822	755	0	4620

MURPHY COMPLEX: WILDHORSE ZONE FIRES VEGETATION MORTALITY OF SAGE GROUSE LATE SUMMER HABITAT (acres)					
OWNERSHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
Forest Service	17798	51088	21478	762	91126
Nevada	464	1022	532	119	2137
Private	291	344	799	222	1656
BLM	4	0	160	80	244
TOTALS	18557	52454	22969	1183	95163

MURPHY COMPLEX: WILDHORSE ZONE FIRES VEGETATION MORTALITY OF SAGE GROUSE WINTER HABITAT (acres)					
OWNERSHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
Forest Service	13499	44683	14961	652	73794
Nevada	419	807	480	119	1825
Private	290	325	745	222	1582
BLM	4	0	160	80	1
TOTALS	14212	45815	16346	1073	77446

MURPHY COMPLEX: WILDHORSE ZONE FIRES VEGETATION MORTALITY OF SAGE GROUSE HABITAT BY POPULATION MANAGEMENT UNIT (acres)					
OWNER-SHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
NORTH FORK POPULATION MANAGEMENT UNIT					
Forest Service	12344	34655	15119	741	62859
Nevada	299	662	384	97	1442
Private	290	325	747	222	1584
BLM	4	0	160	80	244
SUB TOTALS	12937	35642	16410	1140	66129
ISLANDS POPULATION MANAGEMENT UNIT					
Forest Service	5454	16433	6359	21	28267
Nevada	165	360	148	22	695
Private	1	19	52	0	72
BLM	0	0	0	0	0
SUB TOTALS	5620	16812	6559	43	29034
GRAND TOTALS	18557	52454	22969	1183	95163

DIRECT EFFECTS: There were no documented direct impacts to sage grouse resulting from the fire or suppression activities. Throughout the vast majority of the Murphy Complex: Wildhorse Zone burned area, the fire resulted in a mosaic pattern of vegetation mortality in sagebrush habitats. However, there were exceptions to this general pattern (as in the upper Meadow Creek subwatershed), where the fire killed expansive contiguous areas of sagebrush and may have resulted in direct mortality of individuals or groups of sage grouse. In most circumstances, sage grouse are able to fly away from the advancing front and flanks of a fire. However, some of the fast-moving flame fronts, driven by high winds, may have overcome some individuals.

Fire suppression operations involving dozerline construction or aerial application of water or retardant may have disturbed sage grouse. However, the potential for these fire suppression activities to result in mortality of individuals or groups of sagegrouse is discountable, given the slow rate of dozerline construction and the active fire in areas targeted for aerial application of water or retardant.

INDIRECT EFFECTS: Although there were no previously identified leks within the Murphy Complex: Wildhorse Zone, live sage grouse were observed within the burned area during BAER reconnaissance. Post-fire loss of mating, nesting and brood/rearing habitat within this large burned area will contribute to a cumulative effect of habitat loss for these species across their range. Remaining food sources for the sage grouse within the fire perimeter appear to be limited to unburned islands and what remains of riparian vegetation. This loss of suitable habitat and forage abundance is likely to result in displacement, reproductive failure, and/or mortality of individual sage grouse in large contiguous expanses that burned at moderate to high intensity within the Murphy Complex: Wildhorse Zone. The loss of sagebrush cover within the Murphy Complex: Wildhorse Zone perimeter will also increase the vulnerability of sage grouse to predation. The discussion of threats to sage grouse from wildland fire in 70 FR 2264 suggests that the affected sagebrush habitat will be rendered unsuitable for a prolonged period of time (30-50 years). The expert panel cited in 70 FR 2264 ranked wildfire as the second most important extinction risk factor for greater sage grouse in the western portions of its range (including Nevada).

Fire suppression operations involving dozerline construction or aerial application of water or retardant may have disturbed sage grouse. However, the potential for these fire suppression activities to result in significant disruption of essential feeding, breeding, or sheltering behaviors is discountable, given the timing (late summer) and spatially and temporally discrete nature of the implementation.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed within currently occupied and potential habitat for greater sage grouse. These activities will result in increased human presence adjacent to occupied and potential sage grouse habitat through August 2007. These activities may temporarily displace individuals or groups of sage grouse. However, the proposed BAER treatment implementation will occur on discrete portions of the burned area during discrete time intervals over the course of one year. Furthermore, none of the proposed treatments will negatively impact remaining sagebrush habitat. The proposed fencing will replace damaged portions of existing fenceline, therefore does not pose additional risk or a change from pre-fire conditions. Proposed fencing treatments will minimize or avoid livestock grazing impacts within burned areas for at least two years to allow for natural vegetation recovery in big sagebrush habitats that are critical to the persistence of existing populations of greater sage grouse.

