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Lake Fuels Project

Wildlife Resources Report

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For the

Ferron Ranger District
Manti LaSal National Forest
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Table of Contents

Introduction 2
Background Information 2
Purpose and Need for Action 2
Proposed Action 2
Project Area Description/Affected Environment ..... **Error! Bookmark not defined.**
Management Direction ..... **Error! Bookmark not defined.**
Species potentially impacted by the project 5
Species Accounts and Potential Impacts 7
References 19

Tables

Table 1. Management Indicator Species that could occur on the Manti Division of the Manti-La Sal National Forest. 5

Table 2. Neotropical migratory birds (NTMBs) listed as PIF priority species, or BCC that could occur on the Manti Division of the Manti-La Sal National Forest. ..... **Error! Bookmark not defined.**

Table 3. Most current population objectives and estimates for elk and mule deer (UDWR 2005). 8

Table 4. Open road summary for project area. 10

Figures

Figure 1. Stand structures and treatment units ..... **Error! Bookmark not defined.**

Figure 2. Lake Fuels Project Management Units 6

Introduction

The purpose of this wildlife report is to review the potential effects of the Lake Fuels Project on species identified as Management Indicator Species (MIS) by the Manti-La Sal National Forest (MLF) and priority migratory bird species identified by the Utah Partners In Flight Conservation Strategy, Birds of Conservation Concern, and the Utah Comprehensive Wildlife Conservation Strategy.
Background Information

The Lake project area was first identified as in need of vegetative treatment due to bark beetle infestation approximately seven years ago. The Lake Vegetation Project was proposed in 2002, and an environmental impact statement was completed. Due to delays caused by the appeal of the Lake Vegetation Project, conditions in the project area have changed and that project is no longer viable. Because of this changed condition, the Lake Vegetation Project is now being proposed as a fuels reduction project under the Healthy Forest Restoration Act (HFRA).

The Lake Fuels Project covers the same area as the Lake Vegetation Project. As of 2006 the spruce beetle had killed approximately 90 percent of the spruce in the stands proposed for treatment under the Lake Vegetation Project (Cote 2008a). The area has been identified in the Wildfire Protection Plan for Sanpete and Emery Counties (Portage 2007b), and has been identified in the Central Region Wildfire Protection Plan (Portage 2007a).

Purpose and Need for Action

The District Ranger for the Ferron District of the Manti-LaSal National Forest in collaboration with Sanpete and Emery Counties has determined a specific need on National Forest System land to address the fuel conditions in the Lake Fuels Project Area. Specifically there is a need to:

- Reduce the fire regime condition class from moderate to low at the stand level. Fuel loadings have increased in recent years as a result of Englemann spruce mortality caused by spruce beetle.

Proposed Action

The objective of this project is to reduce fire regime condition class from moderate to low. The proposed action is to remove beetle-killed spruce and other conifer species on approximately 820 acres; to regenerate aspen on approximately 145 of the 820 acres; and to plant spruce on approximately 675 of the 820 acres. Specific activities would be to:

- Remove most of the dead or infested Engelmann spruce 12 inches DBH or greater.
- Remove all conifers from the aspen clones within the spruce fir stands.
- Treat approximately 80 acres in aspen stands through small clear cuts in patches less than 10 acres in size and enhance the aspen component in others by removing the conifer element on approximately 65 acres. Aspen would be regenerated by coppice sprouting on approximately 145 acres. Prescribed fire may be utilized to enhance aspen sprouting, further reduce competition from conifer species and treat activity fuels.

Management objectives within streamside management zones (SMZ) are to:

- Minimize compaction in the streamside zone
- Reduce fine fuel loading (< 3 inches DBH)while retaining sufficient trees for streamside and aquatic large woody debris
- Provide an operable unit with specific/customized treatment prescription and stipulations
- Up to 50 percent of the merchantable trees may be removed while retaining approximately 25 to 50 percent of larger diameter (18"+) trees within the 100 foot buffer of a stream, seeps, springs, spring brooks, wetlands and within 50 feet of intermittent drainages.

Design features and best practices in the SMZ

- Heavy equipment would operate **only** outside the 100 foot buffer of streams, seeps, springs, spring brooks, wetlands and within 50 feet of intermittent drainages when the ground is dry or frozen, or there is more than two feet of snow or as approved by the sale administrator.
- Heavy equipment would operate over snow, or over logging slash on skid trails.

Related activities

- Construct approximately .07 mile of new road, reconstruct approximately 0.5 mile of existing road and build approximately 2.9 miles of temporary roads.
- Utilize approximately four temporary helicopter landings, one acre in size, and eleven temporary tractor landings of approximately ¼ acre each to deck logs during the logging operation.
- Pre-commercial thin remaining live conifers 8 inches DBH and under. This includes removal of live conifers within 66 feet of aspen.
- Treat fuels on 80 percent of the area by lopping and scattering, chipping or hand piling or concentration burning of the slash generated by the logging operations. Approximately 110-300 acres will be concentration burned.
- Apply gopher bait on approximately 660 acres using underground methods.

Design features specific to wildlife

- On going surveys are being conducted for the northern goshawk. If goshawks are located in the project area, the guidelines of the goshawk strategy and the forest plan amendment for the Utah Northern Goshawk Project would be implemented, which are the following:
    - 1) Prohibit forest vegetation manipulation within active nest areas during the active nesting period. The active nesting period will normally occur between March 1st and September 30th.

