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BIOLOGICAL ASSESSMENT
AND
BIOLOGICAL EVALUATION

FOR THE

LAKE VEGETATION MANAGEMENT PROJECT

MANTI-LA SAL NATIONAL FOREST
FERRON/PRICE RANGER DISTRICT
SANPETE COUNTY, UTAH

Prepared by K. Albrecht Date 8/6/08
Kevin Albrecht, Wildlife Biologist

Reviewed by Barbara J. Smith Date 8/4/08
Barb Smith, Wildlife Biologist/Botanist

CONTENTS

I. INTRODUCTION 2
Background Information 2
II. PURPOSE AND NEED FOR ACTION *3*
Proposed Action 3
Alternative 1 (no action) 5
Project Area Description/Affected Environment 5
Prefield review and field reconnaissance 6
Species Potentially Present 7
Threatened or Endangered Species 14
Region 4 Sensitive Species 15
III. EFFECTS OF ALTERNATIVES AND DETERMINATIONS *18*
Threatened or Endangered Species – Biological Assessment 19
Sensitive Species – Biological Evaluation 21
Forest plan consistency: 29
Irreversible and irretrievable commitments: 29
IV. LITERATURE CITED *30*

List of table and figures:

Table 1. Threatened, Endangered and Candidate species that occur in Sanpete county 8
Table 2. Region 4 sensitive species that occur on the Manti Division. 10
Table 3. VSS comparison. Acreage does not include barren rock and water bodies 23
Table 4. Estimated snag densities (average snags per acre) by alternative. 26
Table 5. Determination summary 31

Figure 1. Lake project area location 35
Figure 2. Potential goshawk nesting habitat and delineated PFAs. .....

I. INTRODUCTION

This Biological Assessment/Biological Evaluation (BA/BE) is a review of a proposed action, (timber sale) to determine whether it may affect Federally listed species or sensitive species listed by the Intermountain Region (USDA Forest Service 1985, USDA Forest Service 2003a, USDA Forest Service 2003b). This document is prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973 (19 U.S.C. 1536 (c)), and follows standards established in Forest Service Manual (FSM) direction (2672.42), and the Code of Federal Regulations (50 CFR S402). This document tiers directly to the Manti-La Sal National Forest Land and Resource Management Plan (USDA Forest Service 1986) and the Biological Evaluation completed for the Manti-La Sal National Forest (MLSNF), Land and Resource Management Plan (USDA Forest Service 1986b - FEIS Appendix C).

Sensitive species are those identified by the Forest Service Regional Forester as "those...for which population viability is a concern, as evidenced by ...significant current or predicted downward trends in population numbers or density" or "significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution." (FSM 2670.5)

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 (Portage 2007a).

II. PURPOSE AND NEED FOR ACTION

The District Ranger for the Ferron District of the Manti-La Sal National Forest in conjunction with Sanpete and Emery County has determined a specific need on National Forest System land to address the fuel conditions in the Lake Fuels Treatment Project Area.

- 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 Engelmann spruce mortality from a spruce beetle.

A. 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 a tree length of the streamside edge of the SMZ. Any trees within the SMZ would be end-lined out (no heavy equipment within the SMZ).

Design features and best practices in the SMZ

- Heavy equipment would operate only when the ground is dry or frozen, or there is more than two feet of compacted snow.
- Heavy equipment would operate over snow, or over logging slash on skid trails.
- No heavy equipment would operate within 100 feet of the streamside boundary of the SMZ.
- No heavy equipment would operate within 50 feet of intermittent drainages crossing the SMZ.
- No heavy equipment would operate and no trees would be removed within 100 feet of seeps, springs, spring brooks, or wetlands.

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.
- 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 (USDA Forest Service 2000), 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.

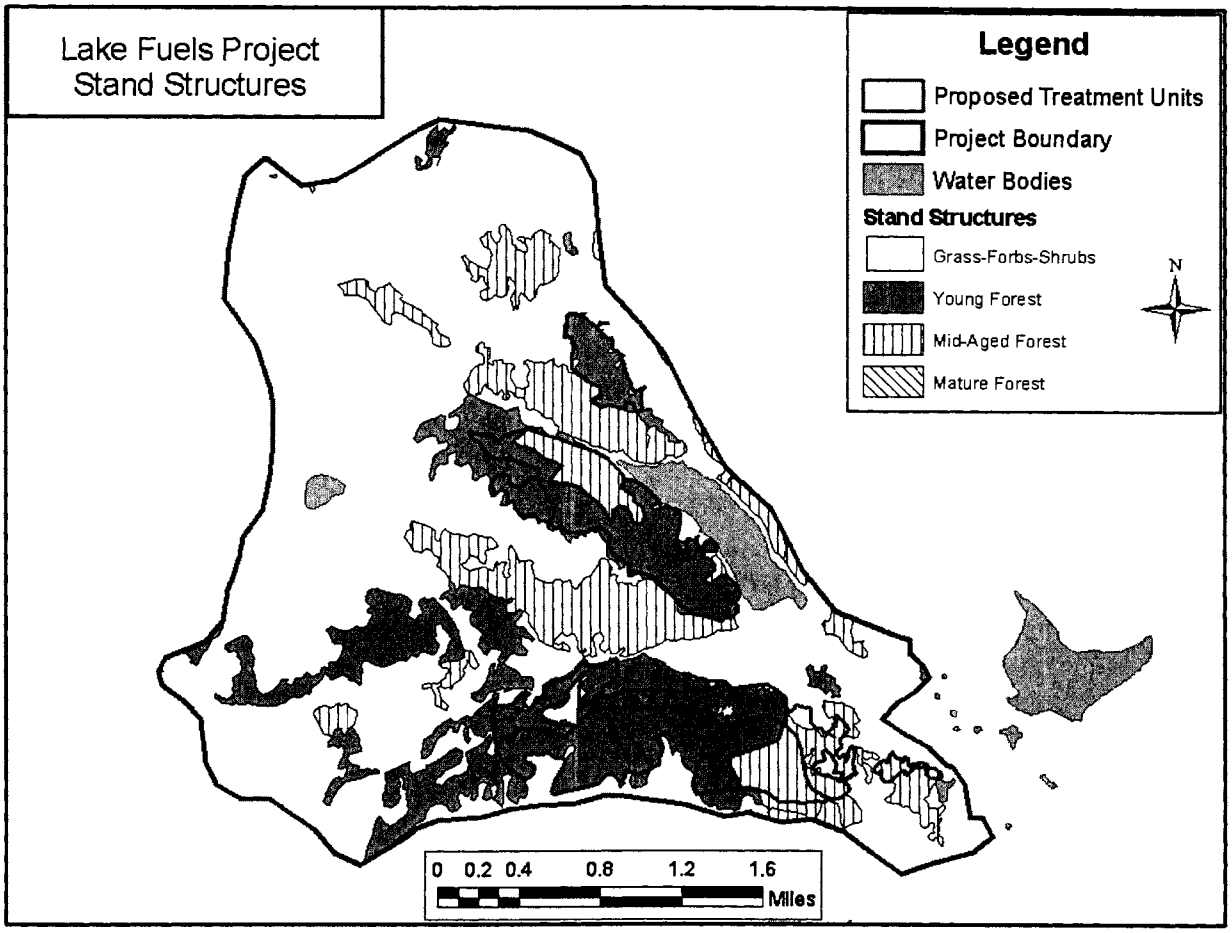
ALTERNATIVE 1 (NO ACTION)