EFFECTS DETERMINATION: The fire suppression may have disturbed or temporarily displaced individuals or groups of sage grouse within the Murphy Complex: Wildhorse Zone. Furthermore, the proposed BAER treatments may disturb or temporarily displace individuals or groups of sage grouse. However, the potential for these fire suppression activities and proposed and BAER

treatments to result in significant disruption of essential feeding, breeding, or sheltering behaviors or permanent displacement, reproductive failure, and/or mortality is discountable, given the timing (late summer) and spatially and temporally discrete nature of the implementation. Therefore, the determination for greater sage grouse is "may impact individuals, but not likely to cause a trend to federal listing or loss of viability."

PYGMY RABBIT

A formal listing petition for the Pygmy rabbit (*Brachylagus idahoensis*) was received by the USFWS from environmental groups in April, 2003. The USFWS published its 90-day finding in 70 FR 29253, in which the petition was determined not to provide substantial information indicating that listing the pygmy rabbit may be warranted. At present, this species has no federal regulatory status. However, the Regional Forester's list (2003) designated pygmy rabbit as a sensitive species in Forest Service-Region 4.

The life-history and ecology of pygmy rabbits are described in 70 FR 29253-2955. Pygmy rabbits are sagebrush obligates, most often associated with Basin big sagebrush. Pygmy rabbits are typically found in areas of tall, dense sagebrush (Artemisia spp.) cover, and are highly dependent on sagebrush to provide both food and shelter throughout the year. Their diet in the winter consists of up to 99 percent sagebrush. Grasses are more important (up to 39% of their diet) in the summer. Pygmy rabbits dig their own burrows and are usually found close to their burrow systems. Pygmy rabbits have been documented within the burned area and are expected to occur in big sagebrush habitats that are scattered throughout the Murphy Complex: Wildhorse Zone. According to the petition and literature cited in 70 FR 29259, fire effects to pygmy rabbits may include mortality, increased predation, or home range abandonment.

DIRECT EFFECTS: There were no documented direct impacts to pygmy rabbits resulting from the fire or suppression activities. Throughout the vast majority of the Murphy Complex: Wildhorse Zone burned area, the fire resulted in a mosaic pattern of vegetation mortality in big sagebrush habitats. However, there were exceptions to this general pattern (as in the upper Meadow Creek subwatershed), where the fire killed expansive contiguous areas of sagebrush and may have resulted in direct mortality of individuals or groups of pygmy rabbits. Pygmy rabbits are able to take shelter in burrows or run away from the advancing front and flanks of a fire. However, heat or smoke from the fire may have overcome some individuals.

Fire suppression operations involving dozerline construction or aerial application of water or retardant may have disturbed pygmy rabbits. Furthermore, since pygmy rabbits tend to build shallow burrows in loose soil, the potential for dozerline construction to collapse burrows or entrap pygmy rabbits underground cannot be discounted. The probable direct effects of these fire suppression operations on pygmy rabbits range from temporary displacement to individual mortalities.

INDIRECT EFFECTS: Although no pygmy rabbits were observed during post-fire BAER reconnaissance, there are nine previously documented occupied sites within the Murphy Complex: Wildhorse Zone. Post-fire loss of big sagebrush habitat within this large burned area will contribute to a cumulative effect of habitat loss for pygmy rabbits across their range. Remaining forage for pygmy rabbits within the fire perimeter appears to be limited to unburned islands and what remains of riparian vegetation. This loss of suitable habitat and forage abundance is likely to result in displacement, reproductive failure, and/or mortality of individual pygmy rabbits in big sagebrush habitat that burned at moderate to high intensity within the Murphy Complex: Wildhorse Zone. The loss of sagebrush cover within the Murphy Complex: Wildhorse Zone perimeter will also increase the vulnerability of pygmy rabbits to predation. The discussion of threats to pygmy rabbits from wildland fire in 70 FR 29259 suggests that the affected sagebrush habitat will be rendered unsuitable for a prolonged period of time (15-30 years).

Fire suppression operations involving dozerline construction in big sagebrush habitat around the perimeter of the Murphy Complex: Wildhorse Zone resulted in a long-term loss of cover and

forage used by pygmy rabbits. Most of the previously identified occupied pygmy rabbit sites were on the perimeter of the fire. The potential indirect effects of dozerline construction through occupied pygmy rabbit habitat include increased risk of predation and abandonment of individual home ranges.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed within currently occupied and potential pygmy rabbit habitat. These activities will result in increased human presence adjacent to occupied and potential pygmy rabbit habitat through August 2007. These activities may temporarily disturb individual pygmy rabbits. However, the proposed BAER treatment implementation will occur on discrete portions of the burned area during discrete time intervals over the course of one year. Furthermore, none of the proposed treatments will negatively impact remaining big sagebrush habitat. Proposed fencing treatments will minimize or avoid livestock grazing impacts within burned areas for at least two years to allow for natural vegetation recovery in big sagebrush habitats that are critical to the persistence of existing populations of pygmy rabbits.