- 2) In active nest areas, restrict Forest Service management activities and human uses for which forest issue permits during the active nesting period unless it is determined that disturbance is not likely to result in nest abandonment.
- 3) Identify a Post Fledgling Area (PFA) which encompasses the active, alternate and replacement nest areas and additional habitat needed to raise fledglings. A PFA should be approximately 420 acres (exclusive of nest acres) when sufficient habitat exists, no treatments would occur if a nest is active, within this buffer until young have fledged the nest (September 30th).

- To provide habitat for cavity nesting species retain 300 snags per 100 acres with a minimum of 18 inches DBH and 30 feet in total height. Retain and protect large diameter reserve trees for future snag recruitment.
- To provide habitat for goshawk prey species, retain 100 tons of woody debris per 10 acres greater than 3 inches in diameter, inclusive of down logs.
- Provide 50 logs per 10 treated acres, a minimum size of 12 inches DBH at the mid-point and 8 feet in length.
- Nest trees with cavities will be protected.
- Additional surveys for goshawk nest areas will be conducted one year prior to harvest of each sale unit.
- Migratory Bird Protection. Bird surveys will provide information on migratory birds in the area, and timing restrictions will prevent disturbance to nesting birds.
- Migratory bird surveys in the area would be conducted prior to project implementation.
- If priority migratory birds are found to be nesting in areas that would be disturbed by the proposed project, no project activity would be allowed until after nesting is completed.

Pre-field Review and Field Reconnaissance

A pre-field review of management indicator species (MIS) was completed by reviewing the MIS identified in the Forest Plan, on-the-ground survey or sighting results from the district office, annual reports from Utah Division of Wildlife Resource, literature reviews, personal communication with other Forest Service personnel, and several recent BA/BEs completed for MLNF North Zone projects. A review of migratory birds of concern was completed by reviewing the Partners in Flight (PIF) priority bird species, and the US Fish and Wildlife Service Birds of Conservation Concern (BCC) (USFWS 2002) and the Utah Comprehensive Wildlife Conservation Strategy (UDWR 2005a). Initial field reconnaissance was conducted in October 2002. Site visits have been ongoing since then. Federally listed and sensitive species are

addressed in the Biological Assessment and Biological Evaluation for the Lake Fuels Project (Albrecht 2008).

Species potentially impacted by the project

Management Indicator Species

Table 1. Management Indicator Species that could occur on the Manti Division of the Manti-La Sal National Forest.

Species	Preferred habitat	Habitat in project area	Habitat occupied
Rocky Mountain Elk (*Cervus canadensis*)	Elk occupy higher elevation aspen and mixed conifer habitats from spring through early fall, and move to lower elevation mixed shrub, pinyon/juniper, and sagebrush habitats for winter.	Yes	Yes
Mule Deer (*Odocoileus hemionus*)	Mule deer use a variety of habitats and are wide spread. Deer migrate seasonally in response to snow cover.	Yes	Yes
Northern Goshawk [1] (*Accipiter gentilis*)	Goshawks occupy a variety of forested habitats. Nesting sites are usually located in dense mature forests with relatively large trees and closed canopies, near water, and on benches of relatively little slope (Graham et al. 1999).	Marginal since most of the conifer in the project area is dead	No
Golden Eagle (*Aquila chrysaetos)*	Golden eagles generally nest on cliffs, but also nest in trees. They hunt over open country for small mammals, snakes, birds and carrion.	Yes	Unknown
Macroinvertebrates (aquatic insects)	Habitat requirements vary with species and are species specific.	Yes	Yes

[1] The northern goshawk is also a sensitive species. Effects analysis and documentation is included in the biological evaluation, in the project record (Albrecht 2008).

Migratory Birds

The Migratory Bird Treaty Act (MBTA) and Executive Order 13186 contain direction for federal agencies in the conservation of migratory birds. The intention is for agencies such as the Forest Service to support and integrate bird conservation principles into agency activities and to avoid or minimize adverse impacts on migratory birds. Under Section 3(e)(6) of EO13186, Responsibilities of Federal Agencies to Protect Migratory Birds, it states that each agency shall "ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern". The following analysis meets agency obligations as defined in EO 13186.

High priority migratory bird species/species of concern are identified in several reports. The Utah Partners In Flight (PIF) Avian Conservation Strategy (Parrish et al. 2002) includes a list of

priority species and habitats in need of conservation. The Utah Comprehensive Wildlife Conservation Strategy (CWCS) prepared by the Utah Division of Wildlife Resources (2005a) also includes migratory bird species of management concern. The US Fish and Wildlife Service prepared the "Birds of Conservation Concern (BOCC) 2002" report, which identified more than 100 bird species that deserve prompt conservation attention to stabilize or increase populations or to secure threatened habitats.

The high priority migratory bird species and bird species of concern that could occur on the Manti Division of the Manti-La Sal National Forest and their preferred habitat are documented in a Migratory Bird document (USDA Forest Service 2008). The table below lists the species from the Avian Conservation Strategy (Parrish et al. 2002), Birds of Conservation Concern (USFWS 2002), and the Utah Comprehensive Wildlife Conservation Strategy (UDWR 2005a) that use conifer as primary or secondary breeding habitat and that could occur within the project area.

Table 3. PIF priority species, BOCC and CWCS bird species that may occur on the Manti Division. The highlighted species are associated with the conifer habitat types.