Under the No Action alternative, current management plans would continue to guide management of the project area. Timber harvesting or planting would not be implemented to accomplish project goals at this time.

B. PROJECT AREA DESCRIPTION/AFFECTED ENVIRONMENT

The Lake Fuels Project Area is located on the Ferron Ranger District, Manti-La Sal National Forest, and encompasses approximately 5,600 acres. The project area is comprised of Engelmann spruce/sub-alpine fir forested lands (23 percent of project area) and aspen (27 percent of project area), with perennial forbs, sage brush, and other mountain brush interspersed (50 percent of project area). Perennial streams, riparian areas, wetlands, and a large reservoir are also present. Elevation ranges from approximately 8,700 to 10,000 feet. Approximately 1,720 acres of the Rolfson/Staker roadless area is contained within the project area and will not be included in any treatment proposals. Approximately 90 percent of the spruce trees in the area are dead due to the spruce beetle epidemic. The aspen stands in the

project area are experiencing encroachment by spruce and sub-alpine fir, and are being lost due to this encroachment and lack of regeneration.



Pre-field review and field reconnaissance

A list of Threatened, Endangered and Candidate species, and Critical Habitat for Sanpete County was received from the U.S. Fish and Wildlife Service, Salt Lake Field Office. This list is dated November 2007 and was verified as still valid on April 2, 2008 and can be accessed at http://www.fws.gov/mountain-prairie/endspp/CountyLists/Utah.pdf (USDI 2007a).

A pre-field review of sensitive species was completed by reviewing Forest Service Region 4 Sensitive species list, on-the-ground survey results from the District office, site-specific District data, literature reviews, personal communication with other FS personnel, the Biological Evaluation (BE) completed for the Manti-La Sal Forest Plan, and the Biological Assessment/Biological Evaluation (BA/BE) completed for the South Manti Timber Salvage FEIS.

Initial field reconnaissance was conducted in October 2002. Site visits have been ongoing since then. Surveys were conducted for nesting goshawks and three-toed woodpeckers in June and July 2001, and in June, July and August 2002, and will be conducted in June and July of 2008. Surveys will be conducted annually until the project is complete. More detailed information on survey results can be found in the Lake Project Wildlife Inventory Report in the project file.

SPECIES OF CONCERN

1. Threatened, Endangered, Proposed and Candidate Species

No federally listed plants occur within the project area. The only plant that is listed in Sanpete County is Heliotrope milk-vetch and there is no suitable habitat within the project area. Canada lynx (*Lynx canadensis*) is the only federally listed (threatened) species having potential habitat in the project area. The 4 aquatic species that are listed in Emery County are being considered due to the fact that the project drainages lead into Emery County where these fish are found.

All sensitive species with potential to occur in Sanpete County, on the Manti Division of the Forest, or in surrounding drainages were considered. Those species not occurring in Sanpete County or in bordering drainages were dropped from further consideration. The list of species was further reduced based on available habitat and survey information; species with habitat preferences differing from types available within the Lake project area were dropped from further analysis. The following tables present the results.

Table 1 Listed and candidate plant, wildlife, and fish species that could occur on National Forest System land in Sanpete County, Utah, their potential occurrence in the proposed project area, and consideration in this BA/BE.

SPECIES	SPECIES STATUS	SUITABLE HABITAT AND CONSIDERATION
Plant Species		
Heliotrope Milk-vetch *Astragalus montii*	**Threatened**	**Not Considered.** *Astragulus montii* was first discovered by Monte Lewis and Robert Thompson in 1976, and was listed as threatened in 1987. Its habitat is high elevation (10,500 to 11,000+ ft.) limestone barrens derived from the Flagstaff Geological Formation (Spahr et al. 1991). There is no suitable habitat within the proposed project area.
Terrestrial Wildlife Species		
Canada lynx *Lynx Canadensis*	**Threatened**	**Considered.** Suitable lynx habitat in the Southern Rockies is generally within the sub-alpine and upper montane forest zones between 8,000 and 12,000 feet elevation which are dominated by sub-alpine fir and Engelmann spruce (Ruediger et al. 2000).
Utah Prairie Dog *Cynomys parvidens*	**Threatened**	**Not Considered.** Utah prairie-dogs form colonies and spend much of their time in underground burrows, often hibernating during the winter. The species breeds in the spring, and young can be seen above ground in late May or early June. The Utah prairie-dog's diet is composed of flowers, seeds, grasses, leaves, and even insects. Major threats to the species include habitat loss (through development and drought), poisoning, and the plague (UDNR 2007). There is no suitable habitat within the proposed project area.
Yellow-billed Cuckoo *Coccyzus americanus*	**Candidate**	**Not Considered.** In Utah, nesting habitats are found at elevations between 2,500 to 6,000 feet. They appear to require large tracts (100 to 200 acres) of contiguous riparian nesting habitat (Parrish et al. 2002). There is no suitable habitat for this species. The project area is above the upper elevational limit for this species and there are no large contiguous tracts of riparian habitat within or near the proposed project area.
Aquatic Wildlife Species See Aquatic Resources Report (Jewkes 2008)		

2. Sensitive Plant, Wildlife and Fish Species

Table 2 lists the Intermountain Regional Forester's list of sensitive plant, wildlife, and fish species that could occur on the Manti Division of the Manti-La Sal National Forest (MLNF) and the proposed project's potential affect on these species. Sensitive plant, wildlife, and fish species that do not occur or have suitable habitat in or near the proposed project area are identified in Table 2 and will not be considered further in this BA/BE.