EFFECTS DETERMINATION: Dozerline construction may have resulted in home range abandonment or mortality of individual pygmy rabbits around the perimeter of the Murphy Complex: Wildhorse Zone. The proposed BAER treatments may also temporarily disturb individual pygmy rabbits within the burned area. However, dozerline construction is not likely to have affected a significant number of pygmy rabbits, given the spatially discrete (linear) nature of the disturbance. Furthermore, the potential for the proposed and BAER treatments to result in significant disruption of essential feeding, breeding, or sheltering behaviors or permanent displacement, reproductive failure, and/or mortality is discountable, given the spatially and temporally discrete nature of the implementation. Therefore, the determination for pygmy rabbits is "may impact individuals, but not likely to cause a trend to federal listing or loss of viability."

NORTHERN GOSHAWK

The biology and ecology of the northern goshawk (*Accipiter gentillis*) is described in 57 FR 28474-28476, and more specifically for northeast Nevada in Fairhurst et al. (2004). Populations of northern goshawk in the western United States (including Nevada) were unsuccessfully petitioned for ESA listing in 1992 (57 FR 28474), and were classified as a candidate species (category 2) until 1996, when that category was eliminated. However, the Regional Forester's list (2003) designated northern goshawk as a sensitive species in Forest Service-Region 4.

Unlike other parts of its range in the western United States, northern goshawk nest territories in northeast Nevada tend to be located in isolated, naturally fragmented aspen stands surrounded by shrub-steppe habitat. Breeding habitat is generally composed of a series of nested spatial scales that include a nest stand within a post-fledging area, within a foraging area. Northern Goshawk home ranges in northeast Nevada have been described as averaging 452 acres and 2692 acres in size for females and males, respectively. Goshawks prefer large-diameter mature trees for nesting, in stands with high canopy closure and an open understory with low shrub cover (Squires and Reynolds 1997). Nest stands vary in size, but can be $\leq$ 2.5 acres (Herron et al. 1995, Younk 1996, Squires and Ruggiero 1996). Post fledging-family areas (PFA) in northeast Nevada average approximately 452 acres. The PFA provides cover and prey for the fledglings while developing their flying and hunting skills. These areas generally have canopy cover of greater than 50% with well-developed understories. Goshawk breeding and fledging period extends from March 1 to August 30. Goshawks prey on a wide variety of forest-dwelling birds and mammals such as grouse, woodpeckers, squirrels, and rabbits. Fairhurst et al. (2004) noted that the goshawks' diet in northeast Nevada was dominated by Belding's ground squirrels and that goshawk foraging habitat included sagebrush adjacent to aspen stands. Goshawk do not necessarily migrate long distances, but may move off their breeding territories during winter in order to find food. They tend to move to lower elevations with less snow cover during the winter, and return to breeding territories in March and April.

Northern goshawks have been documented nesting at 20 sites within Murphy Complex: Wildhorse Zone. Goshawks have a high fidelity to nest areas (Reynolds et al. 1992, Wisdom et al. 2000), which are often used more than one year, and sometimes used intermittently for decades. Many pairs of goshawks have two to four alternate nest areas within their home ranges. All previously occupied nest areas may be important for maintaining nesting populations because they contain the habitat elements that originally attracted the goshawks. Also, establishing and maintaining replacement nest areas are advantageous because goshawk nest stands are subject to loss from catastrophic events and natural tree mortality.

DIRECT EFFECTS: There were no documented direct impacts to goshawks resulting from the fire or suppression activities. Throughout the vast majority of the Murphy Complex: Wildhorse Zone burned area, the fire resulted in a mosaic pattern of vegetation mortality in aspen stands. However, large contiguous stands of aspen in Tennessee Gulch and upper Buck Creek appear largely intact. The Vegetation Specialist Report estimates that stem mortality occurred in approximately 10% of the aspen stands within the Murphy Complex: Wildhorse Zone. Given the incident occurred in late July (during the fledging period), the fire may have resulted in direct mortality of fledgling goshawks in affected aspen stands. Adult and fledged goshawks are able to fly away from the advancing front and flanks of a fire.

Aerial reconnaissance and fire suppression operations involving low-level air support have the potential to result in goshawk mortality in the event of rotor strike. However, no such incidents were reported during the Murphy Complex: Wildhorse Zone incident management or subsequent BAER assessment. Given the incident occurred in late July (during the fledging period), the potential for burnout operations to have resulted in direct mortality of fledgling goshawks in affected aspen stands cannot be discounted. Adult and fledged juvenile goshawks are able to fly away from the advancing front and flanks of a fire.

INDIRECT EFFECTS: Although no goshawks were observed during post-fire BAER reconnaissance, there are twenty previously documented nest sites within the Murphy Complex: Wildhorse Zone. The estimated 10% mortality of aspen stands within this large burned area will not measurably contribute to a cumulative effect of habitat loss for goshawks across their range. However, vegetation mortality was much higher in sagebrush habitat adjacent to aspen stands, and post-fire recovery of affected sagebrush habitat is much slower than for aspen. The spatial arrangement of remaining suitable aspen habitat and adjacent foraging habitat within the fire perimeter is likely to cause breeding pairs of goshawks to redefine their nest territories, PFAs, and home ranges, and may result in displacement or reproductive failure of individual goshawks.