SPECIES	LIST(S)	PRIMARY/SECONDARY HABITAT*
Bald Eagle	CWCS	Lowland riparian
Black Rosy-Finch	PIF, CWCS	Alpine
Black Swift	PIF, BOCC, CWCS	Lowland riparian, cliff
Black-throated Gray Warbler	PIF, BOCC, CWCS	Pinyon-juniper, mountain shrub
Brewer's Sparrow	PIF, CWCS	Shrub-steppe, high desert scrub
Broad-tailed Hummingbird	PIF, CWCS	Lowland riparian
Ferruginous Hawk	PIF, BOCC, CWCS	Pinyon-juniper, shrub-steppe
Grace's Warbler	CWCS	Ponderosa pine, mixed conifer
Gray Vireo	PIF, BOCC, CWCS	Pinyon-juniper, oak
Greater Sage-grouse	CWCS	Sagebrush shrub-steppe
Lewis's Woodpecker	PIF, BOCC, CWCS	Ponderosa pine, lowland riparian, oak
[redacted]	[redacted]	[redacted]
Osprey	CWCS	Water – lentic
Peregrine Falcon	CWCS	Cliff, lowland riparian
Pinyon Jay	CWCS	Pinyon-juniper, ponderosa pine
Sage Sparrow	PIF, BOCC, CWCS	Shrub-steppe, high desert scrub
Southwestern Willow Flycatcher	CWCS	Lowland riparian
Three-toed Woodpecker	CWCS	Sub-alpine conifer
Virginia's Warbler	PIF, BOCC, CWCS	Oak, pinyon-juniper
[redacted]	[redacted]	[redacted]
Yellow-billed Cuckoo	PIF, BOCC, CWCS	Lowland riparian

*Primary/secondary habitat types listed in Parrish et al. 2002

Species Accounts and Potential Impacts

Management Indicator Species

Forest scale suitability analysis was completed for the Manti-La Sal National Forest. This analysis covers all MIS species on the forest. (USDA Forest Service MIS 2007).

Rocky Mountain Elk and Mule Deer

Elk are common in most mountainous regions of Utah, where they can be found in mountain meadows and forests during the summer and in foothills and valley grasslands during the winter (UDWR 2007). Dense brush understory is used for escape and thermal cover. Elk are primarily grazers, but also consume forbs and may browse on willow, aspen, oak, etc., where grasses are unavailable (Natureserve 2007). The elk rut occurs from late August to November, and calving takes place during late spring and early summer in areas that provide dense cover with brushy vegetation near openings, available water, and seclusion from human impacts (Albrecht 2005).

On the Wasatch Plateau, elk tend to occupy the higher elevation aspen and mixed conifer habitats from spring through early fall, and then move to lower elevation mixed shrub, pinyon/juniper, and sagebrush habitats for winter range. Elk generally occupy winter range from about the beginning of December through mid-April, but this varies depending on the severity of the winter (Albrecht 2005). The entire project area is contained within Big Game Management Unit 16 – Central Mountains and is identified as crucial summer range (UDWR 2006). The Manti elk herd population has been increasing steadily since 2003 with a small fall in population during 2006 and has remained steady since (table 3) but is currently below the management unit objective (Hersey 2006 and UDWR pop. data 2007).

Mule deer are common state-wide in Utah, where they can be found in many types of habitat ranging from open deserts to high mountains to urban areas. Mule deer often migrate from high mountainous areas in the summer to lower elevations in the winter to avoid deep snow (UDWR 2007). Mule deer prefer a mosaic of various aged vegetation that provides woody cover, meadow and shrubby openings, and free water. Vegetation cover is critical for thermal regulation in winter and summer, and to provide escape cover. They browse and graze, and prefer tender new growth of various shrubs, many forbs, and a few grasses (Albrecht 2005).

Their populations throughout Utah have historically fluctuated, periodically affected by drought and severe winter weather. Populations in eastern Utah declined in the early to mid 1990s, but showed signs of recovery in the late 1990s. The decline was attributed to severe drought conditions from 1988 through 1992, which was followed by a severe winter in 1992-93 (Jewkes 2006). Other factors contributing to fluctuating mule deer populations include predators, habitat changes, competition with elk and the number of hunting permits issued by the UDWR. The Manti deer herd population has been increasing steadily since 2002 until 2006 when the population had a significant decrease, the population has been increasing since 2006 (table 3), but remains below the management unit objective (Hersey 2006 and UDWR Pop. Data 2007). The biggest influence on deer population fluctuations are the number of permits that are issued each year by the UDWR.

Rutting season occurs in late fall through early winter. Fawning peaks generally occur from late April through mid June. Fawning occurs in moderately dense shrublands and forests, dense herbaceous stands, and high elevation riparian and mountain shrub habitats that have available water and abundant forage (Albrecht 2005). The entire project area is contained within

Management Unit 16 – Central Mountains and is identified as crucial summer range for mule deer (UDWR 2006). Movement of the deer and elk herds that use the project area is generally within three 6th field watersheds, Lake, Rolfson, and Staker (Hodson 2003).

Table 2. Most current population objectives and estimates for elk and mule deer (Hersey 2006 and UDWR Pop. Data 2007).