Table 2 Sensitive plant, wildlife, and fish species that could occur on the Manti Division of the MLNF, their occurrence and consideration in this BA/BE.

SPECIES	SPECIES OCCURRENCE AND CONSIDERATION IN THIS BA/BE
Plant Species	
Arizona Willow ***Salix arizonica***	**Not Considered.** *Salix arizonica* occurs in wet meadows along perennial streams and occurs only in the Muddy Creek drainage on the MLNF (NatureServe 2007, UNPS 2007, USDA 2007a). This species does not occur within the proposed project area.
Canyon Sweetvetch ***Hedysarum occidentale var. canone***	**Not Considered.** *Hedysarum occidentale var. canone* is usually found on sites that have a high water table, near springs or stream beds; riparian sites within the Pinyon/Juniper vegetation type at 5,500 to 7,000 ft. elevation (Welsh et al. 2003). River birch and squaw brush are the most commonly associated species. It is endemic to Duchesne and Carbon Counties (NatureServe 2007, UNPS 2007, USDA NRCS 2007). There is no suitable habitat within the proposed project area.
Carrington Daisy ***Erigeron carringtoniae***	**Not Considered.** *Erigeron carringtoniae* occurs in limestone outcrops and escarpments in subalpine vegetation type on wind blown ridge tops and snowdrift sites at high elevations of the Wasatch Plateau (9,000 to 11,000 feet) (Welsh et al. 2003,UNPS 2007, USU 2007, USDA 2007a). There is no suitable habitat within the proposed project area.
Creutzfeldt-flower Cryptantha ***Cryptantha creutzfeldtii***	**Not Considered.** *Cryptantha creutzfeldtii* occurs in shallow, rocky, heavy clay soils; open Mancos shale slopes. It is endemic to central Utah in Carbon and Emery Counties at 5,000 to 6,500 ft. elevation (Welsh et al. 2003, NatureServe 2007, UNPS 2007, USDA NRCS 2007, USU 2007). There is no suitable habitat within the proposed project area.

SPECIES	SPECIES OCCURRENCE AND CONSIDERATION IN THIS BA/BE
Greater Sage Grouse *Centrocercus urophasianus*	**Not Considered.** Sage grouse are generally found where there are large tracts of sage brush habitat with a diverse and substantial understory of native grasses and forbs or in areas where there is a mosaic of sagbrush, grasslands, aspen. Wet meadows, springs, seeps, or other green areas within sagebrush shrublands are generally needed for the early brood-rearing period (Connelly et al. 2004). There is no suitable habitat within the proposed project area.
Northern Goshawk *Accipiter gentilis*	**Considered.** In Utah, most nests can be found in mid-elevation sites occupied by quaking aspen or coniferous forest (Graham et al. 1999). There is suitable habitat within the project area; however, no goshawks have been detected during surveys within the project area.
Peregrine Falcon *Falco peregrinus*	**Not Considered.** Peregrine falcons most commonly occupy habitats which contain cliffs for nesting and more open country for foraging. There is no preference to certain vegetation types (White et al. 2002). Peregrine falcon's average foraging distance from the eyrie extends out to 10 miles, with 80 percent of peregrine falcon foraging occurring within a mile of the nest (Spahr et al. 1991). The closest known peregrine falcon nest is located more than 20 miles from the proposed project area.
Spotted Bat *Euderma maculatum*	**Not Considered.** In Utah, the spotted bat is likely found throughout the state. It is known to use a variety of vegetation types from approximately 2,500 to 9,500 feet, including riparian, desert shrub, spruce/fir, ponderosa pine, montane forests, and meadows (Oliver 2000). Spotted bats roost alone in rock crevices high up on steep cliff faces. There is no suitable roosting habitat within the proposed project area.
Three-toed woodpecker *Picoides tridactylus*	**Considered.** Three-toed woodpeckers use forests containing spruce, grand fir, ponderosa pine, tamarack, and lodge-pole pine (Spahr et al.1991). There is suitable habitat within the proposed project area.
Townsend's Big-eared Bat *Plecotus townsendii pallescens*	**Not Considered.** Townsend's big-eared bats use buildings, caves, and mines as day roosts, night roosts, and maternity roosts. In Utah, wintering habitats of this species is better known than any other bat species, where it is well known as a hibernator in Utah utilizing caves and mines as hibernaculum (Oliver 2000). This species uses a variety of habitat in Utah including: desert scrub, pinyon/juniper, sagebrush, mountain brush, mixed forest, and ponderosa pine. There is no suitable roosting habitat within the proposed project area.

SPECIES	SPECIES OCCURRENCE AND CONSIDERATION IN THIS BA/BE
Aquatic Wildlife Species See Aquatic Resources Report (Jewkes 2008)	

This project would have **no impact** to, peregrine falcon, flammulated owl, greater sage grouse, spotted bat, Townsend's big-eared bat, due to lack of suitable habitat within the project area. The project area has been surveyed multiple times for sensitive plants. No sensitive plant species have been found in the area (Thompson 2003). There will be **no impact** to Arizona willow due to lack of occurrence in project area, nor to Carrington's daisy, musinea groundsel, Link Trail columbine, Creutzfeldt flower, canyon sweetvetch, or Maguire campion due to lack of suitable habitat. There will be no further evaluation or discussion for these species.