Fire suppression operations involving low-level air support have the potential to result in disturbance of goshawks. However, the potential for these operations to cause a significant disruption of essential feeding, breeding, or sheltering behaviors is discountable, given the spatially and temporally discrete nature of the implementation. Given the exact locations of all burnout operations were not well documented, the potential for burnout operations to have resulted in mortality of aspen stands and adjacent sagebrush cannot be discounted. The portion of the estimated 10% mortality in aspen stands within the entire burned area that is attributable to burnout operations is uncertain, but probably a minor fraction. The estimated 10% loss of aspen stands is not expected to measurably contribute to a cumulative effect of habitat loss for goshawks across their range. However, vegetation mortality was much higher in sagebrush habitat adjacent to aspen stands, and post-fire recovery of affected sagebrush habitat is much slower than for aspen. The spatial arrangement of remaining suitable aspen habitat and adjacent sagebrush within the fire perimeter is likely to cause breeding pairs of goshawks to redefine their nest territories, PFAs, and home ranges, and may result in displacement or reproductive failure of individual goshawks.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and

patrols) may occur in the vicinity of occupied goshawk nest territories and PFAs. These activities will result in increased human presence adjacent to occupied and potential goshawk habitat through August 2007. These activities may temporarily disturb individual goshawks. However, the proposed BAER treatment implementation will occur on discrete portions of the burned area during discrete time intervals over the course of one year. Furthermore, none of the proposed treatments will negatively impact remaining aspen stands.

EFFECTS DETERMINATION: Burnout operations may have rendered some aspen stands and adjacent sagebrush foraging habitat unsuitable for goshawks or resulted in mortality of individual fledgling goshawks within the Murphy Complex: Wildhorse Zone. The minimal mortality of aspen stands and sagebrush attributable to burnout operations will not measurably contribute to a cumulative effect of habitat loss for goshawks across their range. The spatial arrangement of remaining suitable aspen habitat within the fire perimeter is likely to cause breeding pairs of goshawks to redefine their nest territories, PFAs, and home ranges, and may result in displacement or reproductive failure of individual goshawks. Low-level flights during fire suppression and BAER reconnaissance may have temporarily disturbed individual goshawks within the burned area. The proposed BAER treatments will result in increased human presence adjacent to occupied and potential goshawk habitat through August 2007 and may temporarily disturb individual goshawks. However, the potential for low-level flights or the proposed BAER treatments to result in significant disruption of essential feeding, breeding, or sheltering behaviors is discountable, given the spatially and temporally discrete nature of the implementation. Therefore, the determination for goshawks is “may impact individuals, but not likely to cause a trend to federal listing or loss of viability.”

FLAMMULATED OWL

Flammulated owls (Otus flammeolus) are small secondary cavity-nesting strigids that breed in montane coniferous and deciduous forests and migrate to southern Mexico and Central America for the winter. Flammulated owls are primarily insectivores, rarely feeding on small vertebrates (rodents and bats). Flammulated owls breed in semi-colonial clusters with small (27-45 acres) overlapping home ranges. These owls are normally strongly associated with pine or fir stands, but show a high affinity for stands of mature aspen or mixed aspen with fir in Nevada. Mature forest stands with relatively high snag densities, woodpecker activity, and nearby openings are preferred breeding habitat. Flammulated owls generally arrive in Nevada breeding grounds in late May to early June and leave for over-wintering habitat in September and October (Mika and Riddle 2007). The Regional Forester’s list (2003) designated the flammulated owl as a sensitive species in Forest Service-Region 4.

The aspen stand in upper Tennessee Gulch was surveyed for flammulated owls in 2005. No owls were detected. The researchers noted tat “Tennessee Gulch is probably too small and possibly too disconnected to provide adequate habitat for flammulated owls. The habitat in this extensive mountain range is difficult to gauge. Suitable habitat for forest owls may occur elsewhere or even nearby.” Given this survey information and spatial vegetation data, it appears that there are two areas of potential suitable flammulated owl habitat within the Murphy Complex: Wildhorse Zone perimeter – upper Buck Creek and the north side of Copper Mountain. The remainder of the flammulated owl analysis will focus on these two discrete areas.

DIRECT EFFECTS: There have been no documented observations of flammulated owls within the Murphy Complex: Wildhorse Zone. Therefore, the potential for direct impacts to flammulated owls from the fire, suppression activities, and proposed BAER treatments is discountable.

INDIRECT EFFECTS: No flammulated owls have been observed in the area, but there were effects to potentially suitable habitat. Although the Murphy Complex: Wildhorse Zone perimeter incorporates aspen stands in the headwaters of Buck Creek, this area was unburned and remains

intact. However, the aspen stands on the north side of Copper mountain experienced moderate mortality. As a result, the spatial extent of the mature aspen component has been substantially reduced. Vegetation mortality was much higher in sagebrush habitat adjacent to the aspen stands, and post-fire recovery of affected sagebrush habitat is much slower than for aspen. Therefore, the north side of Copper Mountain is not expected to meet criteria for potential flammulated owl habitat pending regrowth and maturation of the vegetation.