Management Unit	Population Objective	Population 2002	Population 2003	Population 2004	Population 2005	Population 2006	Population 2007
Population Estimate for Elk							
Central Mountains, Manti	12,000	11,100	8,800	9,400	10,500	10,000	10,000
Population Estimate for Mule Deer							
Centrals Mountains, Manti	38,000	26,000	28,000	29,900	32,700	26,600	27,000

Cover:Forage and Open Road Density

Optimum deer and elk habitat is the amount and arrangement of cover and forage areas that result in the maximum possible proper use of the maximum possible area by the animals. This is the cover to forage ratio (cover:forage) (Thomas 1979). The Forest Plan states that the optimum habitat mix for the daily normal range is 25 percent hiding cover, 15 percent thermal cover, 10 percent hiding or thermal cover, and 50 percent forage. Within the project area, spruce/subalpine fir stands provided hiding/security cover before they were killed by spruce beetles. Grasses, shrubs and forbs found in openings and previously harvested areas provide forage. Aspen stands function as both forage and cover. At the time the Lake Vegetation EIS was written (Cote 2005), the project area contained about 51 percent hiding and thermal cover and 49 percent forage; this met Forest Plan direction. Since about 90 percent of the conifer trees are now dead, they do not function any longer as thermal cover and are much less effective as hiding cover without their green needles and canopy. Security cover is considered adequate when 90 percent of a standing elk or deer is hidden by vegetation at a distance of 75 yards or less (Thomas 1979; NRCS 1999; Olson 1992). Ideal summer thermal cover consists of sapling trees or shrubs at least 5 feet tall with 75 percent closure of the canopy (Olson 1992).

Hiding cover effectiveness was analyzed using a postprocessor (Multi Story Elk Hiding Cover) for the Forest Vegetation Simulator (Smith and Long 1987). Results show that the treatment stands do not currently meet the criteria for hiding cover after the beetle-caused mortality.

Aspen comprises approximately 27 percent (about 1,480 acres) of the project area. These stands of aspen should be functioning as hiding cover and summer thermal cover for elk and deer. The aspen stands in the project area are being encroached by spruce/subalpine fir, and there is a general lack of aspen regeneration. Aspen is an important habitat component for deer and elk as it provides both forage and cover, and is used for calving and fawning. These stands need to be disturbed by harvest and/or fire in order to stimulate regeneration. Based on the above discussion it is estimated that the project area is currently about 27 percent cover being provided by the existing aspen community and 70 percent forage. The remainder is bare rock and water.

Potential impacts to deer and elk are likely to be similar, therefore analysis of effects for these two species are summarized together.

Direct and Indirect Impacts – Alternative 1:

If no action were taken, the existing cover and forage would remain over a longer period than if dead trees were harvested and stands replanted. Over the long-term (more than 5 years), cover would be reduced even further as dead trees rot and fall. The cover:forage ratio would continue to be out of compliance with current Forest Plan direction, and would take longer to recover than if the beetle-killed stands were to be harvested and replanted, and aspen stands disturbed to stimulate regeneration.

Long-term loss of large trees and canopy cover from beetle caused mortality, would open the forest floor and allow for shrubs, forbs and grasses to develop. This would improve forge availability while reducing cover. However, forage is not limiting in the project area. Regeneration of spruce in spruce/fir stands would take longer (approximately 20 years), than if the stands were harvested and replanted. Aspen stands would continue to be lost to encroachment and decadence.

Direct and Indirect Impacts– Alternative 2:

Salvage harvest would not directly affect the cover:forage ratio in the short-term (0 – 4 years). The cover:forage ratio would continue to be out of compliance with the Forest Plan standards and guidelines for approximately 10 years, until natural regeneration and planted stock become large enough to function as hiding cover. Disturbed aspen stands would regenerate and provide functioning cover in approximately five years (Cote 2008b).

The proposed project is found in big game crucial summer range but the quality of the area has been reduced considerably and the proposed project in the long term would create better habitat. Project related noise disturbance during implementation would reduce the sense of security and would likely result in avoidance of areas in close proximity to project activities. This effect would not be expected to last past project related activities. Noise disturbance from helicopter logging spans a greater area than ground-based logging due to the aerial transport of logs from the harvest unit to the landing area. Alternative 2 would treat approximately 430 acres in three units through helicopter harvest methods.

Removal of dead trees would allow for more room for shrubs, forbs and grass to develop. This would improve forage availability, although forage is not limiting in the analysis area. This effect is expected to last approximately 5 to 10 years until regeneration is developed enough to provide hiding cover, and out-compete the shrubs, forbs and grasses. Aspen habitat provides calving/fawning areas, forage, and thermal cover during summer months when the project area is used by deer and elk. Aspen enhancement treatments on approximately 145 acres would remove encroaching conifer and promote aspen regeneration, increasing habitat diversity, and promoting high value habitat for deer and elk (Forest Plan general direction for fish and wildlife).

The project proposal is to construct approximately .07 mile of new road, reconstruct approximately 0.5 mile of existing road and build approximately 2.9 miles of temporary roads. Roads not needed for future access will be closed or decommissioned, resulting in no net gain or loss in miles of road over the long term. Table 4 summarizes the existing miles of open road and trails density, the change during implementation, and no net change in the long term (10 years).

Motorized routes in the area total 23.13 miles, 10.21 miles of which are roads. The project would include constructing approximately 0.07 miles of new road, reconstruction of 0.5 miles of road,

and 2.9 miles of new temporary road construction. Temporary roads would be reclaimed/closed after project completion, leaving a total of 10.71 miles of road open to public use.