SPECIES	SPECIES OCCURRENCE AND CONSIDERATION IN THIS BA/BE
Link Trail Columbine ***Aquilegia flavescens rubicunda***	**Not Considered.** *Aquilegia flavescens rubicunda* occurs near spring seeps and perennial wetland sites on the east side of the Wasatch Plateau (Welsh et al. 2003, NatureServe 2007, UNPS 2007, USDA NRCS 2007). There is no suitable habitat within the proposed project area.
Maguire Campion ***Silene petersonii***	**Not Considered.** *Silene petersonii* occurs at high elevations (10,000 to 11,800 ft.) on open calcareous and igneous soils derived from Flagstaff Limestone (Welsh et al. 2003, (NatureServe 2007, UNPS 2007, USU 2007, Flora 2007, USDA NRCS 2007). There is no suitable habitat within the proposed project area.
Musinea Groundsel ***Senecio musiniensis***	**Not Considered.** *Senecio musiniensis* occurs on limestone barrens and talus slopes of the southern Wasatch Plateau (Welsh et al. 2003, NatureServe 2007, UNPS 2007, USDA 2007a). There are no limestone barrens or talus slopes in the project area. There is no suitable habitat within the proposed project area.
Terrestrial Wildlife Species	
Bald Eagle ***Haliaeetus leucocephalus***	**Considered.** Bald eagle nests are typically located in multi-storied (uneven aged) coniferous forest stands that contain elements of old growth structure, and are located near bodies of water that support prey species. Nest trees are generally one of the largest trees in the stand, which provides a good view of the surrounding area (Spahr et al. 1991). The U.S. Fish and Wildlife Service have published the final rule to remove the bald eagle from the list of threatened and endangered species under the Endangered Species Act and the bald eagle is managed as a Forest Sensitive species (USDI 2007b).
Flammulated Owl ***Otis flammeollus***	**Not Considered.** Flammulated owls are associated with mixed pine forests, from pine mixed with oak at lower elevations to pine mixed with spruce and fir at higher elevations. They have also been found in aspen and second growth ponderosa pine. However, they prefer mature ponderosa pine-Douglas fir forests with open canopies (Spahr 1991). There is no suitable habitat for flammulated owls within the project area.

SPECIES DESCRIPTIONS AND ANALYSIS OF EFFECTS

A. THREATENED AND ENDANGERED SPECIES

Canada Lynx

Historically, Canada lynx were found throughout much of Canada in northern boreal forests, the boreal forests of northern states, and sub-alpine forests of the central and southern Rocky Mountains. Lynx habitat in the Southern Rockies is likely found within the sub-alpine and upper montane forest zones between 8,000 and 12,000 feet elevation. These sub-alpine forests are dominated by sub-alpine fir and Engelmann spruce (Ruediger et al. 2000). Southern boreal forests are more fragmented than their northern counterpart, and the Colorado Rockies are separated from similar habitats in Utah.

Lynx are well adapted to living in cold climates with deep snow and they are closely associated with conifer forests. Landscapes dominated by conifer forests that include a mixture of forest age classes dominated by early successional classes, but containing an old forest component, and supporting adequate numbers of snowshoe hares would be considered suitable lynx habitat (Ruggiero et al. 1999). Prime snowshoe hare habitat is described as regenerating, dense young forest. In southern boreal forests, lynx use early successional stands for hunting, but utilize mature forest stands containing large woody debris for den sites (Aubry et al. 1999). In their southern range, they can also be expected (because of their susceptibility to heat stress) to use cooler, north and east aspects more often during snow-free months. Lynx occur in the southern part of their range at relatively low densities, are found almost exclusively in cool, moist, coniferous forest types, and eat a winter diet dominated snowshoe hare and red squirrel.

In the northern regions of their range, lynx populations are cyclic and closely tied to fluctuations in snowshoe hare populations. However, in southern regions of their range, lynx populations are generally characterized by consistently low densities, low pregnancy rates, small litter sizes, and high kitten mortality. In the western U.S., resource development and urbanization, forest fire suppression, and other forest management practices have led to a loss of lynx habitat, further contributing to low population densities in their southern range. In recent years, recreation and road access have increased the number of people in the forests. Such activities create snow packed trails that allow bobcats and coyotes to enter the deep snow habitat, traditionally the domain of lynx, and compete for food and space. Similar impacts have occurred on the Wasatch Plateau.

Investigations of lynx have not shown human presence to influence how lynx use the landscape, with the exception of activity around a den site, which may cause abandonment of the site. In Canada, Canada lynx can be found in areas of relatively dense rural human populations and agricultural development, suggesting that lynx can tolerate moderate levels of human disturbance (Ruggiero et al. 1999).

Prior to 2001, there was only one historic record of a lynx specimen from the Wasatch Plateau (Durrant, 1952) but no recent confirmed sightings. The Manti-La Sal National Forest participated in a three-year nation-wide survey for Canada lynx from 1999 through 2001. During the surveys there was one lynx detection in 2001 along a hair snare survey route in the Joe's Valley area of the Manti-La Sal National Forest. Motion detection cameras were set up in this area following this detection but did not capture any photos of lynx. It was not known if this hair sample was from a resident or dispersing lynx, however, no lynx sightings and no additional detections on the Wasatch Plateau would seem to indicate that this detection was from a disperser rather than a resident. The USFWS has concluded that lynx occurring in Utah are dispersers rather than residents because there is no evidence of lynx reproduction in Utah and most of the few existing records correspond to cyclic population highs (USDI; USFWS 2003). Also, the boreal forest habitat in Utah is remote and far from source lynx populations (USDI; USFWS 2003).

Recent reports of the movements of two Colorado lynx, which have made their way into the state of Utah, have shown that one of the cats may have crossed the northwestern most point of the district but we will never know if in fact it did. The Manti-La sal National Forest was given updated GPS locations as to follow the movements of this cat. This cat never did remain in the area for a long period of time and eventually moved its way down the Highway 89 corridor en-route to the Tushar Mountains around Panguitch, Utah. This cat moved again, this time northeast where it was located near the town of Emery, Utah frequenting the agricultural fields outside of the community. For fear that it might be mistaken for a bobcat; the Colorado Division of Wildlife trapped this cat in the fall of 2004 and took it back to Colorado. The other cat has made its way north along the Wasatch front near Ogden. These cats were part of an on-going effort to reintroduce Canada lynx to Colorado.

B. SENSITIVE SPECIES

Bald Eagle

Bald eagle nests are typically located in multi-storied (uneven aged) coniferous forest stands that contain elements of old growth structure, and are located near bodies of water that support prey species. Nest trees are generally one of the largest trees in the stand, which provides a good view of the surrounding area (Spahr et al. 1991). Both males and females help construct large, conspicuous stick nests in which may be used year after year. Prey species commonly include fish, waterfowl, jackrabbits, and carrion.

Important perch sites generally have three fundamental elements: a direct view of potential food sources, located within 50 meters of water, and are located in areas isolated from human disturbance. Roost sites generally provide thermal cover or shielding from wind, and are isolated from human disturbance.

During the winter, bald eagles tend to concentrate wherever food is available, which often is in areas that have open water where fish can be caught and there are wintering concentrations of

waterfowl. In some regions, such as Utah, bald eagles may also winter in upland habitats where they feed on small mammals and deer carrion. In wintering areas, bald eagles often roost in large groups. These communal roosts are generally located in mature forest stands that provide protection from harsh weather.