Given the exact locations of all burnout operations were not well documented, the potential for burnout operations to have resulted in mortality of aspen stands and adjacent sagebrush on the north side of Copper Mountain cannot be discounted. The mortality in the aspen stands on the north side of Copper Mountain that is attributable to burnout operations is uncertain, but probably a minor fraction. Vegetation mortality was much higher in sagebrush habitat adjacent to the aspen stands, and post-fire recovery of affected sagebrush habitat is much slower than for aspen. Therefore, the north side of Copper Mountain is not expected to meet criteria for potential flammulated owl habitat pending regrowth and maturation of the vegetation.

No BAER treatments are proposed in the vicinity of the remaining potential flammulated owl habitat in the headwaters of Buck Creek. Therefore, none of the proposed treatments will impact remaining potential flammulated owl habitat.

EFFECTS DETERMINATION: Burnout operations may have contributed to the reduction in potential flammulated owl habitat on the north side of Copper Mountain. However, the minimal mortality of aspen stands and sagebrush attributable to burnout operations is probably insignificant (not measurable). The reduction in potential flammulated owl habitat within the fire perimeter is likely to persist until regrowth and maturation of the affected vegetation. Low-level flights during fire suppression and BAER reconnaissance may have temporarily disturbed individual flammulated owls within the burned area. The proposed BAER treatments will not result in increased human presence adjacent to remaining potential flammulated owl habitat. Therefore, the determination for flammulated owls is “not likely to cause a trend to federal listing or loss of viability.”

TOWNSEND’S BIG-EARED BAT and SPOTTED BAT

Because these bat species use similar habitats, they will be analyzed together in this section. The western big-eared bat (Corynorhinus townsendii) and spotted bat (Euderma maculatum) inhabit a variety of plant communities, including: pinyon-juniper, shrub/steppe, grassland and mixed conifer. Caves, mineshafts, rocky outcrops and old buildings provide suitable roost sites for the western big-eared bat, while steep rock faces or rock crevices provide suitable roosting habitat for the spotted bat. Spotted bats are also known to roost under the loose bark and in cracks of large old trees and snags. Townsend’s big-eared bats form highly visible clusters on open surfaces making them extremely vulnerable to disturbance (Christy and West 1993). There is suitable roosting habitat for the Townsend’s big-eared bat and spotted bat within the Murphy Complex: Wildhorse Zone perimeter. The Regional Forester’s list (2003) designated the Townsend’s big-eared bat and spotted bat as sensitive species in Forest Service-Region 4.

Spotted bats feed primarily on flying moths and have been observed foraging in forest openings, pinyon-juniper woodlands, riverine/riparian habitats associated with small to mid-sized streams in narrow canyons, wetlands, meadows and old agricultural fields (Wai-Ping and Fenton 1989). Foraging habitat for the western big-eared bat occurs along forested edges often in the vicinity of freestanding water or along stream corridors, where the primary prey are small moths (Spahr et al. 1991). Threats to both species include loss of roosting habitats due to human destruction and disturbances such as rock climbing, recreational caving, mine reclamation and renewed mining on historical districts. Other threats to foraging habitats include impoundment of reservoirs, large scale pesticide programs, and conversion of desert wash vegetation and/or grazing of meadows. Day roosts, maternity roosts, and suitable foraging habitat for both bat species occur within and

adjacent to the Murphy Complex: Wildhorse Zone perimeter. Both Townsend's big-eared bats and spotted bats were observed by Doering and Keller (1998) in the Bruneau Canyon and Jarbidge River to the north and northeast of the Murphy Complex: Wilhorse Zone. Ports and Bradley (1996) confirmed the presence of Townsend's big-eared bats at numerous sites in Elko County, NV (south, east, and west of the Murphy Complex: Wildhorse Zone). Although there is very limited published survey data from within the Murphy Complex: Wildhorse Zone, survey data from the surrounding area suggests that both Townsend's big-eared bats and spotted bats are probably present.

Direct and Indirect Effects

DIRECT EFFECTS: Although there have been no documented observations of Townsend's big-eared bats or spotted bats within the Murphy Complex: Wildhorse Zone, suitable habitat and detections in the surrounding areas suggest that both species are probably present with the fire perimeter. Bats in day roosts or maternity roosts would be vulnerable to heat and smoke generated by the fire. Therefore, the potential for direct mortality Townsend's big-eared bats and spotted bats from the wildfire or burnout operations is not discountable.

INDIRECT EFFECTS: Mine adits and shafts, caves, and rock crevices used as bat day roosts, maternity roosts, or hibernacula are not likely to be substantially altered by fire. However, the fire caused extensive vegetation mortality in sagebrush and riparian habitats used for foraging by both species. The reduced quality of foraging habitat is likely to cause displacement, reproductive failure, or mortality of individual Townsend's big-eared bats and spotted bats within the Murphy Complex: Wildhorse Zone.