Presently, habitat in and around the project area is not used to a great extent by deer/elk due to the amount of dispersed recreation activity in the area. Disturbance from harvest activities wouldn't impact wildlife anymore than they already are, with the exception of those outer edges of the project area furthest from the recreation activity. Disturbance in these areas would be short-term and any wildlife use that occurs there now should resume following completion of harvest activities

Table 3. Road summary for project area.

Indicator	Alternative 1		Alternative 2	
	Existing	Yr. 10*	During Implementation	Yr. 10*
Open roads (miles)	10.21	10.21	13.2	10.28
Open trails-motorized (miles)	5.78	5.78	5.78	5.78
Open trails-non motorized (miles)	7.14	7.14	7.14	7.14
Open roads plus trails (miles)	23.13	23.13	26.12	23.2
Open roads density (miles/mile^2)	1.13	1.13	1.8	1.81
Open roads plus trails density (miles/mile^2)	2.64	2.64	3.04	2.64

*Assumption for year 10 is that no other management activities have taken place.

Cumulative impacts:

The area selected for cumulative effects analysis is the Lake, Staker, and Rolfson 6th level watersheds (approximately 11,125 acres). This represents the area of seasonal movement used by the deer and elk that occupy the project area. Under the Lake Canyon Trail System project 9.5 miles of new trail open to motorized and non-motorized uses were constructed, 7.3 miles of user created trails were closed and rehabilitated, three trail bridges were constructed, barrier areas and signing to preclude unauthorized vehicle access were constructed, and Miller Flat Road was widened by five to six feet for about half a mile to provide a double lane road. The purpose of the project was to accommodate current and expected trail use, address resource impacts, improve enforcement of the Forest Travel Plan, and accommodate increased traffic volumes on Miller Flat Road. Although implementation of the Lake Canyon Trail system likely will result in decreasing negative impacts to the area vegetation, soils, and water, it increased motorized road miles. The project increased miles of road to approximately 15 miles in the cumulative effects area, and open roads plus trails to approximately 36 miles. Open road density in the cumulative effects analysis area is about 1 mile per square mile, and open roads plus trails is about 2 miles per square mile. The project has not affected the cover: forage ratio.

Other past projects include historic timber harvest (1880 to 1960), which has resulted in some residual change from tree species to understory species. The effect to deer and elk would be the reduction in cover and increase in forage. Acreage is not known. Recent timber harvest (1990 – 1991) occurred southwest of Rolfson Reservoir. Approximately 750,000 board-feet of conifer were harvested, and two small aspen clearcuts were made to regenerate aspen. This would have temporarily increased forage, but since aspen grows much quicker than conifers, the stands have likely grown enough to now be functioning as cover. Livestock grazing which has been ongoing

since 1850 has resulted in some vegetation species composition change, introduction of non-native species, and possible competition with deer and elk for forage.

Road closures have been implemented as part of two separate projects that were done to control noxious weeds and re-vegetate areas in the cumulative effects analysis area. These closures have resulted in decreasing the open road density and increasing habitat effectiveness for deer and elk. However, some unauthorized OHV use is still occurring on some sections of closed road. Where this occurs, it would negate any benefits of having "closed" the roads. It is not possible to quantify effects of illegal OHV use on road density and disturbance to big game.

Pads and roads from past oil and gas drilling have been reclaimed and re-vegetated and should not add to effects of the Lake project. Effects of future oil and gas drilling would be improved access to the area resulting in possible increased use and disturbance to big game. Future hazard tree removal around developed dispersed sites would add traffic on area roads and increase disturbance to big game using the area.

Northern Goshawk

Refer to the Biological Evaluation for the Lake Fuels Project (Albrecht 2008).

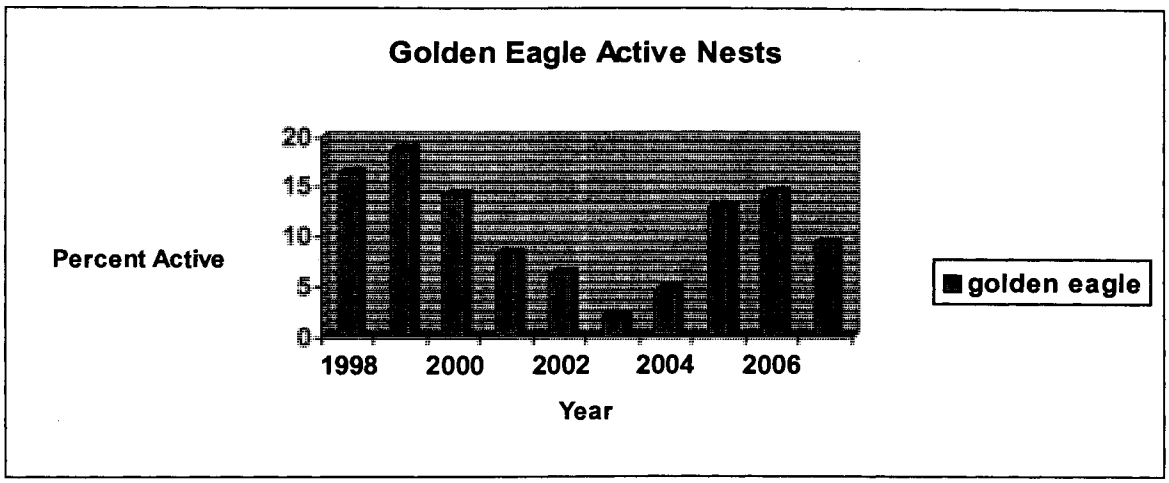
Golden Eagle

Golden eagles usually nest on cliffs overlooking large open expanses of grass-shrub or shrub steppe habitat, but tree nesting occurs in portions of their breeding range, including Utah. Nesting and brooding season generally extends from mid February to mid July. There is extensive cliff habitat along the eastern margin of the Wasatch Plateau and in canyons incising the Plateau. There are also extensive grassland and mountain brush habitats for foraging. Golden eagles primarily prey on small mammals including ground squirrels, prairie dogs, jack rabbits, and cottontails (Nature serve 2007).