There are only a few known nesting pairs of bald eagles in Utah. There is a bald eagle nest site located approximately 28 miles from the proposed project area, and located approximately 7 miles from Forest Service managed land. A nesting pair had been observed at this site during the nesting and fledgling period for several years prior to 1997. This nesting territory was not occupied in 2001 or 2002. The nest was blown out of the tree in the winter of 2003, and a pair built a new nest approximately ½ mile southeast of the old one, but did not nest successfully in 2003. The pair worked on the nest again in early 2004, but did not nest. A 1997 study by N. Boschen indicated that the pair did not forage on national forest system lands; nesting adults and fledglings were found to forage within a 5 mile radius of the nest tree (Boschen, 1997). No bald eagles are known to nest on Manti-La Sal NF managed lands. Most bald eagle sightings on the Forest have been at Joe's Valley Reservoir and Huntington Canyon during late fall and early winter prior to freeze over. The project area and surrounding habitat could be used by bald eagles in the late fall and prior to freeze over.

Northern Goshawk

A Conservation Strategy and Agreement for the Management of Northern Goshawk Habitat in Utah (Conservation Strategy) was developed in 1999 (USDA Forest Service 2000). The Utah Northern Goshawk Forest Plan Amendment (goshawk amendment) was signed on March 14, 2000 (USDA Forest Service 2000). This decision amends the goals, objectives, standards, guidelines and monitoring requirements established in the current land and resource management plan.

Goshawks have been found in a variety of forest ecosystems including lodgepole pine, aspen, ponderosa pine, Douglas-fir, and mixed forests throughout much of the northern hemisphere. Goshawk nest sites are usually located in dense mature forests with relatively large trees, near water, and on benches of relatively little slope (Graham et al. 1999). Closed canopies are important for protection and thermal cover, and relatively open under-stories are important to allow maneuverability during foraging. Data (district records) collected from the Wasatch Plateau between 1989 and 2000 show that over 80% of goshawk nests (n = 48) are in stands with a mixture of aspen and conifer species, with the remaining nest stands comprised of mixed-conifer (primarily Engelmann spruce/sub-alpine fir) without aspen. Sixty-five percent of all nests have been in aspen trees, with proportionally fewer in Douglas-fir and spruce. Nests are often used year after year, but nest stands usually contain a number of alternate nests.

Suitable goshawk habitat is often heterogeneous, which supports a broad range of prey species; particularly those preferred by the goshawk: small mammals and birds including rabbits,

squirrels, chipmunks, grouse, woodpeckers, jays and robins. Important forest components in Utah include snags, multiple canopies, and down woody debris (Graham et al. 1999).

Vegetation structural stages (VSS) are stages of forest growth and maturity, and are used in defining the components of goshawk habitat. VSS 1 is classified as grass/forb with 0-1" dbh trees; VSS 2 is seedling/sapling with 1-5" trees; VSS 3 is young forest with 5-12" trees; VSS 4 is mid-aged forest with 12-18" trees; VSS 5 is mature forest with 18-24" trees, and VSS 6[1] is old forest with 24"+ trees. Much of the project area is grass/forb and natural meadows.

Table 2 – Existing Vegetative Stand Structure, Project Area (Cote 2008c)

		Existing		
Structual Class	**VSS**	**Acres**	**Percent**	**Acres**
Early	1,2	242	19	216
Young	3	573	45	560
Mid-aged	4	458	36	293
Mature	5,6	0	0	204
Total		1,273	100%	1,273

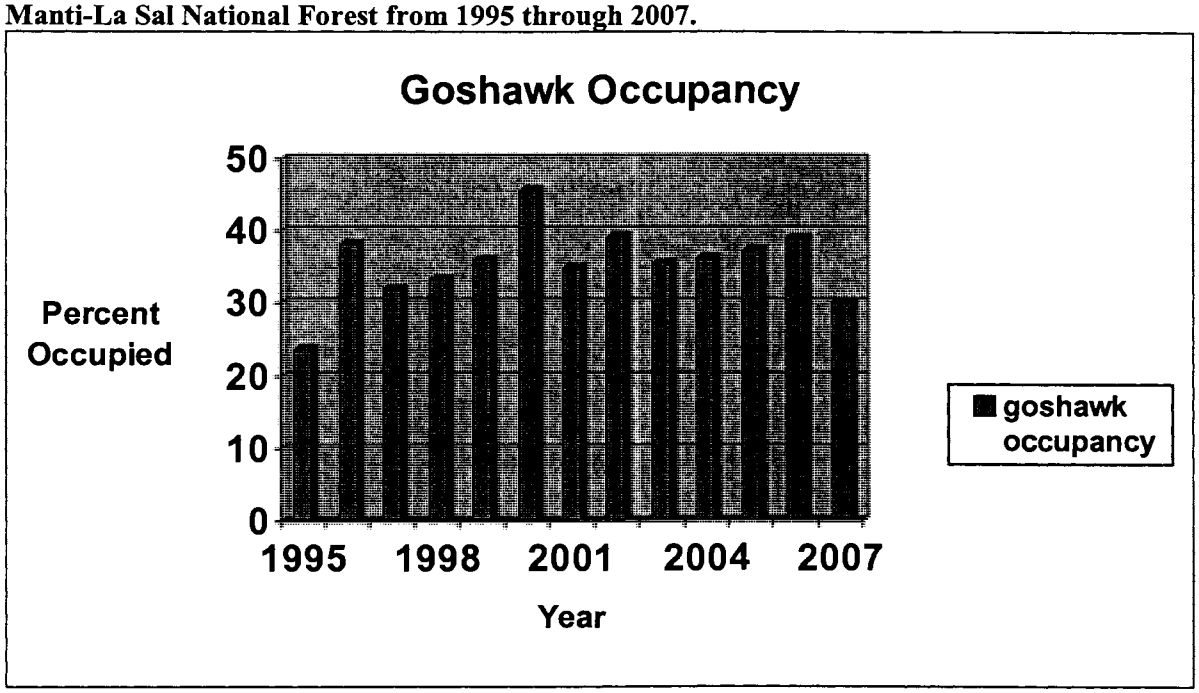
There are three designated goshawk territories outside of, but adjacent to the project area. Post-fledging family areas (PFAs) have been delineated and mapped using forest vegetation cover types. Two PFAs are approximately 1 mile from the nearest harvest units, and the third PFA is within a mile and a half, however the Rolfson territory is the only terrritory where the home range extends into the project area. There is very limited existing habitat within the project area because the majority of the forested stands are comprised of conifer of which 90 percent have been beetle killed. Canopy cover in the conifer stands is not conducive to goshawk nesting and or foraging.