Given the exact locations of all burnout operations were not well documented, and the quantity and locations of occupied habitats is uncertain, the potential for burnout operations to have resulted in vegetation mortality in foraging habitats used by both bat species cannot be discounted. Construction of dozerlines around the fire perimeter may also have reduced the quality of bat foraging habitat. The reduced quality of foraging habitat resulting from fire suppression operations has the potential to cause displacement, reproductive failure, or mortality of individual Townsend's big-eared bats and spotted bats within the Murphy Complex: Wildhorse Zone.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) may occur in the vicinity of bat foraging habitat or roosts. However, given implementation would take place during the day while bats are roosting, there would be no disturbances to foraging bats during project implementation. Implementation of proposed BAER treatments is unlikely to disturb bats roosting in mine adits, shafts, caves, or rock crevices. None of the proposed BAER treatments has the potential to reduce the quality of bat foraging habitat or roosts.

EFFECTS DETERMINATION: Burnout operations and dozerline construction may have contributed to the reduction in suitable bat foraging habitat. Fire suppression activities may have caused localized temporary displacement from roosting or summer nursery colonies until operations were concluded. Furthermore, the potential for direct mortality of individual Townsend's big-eared bats and spotted bats from the burnout operations cannot be discounted. Therefore, the determination for Townsend's big-eared bats and spotted bats is "may impact individuals, but not likely to cause a trend to federal listing or loss of viability."

MOUNTAIN QUAIL

The Regional Forester's list (2003) designated the mountain quail (*Oreortyx pictus*) as a sensitive species in Forest Service-Region 4. According to local NDOW Wildlife Biologists, mountain quail

were released into the Bruneau River area in the 1990s. However, these releases apparently failed to establish a reproducing population of mountain quail, and there is reasonable doubt as to whether mountain quail historically occupied habitat within the Murphy Complex: Wildhorse Zone perimeter. Given the uncertainty regarding the historic distribution of mountain quail in the vicinity of the fire, and the recent unsuccessful attempt to introduce mountain quail into the Bruneau Canyon area, it is highly unlikely that mountain quail or their habitat have any potential to be affected by the fire, associated suppression actions, or proposed BAER treatments. Therefore, the fire, associated suppression actions, and proposed BAER treatments were determined to have "no impact" on mountain quail.

OTHER EMPHASIS SPECIES

RED BAND TROUT

Inland Columbia Basin redband trout (*Oncorhynchus mykiss gairdneri*) is a subspecies of rainbow trout indigenous to the interior Columbia Basin. Its historic range in Nevada includes the Owyhee, Bruneau and Jarbidge Rivers. The interior redband trout is designated a species of concern to the Service (formerly category 2 species, 59 FR 58982, November 15, 1994). A formal petition to list interior redband trout in the Snake River drainage above Brownlee Dam and below Shoshone Falls as threatened or endangered under the Act was received by the USFWS from environmental groups in April 1995. The USFWS published its 90-day finding in 60 FR 49819, in which the petition was determined not to provide substantial information to substantiate that these populations of redband trout constitute a distinct population segment. At present, this species has no federal regulatory status. However, the redband trout is designated as a Nevada State sensitive (S2) species (http://heritage.nv.gov/lists/fishes.html).

Logging, mining, agriculture, grazing, dams, over harvest and hybridization and competition with other trout contributed to the decline of redband trout abundance, distribution and genetic diversity in the Columbia River Basin (Williams et al. 1989; Behnke 1992). Consequently, many populations are restricted to isolated headwater streams that may serve as refugia until effective conservation and rehabilitation strategies are implemented. Long-term persistence of these populations is threatened by loss of migratory life history forms and connectivity with other populations which is critical to maintaining genetic diversity and dispersal among populations (Rieman and McIntyre 1995). Despite their broad distribution, few strong populations exist. Known or predicted secure populations inhabit 17 percent of the historic range and 24 percent of the present range (Lee et al. 1997). Furthermore, Lee et al. (1997) reported that only 30 percent of the watersheds supporting spawning and rearing populations were classified as strong populations.

Interior redband trout exhibit a variety of life history strategies. Fluvial stocks occupy larger rivers and spawn in smaller tributaries. Resident forms inhabit smaller tributaries and headwater areas for their entire lives. There are approximately 70.0 miles of fish-bearing (redband trout) streams within the Murphy Complex: Wildhorse Zone.

DIRECT EFFECTS: There were no documented direct impacts to Redband trout resulting from the fire or suppression activities. Throughout the vast majority of the Murphy Complex: Wildhorse Zone burned area, the fire resulted in minimal mortality of riparian vegetation associated with lentic and lotic habitats, probably due to higher live-fuel moistures in these areas. As a result, the residence time of fire adjacent to fish-bearing streams was probably insufficient to transfer lethal amounts of heat or toxic gases into the water.

Beaver dams and stock ponds on some fish-bearing streams were used as water sources for helicopter bucket operations during fire suppression operations throughout the Murphy Complex: Wildhorse Zone. However, given the redband trout's natural avoidance behaviors and the results of studies on the Boise and Salmon-Challis National Forests, the potential for these helicopter

operations to have resulted in entrainment and mortality of individual redband trout is discountable (USFS 2003, Jimenez and Burton 2001).