Preferred golden eagle prey habitat includes edge along high mountain brush habitat, high/mid elevation perennial forb habitat, and high elevation perennial grassland habitat. Preferred golden eagle winter habitat includes large expanses of sagebrush (Delong 2004).

The number of known golden eagle nests on the Forest has increased over the years as new nests are found. Therefore, looking at the number of known active nests each year would not give an accurate impression of changes in the golden eagle population on the Forest. A better indication of golden eagle population change on the Forest would be the percent of monitored nest sites that were active each year, which is illustrated in the Graph 6. There was a decline in the number of active nests that had been monitored in the past but these numbers are on the rise again shown in graphs 5 & 6. This could be due to the severe drought conditions that have occurred in the area that would reduce the amount of available prey species therefore; having a detrimental affect on nesting Golden Eagles.

Graph 6. The percent of Forest monitored golden eagle nest sites that were active from 1998 through 2007 (UDWR 2007).



The average percent of active golden eagle nests over the 8 years of surveys is approximately 11.5%. Nesting activity was well above average in 1998, 1999 and 2000, and well below average in 2002, 2003 and 2004; nesting activity was extremely low in 2003, but rebounded somewhat in 2004 and was above the 8 year average in 2005. There has not been a dramatic change in golden eagle habitat attributed to management activity on the Forest over the 8 years of surveys; the variation in nesting activity during the survey period is not attributed to land management activity on the Forest. The variation in active golden eagle nests over the survey period, as shown in Graph 1 is believed to be linked to variation in annual precipitation and resulting variation in prey base. Prey species such as jackrabbits, cottontails, and prairie dogs are showing a decline in numbers, and drought has played a significant role (Colt pers. Comm. 2004). The percent of active golden eagle nests has been higher on the Manti-La Sal National Forest than off the Forest at lower elevations. Given the fact that the high elevations have received more moisture than lower elevations, this difference in nesting activity also appears to be related to the drought and reduced prey base (Colt pers. Comm.2004).

No golden eagles are known to nest within the analysis area, nor is any suitable nesting habitat available. The closest known nest is approximately 3 miles from the project boundary. This nest was not active in 2007. The nearest known active nest in 2007 was approximately 5 miles away. Although no golden eagles were detected during the raptor surveys, the project area may provide foraging opportunities.

Direct and Indirect Impacts – Alternative 1:

There are no documented sightings of golden eagles in the project area. There is no suitable nesting habitat and any use of the project area would be incidental foraging. No impacts are expected as a result of taking no action.

Direct and Indirect Impacts – Alternative 2:

Potential impacts would be the same as for the no action alternative. Although there could be some use of the project area for foraging, eagles would likely avoid the area during project implementation. Foraging could potential change within the areas where the aspen would be treated, creating opening within the aspen stands allowing for more open areas, this would allow for more foraging opportunities for golden eagles. Since there is no suitable nesting habitat in the project area, breeding behavior would not be affected. Since gopher control treatments would be

implemented, it is possible that a golden eagle could consume a treated gopher. However, gopher control would utilize underground methods, which results in minimal hazards to non-target wildlife (Hygnstrom et. al., 1994). Treatment of gophers would only occur where needed to re-establish new tree seedlings.

Cumulative effects:

No measurable effects to golden eagles are expected as a result of implementing this project; therefore no cumulative effects are anticipated.

Macroinvertebrates

See Aquatics Report for the Lake Fuels Project (Jewkes, P. 2008)

Priority Migratory Bird Species

Northern Goshawk

Refer to the Biological Evaluation for the Lake Fuels Project (Albrecht 2008).

Williamson's sapsucker

Williamson's sapsucker occurs in western North America, where it ranges from southern British Columbia to central Mexico. It is found in Utah mainly in the mountainous areas of the eastern two-thirds of the state, where it is an uncommon breeder. On its breeding grounds, the habitats used by this species are middle - to high - elevation coniferous forests and mixed deciduous-coniferous forests containing aspens. Williamson's sapsuckers feed on insects, especially ants, and the sap of conifers and aspens. This woodpecker is a primary cavity excavator using typically an aspen or a conifer, usually three to sixty feet above the ground (UDWR 2007). The principal threat to this species in Utah is loss of habitat through timber harvest. The population trend in the state is not known (UDWR 2003). Surveys have been conducted within proposed project area; there was 1 reported sighting of a Williamson's sapsucker. It is unknown if there is a breeding pair within the proposed project area.

Direct and Indirect Impacts– Alternative 1: Potential habitat for this species in the analysis area has declined due to the high mortality of conifer trees. Dead trees do not produce the sap that is a food source for sapsuckers. It is unknown how or if conifer mortality has influenced forest ant populations (Williamson's sapsuckers main food source). Since Williamson's sapsuckers do not likely breed in the project area, the high snag densities resulting from beetle killed trees would have no effect on nesting habitat availability. Recovery and regeneration of forested stands would take longer under the no action alternative than if the dead trees were harvested, spruce re-planted, and aspen disturbed to stimulate regeneration.