The Rolfson territory has been monitored since 1993 when the territory was first discovered. This territory has not had an active nest since that time. Surveys for the Lake Vegetation Project have not indicated any new goshawk activity. The Rolfson nest is approximately 1.2 miles from the nearest harvest units and the Rolfson PFA's are approximately .7 miles from the nearest harvest units. The spatial relationship between the goshawk PFAs and the project area is shown in figure 2. All three PFAs have been monitored numerous times in the past several years. Monitoring data suggests that there might only be one or two distinct territories, since the nest sites are very close together, habitat is relatively sparse, and no two nests have been occupied during the same year (Johnson 2003).

The project area was surveyed in 2001 and 2002. No goshawk detections were noted in either year. The project was re-surveyed in 2007 and 2008 and no detections were noted either year. Project survey data suggests that goshawks do not use the project area on a frequent basis.

The goshawk population on the Manti Division of the Manti-La Sal National Forest appears to be stable. The goshawk started to become a focal species on the Manti-La Sal National Forest (MLSNF) in the late 1980s, and the number of known goshawk territories on the Forest has steadily increased since that time; therefore looking at the number of known active nests over the years would give the impression that the goshawk population on the Forest has steadily increased since the late 80s. A better indication of how the goshawk population is doing on the Forest would be the percent of monitored nests that were occupied each year, which is illustrated in Graph 1.

Graph 1 the percent of monitored goshawk nests that were occupied on the Manti Division of the Manti-La Sal National Forest from 1995 through 2007.



Three-toed Woodpecker

The three-toed woodpecker occurs uncommonly in the boreal forests of Utah and is dependent on recent burns and spruce bark beetle infestation for foraging. They are found at high elevations in coniferous forests, particularly spruce. Normally, three-toed woodpeckers are found in low numbers, but due to a spruce bark beetle infestation, this species is nearly as common as hairy woodpeckers in many parts of Utah (Hill et al. 2001). The three-toed woodpecker reaches highest abundance in areas where insects are prolific.

Three-toed woodpeckers depend on live and dead trees for both nesting and foraging. They require soft wood for excavation because of morphological adaptations associated with three toes on each foot, therefore, presence of heart rot is important. Because this species requires snags for feeding, perching, nesting, and roosting, it is threatened by activities such as logging and fire suppression, which remove or eliminate snags (UDWR 1998, Spahr et al. 1991). Studies indicate that outside of large bark beetle infestations, three-toed woodpeckers maintain low population levels by foraging on beetle infested fallen trees and cull logs, and in areas where beetles are

present at endemic levels. Three-toed woodpeckers are thought to be the most efficient bark beetle forager of the woodpeckers, important in keeping infestations to an endemic level. They remove the beetles themselves, and by flicking bark off from trees, they remove beetle habitat and reduce their ability to survive.

Spruce beetles and other bark beetles are a very important year-round food source, and have a great effect on the woodpecker's abundance, distribution, and long-term viability. Spruce bark beetles have been at epidemic levels across large areas of the forest. The beetles have advanced north past the project area. The project area was surveyed for three-toed woodpeckers in 2001 and 2002. Although no nests were located, several detections were noted. The project area was resurveyed in July 2008 and no detections were made. Within the spruce/fir stands snag densities are estimated at 54 per acre within the project area. Territory size for three-toed woodpeckers varies according to the density of dead or beetle-infested trees. The average breeding territory in Utah is 106 acres. No population trend data was located for Utah

III. EFFECTS OF ALTERNATIVES AND DETERMINATIONS

The following are discussions on the direct, indirect and cumulative effects of the project. The past, present, or reasonably foreseeable future actions that may add incrementally to impacts of the Lake Project are:

- Oil and gas exploration
- Timber harvest
- Livestock grazing and noxious weed treatment
- Wildlife habitat improvement
- Transportation system
- Recreation use
- Fisheries management

THREATENED OR ENDANGERED SPECIES

Canada Lynx

Effects of the Proposed Action:

Stand density would decrease after timber harvest in the aspen microsites. Estimated current stand density of the proposed treatment stands ranges from approximately, 30 to 70 basal area. Additionally, dead trees 12" and greater would be harvested. Harvested stands would be left in an early to mid-aged seral stage. Stand composition would include more grasses, forbs, and shrubs. This would increase habitat for lynx prey species. Reforestation efforts would more quickly re-establish suitable lynx cover habitat, than if the stands were left to regenerate naturally. There would be more diversity in age classes and cover types in the project area, which is desirable for lynx habitat on a large scale.

Effects of alternative 1 (No Action):

The beetle epidemic has progressed and caused large-scale mortality of spruce, the more open conditions of the stands are resulting in more shrubs, grasses and forbs developing in the understory. This would provide better habitat for lynx prey species, but would reduce the value as lynx cover habitat. Stand densities currently range between about 30 to 70 basal area.

Cumulative effects:

Since there would be no direct or indirect effects to Canada lynx, no cumulative effects would occur.

Rationale for determination:

- The USFWS has concluded that lynx occurring in Utah are dispersers rather than residents because there is no evidence of lynx reproduction in Utah and most of the few existing records correspond to cyclic population highs (USDI; USFWS 2003).
- The Manti-LaSal National Forest was eliminated from the BA (Hickenbottom et al. 1999) addressing the effects of Forest Plans on lynx.
- The Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) does not include the Manti-LaSal National Forest within the conferencing/consultation area.
- There are no large contiguous blocks of forested habitat on the Wasatch Plateau; the Plateau contains only marginal habitat for lynx.
- Further survey work for Canada lynx in the vicinity of the last positive hair sample resulted in no other detection of lynx.
- There are no contiguous stands of conifer in the project area and the lynx habitat is marginal.

Determination: There would be No Effect to Canada lynx under any alternative.