INDIRECT EFFECTS: Post-fire erosion and sediment delivery are expected to result in increased sediment storage in beaver complexes and depositional stream reaches within and immediately downstream from the Murphy Complex: Wildhorse Zone burned area. The resulting sediment deposition is likely to render a portion of the occupied redband trout habitat unsuitably shallow and decrease the macroinvertebrate production of the affected surface waters. This loss of suitable habitat and prey abundance is likely to result in displacement, reproductive failure, and/or mortality of redband trout in affected sites within the Murphy Complex: Wildhorse Zone. There is also a potential for channel reorganizing events to be triggered by moderate to high-intensity rainfall in extensively burned drainages. Where they affect occupied stream reaches, post-fire channel reorganizing events are likely to extirpate local populations of trout and render the affected habitat unsuitable for several years.

Equipment used for water drafting and aerial dipping in support of fire suppression operations was used in multiple water bodies throughout the incident without being sanitized. Surface waters in the vicinity of the Murphy Complex: Wildhorse Zone have not been comprehensively surveyed for aquatic nuisance species or fish pathogens. Therefore, the potential for drafting and dipping operations to have spread aquatic nuisance species or fish pathogens that may affect redband trout cannot be discounted. Any resulting infestations of aquatic nuisance species or fish pathogens have the potential to cause reproductive failure and/or mortality of individuals, or extirpation of local populations. Dozer lines and other ground-based suppression tactics implemented within the Murphy Complex: Wildhorse Zone generally avoided riparian habitats. Therefore, no other indirect impacts to redband trout are likely to have resulted from fire suppression activities.

BAER treatments (seeding, livestock fencing, road drainage improvements, sign installation, and patrols) are proposed adjacent to occupied and potential habitat for redband trout. With the exception of improvements to identified road-stream crossings, none of the proposed treatments will occur in lentic or lotic habitats. Improved road-stream crossings on fish-bearing streams will provide for aquatic organism passage, which will improve aquatic habitat connectivity for redband trout. Construction activities at road-stream crossings may temporarily displace individual redband trout via increased turbidity or mechanical disturbance to habitat. The proposed fencing will minimize or avoid livestock grazing impacts to riparian areas along fish-bearing streams for at least two years to allow for natural vegetation recovery.

EFFECTS DETERMINATION: The potential for water drafting and dipping operations to have resulted in individual mortalities, introduction of aquatic nuisance species, and/or pathogens during fire suppression on the Murphy Complex: Wildhorse Zone cannot be discounted. There is also a potential for the proposed BAER treatments at road-stream crossings to temporarily displace individual redband trout. However, the resulting road-stream crossing structures will improve aquatic habitat connectivity and the proposed fencing will minimize or avoid livestock grazing impacts to riparian areas along fish-bearing streams for at least two years to allow for natural vegetation recovery. Therefore, the determination for redband trout is “may impact individuals but is not likely to cause a trend to federal listing or loss of viability.”

MULE DEER

Approximately 34,203 acres of critical winter range for mule deer were affected within the burned area. Short-term loss of forage species will cause the deer to focus on to unburned areas within the fire and to shift to areas outside the fire perimeter. Inter and intra-species competition for available forage may increase until shrubs, forbs and grasses grow. Most of the shrubs within the fire area were killed by the fire and will not resprout. The majority of the grass species will

resprout as soon as climatic conditions allow. The loss of productivity of critical winter range for mule deer is the top priority issue identified by NDOW for the Murphy Complex: Wildhorse Zone burned area. Particular concern was expressed regarding high vegetation mortality of key shrub species (mountain big sage and basin big sage) on lower-elevation slopes and valley bottoms along the Bruneau River and Meadow Creek.

MURPHY COMPLEX: WILDHORSE ZONE VEGETATION MORTALITY OF MULE DEER CRITICAL WINTER RANGE in acres					
OWNERSHIP	UNBURNED	LOW 0-30 %	MODERATE 31-60%	HIGH >60%	TOTAL
Forest Service	4975	27466	4965	237	37643
Nevada	437	951	323	52	1763
Private	0	144	65	0	209
BLM	0	0	0	0	0
TOTALS	5412	28561	5353	289	39615

4. Cultural Heritage Resources. No findings for this category.
5. Invasive Plants. No findings for this category.

MURPHY COMPLEX: WILDHORSE ZONE SPECIES LIST

A species list was obtained by Dwayne Winslow, Ruby Mountains/Jarbidge R.D. Wildlife Biologist, from the U. S. Fish and Wildlife Service, Reno Office, on July 30, 2007. The list was reviewed by Michelle Caviness (Mountain City R.D. Wildlife Biologist), Maija Meneks (Mountain City R.D. Fisheries Biologist), and Michael S. Kellett (BAER Team Biologist), and discussed with Chad Mellison (Wildlife Biologist, USFWS – Reno) regarding which species to address, what species to not address, and why. The following federally listed species occur, or have habitat within or immediately downstream from the fire area, or were potentially affected by fire suppression actions:

SPECIES	SCIENTIFIC NAME	LISTING STATUS
Bald Eagle	*Haliaeetus Leucocephalus*	Federally Threatened
Bull Trout	*Salvelinus confluentus*	Federally Threatened
Columbia spotted frog (Great Basin population)	*Rana luteiventris*	Candidate

The following species were identified by the FWS as potentially occurring within or near the Murphy Complex: Wildhorse Zone. Through post-fire reconnaissance and consultation with local experts, it was determined that these species were not affected by the fire or expected to be affected by potential post-fire flooding or proposed BAER treatments because the species distributions and habitats are not within or immediately downstream of the Murphy Complex: Wildhorse Zone.