Direct and Indirect Impacts – Alternative 2: Aspen regeneration treatments would remove some of the large aspen that could be used for sapsucker foraging. However, over the long-term, these treatments would benefit sapsuckers by ensuring the persistence of the aspen component in the project area. Approximately 225 acres of aspen would be treated to provide for aspen regeneration. Noise disturbance from harvest activities, and road construction and maintenance could cause disturbance and cause sapsuckers to avoid the area. This impact would not last past project implementation activities. Removal of dead spruce trees and re-planting the stand would result in stand recovery and regeneration over a shorter time frame than if the stands were left to decay, decompose and regenerate on their own. It is unknown if sapsuckers breed in the area, if

there are breeding pairs within the proposed project area breeding behavior would not be affected because no project activity would be allowed until after nesting is completed. Impacts to foraging habitat and behavior would likely be negligible. As part of this proposed action there has been special design features for cavity nesting species; such as nest trees with cavities will be protected and provide habitat for cavity nesting species, 300 snags per 100 acres with a 18 inch DBH and 30 feet height. These design features will continue to provide suitable habitat for Williamson's sapsucker and other cavity nesting species.

Cumulative Effects: The cumulative effects area for Williamson's sapsucker is the project area boundary. It is unknown if this area has any breeding territories. The Rolfson/Staker Roadless area, and untreated spruce/fir stands outside the roadless area would continue to provide habitat for Williamson's sapsuckers. There are approximately 4,575 acres of Williamson's sapsuckers habitat in the cumulative effects area. After implementation of this project, there would be about 4,490 acres remaining. Abundant snags would be present in the cumulative effects area, even after harvest of proposed stands. There has not been any salvage harvest in the cumulative effects area. Most of the past timber harvest was done long enough ago that the stands are now functioning as potential nesting habitat. Two small aspen clearcuts were implemented in the early 1990s that have successfully regenerated. Aspen regeneration is a benefit to Williamson's sapsuckers.

Oil and gas drilling done from the 1950's through the 1980's would not add impacts to Williamson's sapsuckers. Minor surface disturbance from an existing natural gas pipeline would not add impacts. Hazard tree removal around developed dispersed recreation sites will remove timber on approximately 100 acres. This activity will likely cause avoidance of the area being worked in. Livestock grazing would not cause additional effects, as it would not be expected to affect mating, breeding, or foraging behavior, nor cause a change in reproduction.

Development of roads for recreation, timber operations, grazing and private land access has been ongoing since the late 1800's. Vegetation removal to establish new roads likely removed some suitable sapsucker habitat, and establishment of a transportation system has increased use of the area. Development of a road system has allowed for easy access and higher recreational use. Impacts from recreational activity combined with project activities would cause disturbance to sapsuckers and may affect breeding and foraging behavior. Combined effects may cause sapsuckers to be displaced from the project area and seek foraging and nesting opportunities elsewhere. The combined impact of recreational use and project activities is not likely to cause sapsucker mortality or reduce their reproductive success.

Rationale for determination:

- Foraging habitat would be removed by timber harvest. However, large areas of foraging habitat would remain in the project area and cumulative effects area.
- Regeneration treatments in aspen stands would remove potential nest trees in the short-term, but would provide for long-term maintenance of aspen.
- Under Alternative 1 increased snags would not benefit current populations but would only increase other hazards and risks.

MIS Summary:

The district has monitored Management Indicator Species and other wildlife and plant threatened, endangered, and sensitive species as required. Monitoring data show generally stable or improving population trend indicators since the 2001-2003 drought. The capability/suitability analysis (USDA Forest Service 2007) contains additional information regarding MIS species populations and habitat conditions.

Forest plan consistency:

As documented in the Biological Assessment/Biological Evaluation and the Wildlife Report, the proposed action will comply with applicable Wildlife and Fish Resource Management, Forest-wide direction and standards and guidelines and Range Management Unit direction as listed below (USDA Forest Service 1986).

Forest-wide Direction (FWD) With Standards and Guidelines (SG):

FWD - C01-01 – Provide habitat needs, as appropriate for Management Indicator Species.

A. Deer and elk – **According to forest plan we are currently not meeting forage: cover ratio. The proposed project would allow for faster regeneration of aspen and conifer, which would move us toward forest plan standards and guidelines sooner.**

B. Abert's squirrel – **Not applicable to this proposed project. The Abert squirrel is only found on the Moab and Monticello Ranger Districts of the Manti-La Sal National Forest.**

C. Golden eagle – **There are no known nests within the proposed project area, therefore activities will not cause nest abandonment and forest plan standards and guidelines will be meet.**

D. Northern goshawk – **Standards and Guidelines are currently being met see Lake Fuels Project BE/BA.**

E. Macroinvertebrates – **At this time there is not enough data to estimate the forest-wide trend of macroinvertebrates see aquatics report (Jewkes, P. 2008).**

FWD – C01 - 02 - Manage habitat for recovery of endangered and threatened species.

Refer to the Lake Fuels Project BA/BE which covers all of the threatened and endangered species for specified counties.

FWD – C01 - 04 - Manage habitat of sensitive species to keep them from becoming threatened or endangered.