SENSITIVE SPECIES

Bald Eagle

Effects of the Proposed Action:

Bald eagles are not known to use the project area either for foraging or winter roosting. If eagles should use the area for foraging during migration, helicopter flights might disturb their foraging activities. This effect would be mitigated through project design features. There would still be an adequate number of large trees that could be used for perching after project implementation. Consumption of treated gophers is an unlikely possible effect. Underground baiting would be

used only where needed. This method presents minimal hazards to non-target wildlife (Hygnstrom et al. 1994).

Effects of alternative 1 (No Action).

No effects are expected from the no action alternative. There would be no change in potential spring or fall perching or foraging habitat, and no disturbance related to project activities.

Cumulative effects:

The cumulative effects area for bald eagles is the project area boundary. Oil and gas drilling was done from the 1950's through the 1980's; there would not be any lasting effects that would add to the Lake project effects and impact bald eagles. Minor surface disturbance from an existing natural gas pipeline should not add impacts to bald eagles. Past timber harvest has removed some large diameter trees that could have been used for perching, but there remains an adequate supply of suitable perch trees. Increased recreational use in the project area due to past recreation improvement projects may cause disturbance to eagles, or discourage eagles from using the area. Past recreation projects include improvement of sites at Huntington Canyon and Cleveland Reservoir. Present recreational use includes dispersed camp sites, scenic byway stops and winter use including snowmobiles and skiing. Use of facilities and other activities may increase disturbance to eagles, or discourage use of the area during spring and fall migration. However, these types of impacts would be negligible as the project area is not an important use area for eagles, and there are many roosting and foraging opportunities elsewhere along migration routes.

Hazard tree removal around developed dispersed recreation sites will remove some trees that could be used as perch trees, but these sites would not likely be used by eagles due to the human activity. There may be more aspen regeneration due to the increased mortality of spruce. Habitat for other prey species such as small mammals would increase as grasses and shrubs developed in the open stands. Neither livestock grazing, nor noxious weed control activities would affect bald eagle use of the area or alter habitat. 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 perch trees, and establishment of a transportation system has increased use of the area. Impacts to eagles from the transportation system are negligible since eagles would only use the area on a transitory basis.

Rationale for determination:

- There is no suitable nesting habitat in the project area, and bald eagles do not nest anywhere on the Wasatch Plateau. Reproduction would not be affected.
- Bald eagles are not known to winter or forage in the project area. Any use by bald eagles is likely transitory during migration.
- Eagle activity will be monitored from October 1 to November 15 to be certain no eagles are using the area for foraging during migration. Protection from helicopter disturbance would be implemented if eagles are found to be using the project area.

- Habitat areas for perching would remain after implementation of any action alternative.

Determination: Alternative 1 would have **No Effect** to bald eagles. Alternative 2 **May Affect but is Not Likely to Adversely Affect** bald eagles.

Northern Goshawk

Effects of the Proposed Action:

The proposed action would not change the current Vegetative Stand Structure (VSS) class of the spruce-fir stands. No impacts are expected for northern goshawk nesting habitat, because no known nests are in the treatment areas and existing nesting habitat is marginal. If there are any birds in the area, foraging impacts are expected to displace these birds to adjacent areas. The density of the mature/old stage stand structure is important to the northern goshawk, the percentage of mature trees is currently 0% due to the beetle epidemic but mature trees will be reached much sooner under the proposed action because planting of trees will occur.

Snag and woody debris would be retained according to the guidelines of the goshawk amendment (design features pg. 5) in order to further provide habitat for goshawk prey species. Aspen treatments that would be implemented under this alternative would have a long-term benefit to goshawks by ensuring that this important habitat component is maintained. Short term impacts are expected within the aspen stands to goshawk prey species and habitat.

Mature spruce trees have died on about 1273 acres which is approximately 90% of the project area from spruce beetle epidemic. Goshawks have been shown to continue using areas for nesting where there is substantial insect related mortality. However, the quality of the habitat is much lower. Canopy cover has been reduced to 30% to 50% on most of those acres. Regeneration and recovery of mature stands would take substantially longer than if the stands were harvested and replanted.

Basal area in spruce stands since the beetle epidemic have been drastically reduced, ranging from about 30 to 70; openings resulting from large scale mortality are generally greater than 5 acres, and there is a very high density of snags, approximately 54 per acre. The spruce beetle epidemic has caused less nesting habitat, more foraging habitat, and an increased risk of high intensity fire due to the accumulation of dead wood.

Habitat for prey species such as woodpecker would be reduced due to removal of dead spruce. Habitat for other prey species such as small mammals would increase as grasses and shrubs develop under the opened canopy. Noise disturbance from vegetation treatment, road construction, and maintenance could cause avoidance of areas being worked in. This effect would not last past harvest related activities.

Despite repeat surveys, no goshawk nesting areas have been discovered in the project area. Additional surveys would be conducted prior to harvest of each unit.

Effects of alternative 1 (No Action):

The beetle epidemic has progressed and caused large scale mortality of spruce, the more open conditions of the stands have resulted in more shrubs, grasses and forbs developing in the understory. The change in vegetation caused by beetle mortality has started to increase habitat for small mammal prey species. Habitat for woodpeckers, a main prey species for goshawks, has remained optimum but is expected to decrease as the stand continues to die, and no longer provides habitat for the spruce beetle. In stands with an aspen component, die off of spruce did not encourage aspen sprouting, the remaining conifers are overtopping the aspen and aspen continues to decline.

Mature spruce trees have died on about 1273 acres which is approximately 90% of the project area from spruce beetle epidemic. Goshawks have been shown to continue using areas for nesting where there is substantial insect related mortality. However, the quality of the habitat is much lower. Canopy cover has been reduced to 30% to 50% on most of those acres. Regeneration and recovery of mature stands would take substantially longer than if the stands were harvested and replanted.

Basal area in spruce stands since the beetle epidemic have been drastically reduced, ranging from about 30 to 70; openings resulting from large scale mortality are generally greater than 5 acres, and there is a very high density of snags, approximately 54 per acre. The spruce beetle epidemic has caused less nesting habitat, more foraging habitat, and an increased risk of high intensity fire due to the accumulation of dead wood.

Cumulative effects:

The cumulative effects area for goshawk is the Lake and Rolfson 6th level watersheds. This area encompasses the current breeding territories in the vicinity of the project area. The most important activities affecting goshawk habitat are the effects from the spruce beetle epidemic, past timber harvest, and fire exclusion. Two small aspen clearcuts were implemented in the early 1990s that have successfully regenerated. Aspen regeneration is a benefit to goshawks and this aspen stand improvement combined with aspen improvement in the Lake project would increase habitat diversity for goshawks. The spruce beetle epidemic has changed the habitat over thousands of acres, decreasing the amount of potential nesting habitat. The infestation of spruce beetles has drastically affected the canopy cover in mature forests reducing potential nesting habitat for goshawks. Regeneration of the stands would take substantially longer than if the stands were harvested and replanted. The proposed project would help recover canopy cover and nesting habitat much sooner than if left untreated.