SPECIES	SCIENTIFIC NAME	LISTING STATUS	REASON FOR NOT ADDRESSING
Lahontan cutthroat trout	*Oncorhynchus clarki henshawi*	Federally Threatened	No habitat within fire area.
Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate	No habitat within fire area.

IV. RECOMMENDATIONS

A. Emergency Stabilization – Fire Suppression Repair

It is recommended that dozer lines (including improvements to existing roads) be assessed and if necessary rehabilitated sufficiently to minimize potential soil loss and sedimentation of all creeks and drainages within the fire area.

B. Emergency Stabilization

1. **Human Health and Safety.** No specifications for this category.
2. **Soil/Watershed Stabilization.** No specifications for this category.
3. **T&E Habitat Stabilization/Recovery.** No specifications for this category.
4. **Cultural Heritage Resources.** No specifications for this category.
5. **Invasive Plants.** No specifications for this category.

C. Rehabilitation

The following recommendations were developed in conjunction with Mountain City R.D. Natural Resource Specialists to address habitat rehabilitation needs to mitigate fire, suppression activity, post-fire flooding effects to R4 sensitive species and other species of special concern found within the burned area.

1. Continue Columbia spotted frog habitat and population monitoring on known local

populations within the burned area to allow for comparison of post-fire impacts to existing baseline information. Where determined appropriate, collect and incorporate chytrid fungus and ANS monitoring data to evaluate the fire impacts to Columbia spotted frogs and to formulate future management recommendations.

2. Aerial and/or ground seeding of appropriate native grasses and shrub species, including but not limited to big sagebrush (mountain and Great Basin) and bluebunch wheatgrass in priority areas identified on treatment map. Seeding with these species would stimulate post-fire recovery of sage grouse and pygmy rabbit habitat and critical mule deer winter range in an area where that habitat has been declining at a rapid rate due to the fire size and frequency on the Mountain City R.D. Until the sagebrush component is reestablished in the vegetation community within the burned area, the loss of forage will reduce the populations and survival rates sage grouse, pygmy rabbit, and mule deer populations' survival rate within the fire perimeter.

D. Management Recommendations – Non-Specification Related

The following recommendations were developed in conjunction with Mountain City R.D. Natural Resource Specialists to address fire, suppression activity, post fire flooding effects to the redband trout and other species of special concern found within the fire area.

1. The appropriate BLM personnel should continue conferencing with USFWS regarding LAA determination for Columbia spotted frog. The effects determinations should be reassessed and conferencing reinitiated if additional emergency stabilization, rehabilitation measures or vegetation management activities are proposed after August 10, 2007.
2. Review Region 4 guidance regarding equipment sanitation for aquatic nuisance species control during wildfire suppression operations. Develop Forest-wide fire suppression operations guidelines to prevent the spread of aquatic nuisance species and incorporate appropriate mitigations in delegations of authority for incident management.
3. Monitor crucial mountain shrub community areas for post fire re-sprouting and utilization, and address opportunities for planting in the future if found warranted through monitoring.
4. Rest grazing allotments and pastures affected by the Murphy Complex: Wildhorse Zone Fire, consistent with HT Forest Plan.
5. Conduct post-fire monitoring of allotments and existing exclosures within the fire perimeter to determine post-fire response and provide basis for future management options. This is also addressed in the Range BAER Assessment.
6. Evaluate need to reconstruct or repair interior and boundary fences critical for post-fire grazing management of burned areas, particularly those fences associated with the prescriptive-use area along the Bruneau River. Also, evaluate need to construct new fences critical to post-fire management of burned wildlife habitats.
7. Conduct interagency review of potential negative cumulative effects to sage grouse, pygmy rabbits, mule deer and other species of concerns due to 2007 fires when added to fire effects from previous years.
8. Ensure any post-fire mine closures include bat-friendly gates should this action be taken in the future.

EFFECT DETERMINATIONS for THREATENED, CANDIDATE, and R4 SENSITIVE SPECIES

Species	Status	Determination
Bald Eagle	Threatened	No Effect
Bull Trout	Threatened	No Effect
Columbia Spotted Frog	Candidate/Sensitive	LAA
Spotted Bat	Sensitive	MIIH
Townsend's Big-Eared Bat	Sensitive	MIIH
Pygmy Rabbit	Sensitive	MIIH
Mountain Quail	Sensitive	No Impact
Flammulated Owl	Sensitive	MIIH
Northern Goshawk	Sensitive	MIIH
Greater Sage Grouse	Sensitive	MIIH

V. CONSULTATIONS

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