Refer to the Lake Fuels Project BA/BE which covers all of the threatened and endangered species for specified counties.

FWD – C01-05 - Maintain and/or improve habitat and habitat diversity for minimum viable populations of existing vertebrate wildlife species.
SG – a – Manage vegetative composition so as to maintain at least 50% of current habitat for existing and approved introduced wildlife species.

The proposed project will help to move the proposed project area toward aspen and conifer regeneration than would occur if no project act ivies were implemented.

FWD – C01-06 - Provide for habitat needs of cavity-nesting birds, raptors, and small animals by:
A. Through coordination with project work or resource uses, insure the appropriate density of snags are available and protected in vegetative types.
B. Selecting and utilizing live trees to create snags.

Project designs will leave 300 snags per 100 acres and any trees that have nesting cavities will be projected.

FWD – C01-08 - Manage waters capable of supporting self-sustaining fish populations to provide for those populations.
SG – a – Manage stream habitat to at least 50% of potential where existing self-sustaining fisheries occur.
SG – b – Proposed management activities which may cause unfavorable conditions in existing fisheries will include mitigation measures.

Project design has taken into account sensitive, threatened and endangered aquatic species. See Aquatics Report. (Jewkes, P. 2008)

Management Unit Direction

FWD - C01 - 01 - Provide big-game habitat needed to help achieve the big-game population objectives identified in interagency herd unit plans.

Management Unit Direction General Winter Range

The proposed project will occur within crucial summer range.

FWD - C01 - 01 - Provide big-game habitat needed to help achieve the big-game population objectives identified in interagency herd unit plans.

Big game populations on the Manti-La Sal are below population objectives (Table 3). The proposed project would help improve the cover: forage ratio (according to forest plan (USDA 1986)) within the proposed project area.

FWD - D02 01 - Manage livestock grazing to complement big-game habitat.
S&G – a – Establish proper use criteria that should maintain or enhance habitat for wildlife. Limit livestock use to this level.

N/A to the proposed project.

C01 01 - Balance wildlife use with grazing capacities and habitat.

(CO1) 01A. (2) Pertaining to cover: forage forest plan guidelines are not currently being met, and would not be met over the short term within the treatment units. The low amount of cover found within the proposed project area is due to the spruce beetle outbreak, which has caused a loss of much of the cover that was once used by big game. The proposed action will help to move the project area in compliance with the forest plan faster than without any treatment/management.

(CO1) 05- maintain and/or improve habitat and habitat diversity for minimum viable populations of existing vertebrate wildlife species;

> Habitat and habitat diversity will be improved by promoting aspen regeneration, and increasing native forbs and shrubs.

(CO1) 06- provide for habitat needs of cavity nesting birds, raptors, and small animals;

> Habitat needs of cavity nesting birds, raptors and small animals will be provided for by following the snag guidelines imposed by the Forest Plan Amendment for goshawk conservation (USDA Forest Service 2000), which is retaining a minimum of 2 snags per acre of minimum size 8 inch diameter at breast height and 15 feet tall within aspen. Add the ones also for spruce-fir. See also Design Features Specific to Wildlife.

(CO1) 07 – manage down timber to provide habitat for wildlife.

> This will be met by following the guidelines in the Forest Plan Amendment for goshawk conservation (USDA Forest Service 2000), which is retaining a minimum of 5 down logs per acre of minimum size 6 inch mid-point diameter and 8 feet long within aspen. Add the minimum down logs for spruce/fir. This also needs to be reflected in the Design Features Specific to Wildlife.

Forest-Wide direction is continued under Wildlife Habitat Improvement and Maintenance C02, C04, C05, C06. This project is in compliance with this direction: 01- maintain or improve habitat capability through direct treatment of vegetation, soil, and/or water by improving habitat diversity and regenerating aspen stands; 02 manage non-commercial aspen stands in mixed age groups to provide a source of forage, by regenerating aspen stands and providing for diversity in age class in regenerated stands. The project is also in compliance with the forest plan under Wildlife and Fish Resource Management (C01)-07 Mange down timber to provide habitat for wildlife; 06- provide for habitat needs of cavity nesting birds, raptors, and small animals.

Consideration of Best Available Science

The techniques and methodologies used in this analysis consider the best available science. The analysis includes a summary of the credible scientific evidence which is relevant to evaluating reasonably foreseeable impacts. The analysis also identifies methods used and references scientific sources relied on. When appropriate, the conclusions are based on the scientific analysis that shows a thorough review of relevant scientific information, a consideration of responsible opposing views, and the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk.

The relevant science considered for this analysis consists of several key elements. For the wildlife, fisheries and botany resources, the elements of science used are:

- On-site data and history - Refer to pre-field reconnaissance section.

- Scientific literature - Refer to References section.
- Modeling using currently acceptable analysis - The wildlife resource was analyzed using the Utah Division of Wildlife Resources (UDWR) habitat data coverages in ArcGIS (UDWR 2006), structure and cover analysis generated by FVS, and vegetation structural stage date generated by FVS (Cote 2008a).
- Most IDT members have several years of experience on the Manti Division of the MLF. Additionally, several projects of this type have been completed and results monitored and documented.

The affects to wildlife resources in other similar projects in the area have been considered in the analysis. Several other projects of this type have been implemented on the Manti Division of the MLF. Results have been monitored and documented. The projects were successful in meeting project goals.