Table 3 –Vegetative Stand Structure, Cumulative Effects Boundary, No Action (Cote 2008).

		Existing		50 Years	
Structual Class	**VSS**	**Acres**	**Percent**	**Acres**	**Percent**

Early	1,2	467	19%	418	17%
Young	3	1,107	45%	1,082	44%
Mid-aged	4	885	36%	566	23%
Mature	5,6	0	0%	393	16%
	Total	2,459	100	2,459	100%

Oil and gas drilling was done from the 1950's through the 1980's and would not have altered goshawk habitat substantially; areas where roads and pads were built have been reclaimed and revegetated. No cumulative effects from this past activity would be evident. Minor surface disturbance from an existing natural gas pipeline should not add impacts to goshawks. 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, but will not likely alter stand structure enough to affect the VSS in goshawk habitat. Spraying of selected trees to prevent spruce beetle infestation may benefit goshawk habitat by keeping larger trees alive and helping to maintain a higher canopy closure.

Livestock grazing may alter habitat for some goshawk prey species (small mammals), causing a change in distribution. Other prey species such as birds would be unaffected. 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 goshawk 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 are probably variable. The most likely impact would be altering the foraging activity of goshawks. Known nest areas are outside the project area, and are close enough that it is unlikely that new nesting areas would be established within the project area. Therefore, current and expected recreational activity combined with activities from project implementation would likely affect only foraging behavior. The combined impact of these two activities is not likely to cause goshawk mortality or reduce their reproductive success.

The younger structural classes are usually separated into grass-forb and seedling-sapling (VSS 1 and 2). These two classes were combined into the 'Early' structural class. Old growth or Mature stands of spruce-fir (cold/dry environment) are defined as the following: contain at least two canopy layers (6-inch diameter variation); contain (≥ 15 tree per acre (≥) 15-inches in diameter (150 to 180 years of age); and have from (≥) 2 to 14 trees in a state of decline or decadence. In this document, stands that met this definition will be referred to as Mature. No spruce-fir stands have been found on the Manti-La Sal with mean stand diameters of 24 inches or VSS 6 (D.Cote, 2008b, Lake Fuels Vegetation Report, pages 2-3).

Table 4 VSS comparison for Spruce-fir Stands, Short Term-5 Years.

Project area	Alternative 1 (acres)	Percent of project area	Proposed Action (acres)	Percent of project area	Desired VSS Percent*
VSS 1 & 2	242	19	181	16	10%
VSS 3	573	45	539	46	20%
VSS 4	458	36	447	38	20%
VSS 5	0	0	0	0	20%
VSS 6	NA	NA	NA	NA	20%
Cumulative effects area	**Alternative 1 (acres)**	**Percent of analysis area**	**Proposed Action (acres)**	**Percent of analysis area**	**Desired VSS Percent***
VSS 1 & 2	467	19%	467	17%	10%
VSS 3	1,107	45%	1,073	45%	20%
VSS 4	885	36%	874	37%	20%
VSS 5	0	0%	0	0%	20%
VSS 6	NA	NA	NA	NA	20%

***Desired VSS percent is for home range as described in the Habitat assessment (Graham et al. 1999).**

Table 5 VSS comparison for Spruce-fir Stands, Long Term-50 Years.

Project area	Alternative 1 (acres)	Percent of project area	Proposed Action (acres)	Percent of project area	Desired VSS Percent*
VSS 1 & 2	216	17%	192	16%	10%
VSS 3	560	44%	257	22%	20%
VSS 4	293	23%	397	34%	20%
VSS 5	204	16%	322	28%	20%
VSS 6	NA	NA	NA	NA	20%
Cumulative effects area	**Alternative 1 (acres)**	**Percent of analysis area**	**Proposed Action (acres)**	**Percent of analysis area**	**Desired VSS Percent***
VSS 1 & 2	418	17%	393	17%	10%
VSS 3	1,082	44%	779	33%	20%
VSS 4	566	23%	670	28%	20%
VSS 5	393	16%	512	22%	20%
VSS 6	NA	NA	NA	NA	20%

***Desired VSS percent is for home range as described in the Habitat assessment (Graham et al. 1999).**

Rationale for determination:

- No goshawk nests have been located in the project area despite several years of surveys.
- Large areas of suitable nesting habitat would remain untreated in the project area and cumulative effects area.
- The project area is likely within the foraging area of one or more nesting territories. Therefore, the proposed project would likely impact goshawk foraging habitat.
- Because the area would experience natural mortality, change in canopy cover and VSS would change, the amount of existing nesting habitat **May Impact** individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species under Alternative 1.
- There are nesting territories near the project area therefore; it is not likely that there are any nesting goshawks within the project area. In addition, several years of surveys have occurred within the project area that found no goshawk nests.
- Regeneration treatments in aspen stands would provide for long-term maintenance of aspen, resulting in improved nesting habitat for goshawks, however there will be short-term effects.

Determination: Alternative 1(No Action) **May Impact** individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species. The Proposed Action **May Impact** individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species.

Northern Three-toed Woodpecker

Effects of the Proposed Action:

Under the proposed action, 820 acres of spruce-fir would be harvested. The Rolfson-Staker Roadless area partially falls into the Lake project area. The East Mountain Roadless area is to the southeast of the project area. Both of these areas have been and are being affected by the spruce beetle epidemic. Since there is no timber harvest planned in inventoried roadless, these areas will provide a continued source of foraging areas for the three-toed woodpecker. Proposed aspen treatments would benefit three-toed woodpeckers in the long-term by promoting and maintaining this important nesting habitat. Intermountain Region guidelines for three-toed woodpeckers (Spahr et al. 1991) recommend leaving 42-52 snags per 100 acres (about 4 to 5 per acre) in logged areas and emphasized that snags should be left in clumps rather than isolated patches. Snag densities would be approximately 3 per acre in treated stands (Refer to Design Features Specific to Wildlife on page 5), which is consistent with current snag management guidelines. In untreated spruce/fir stands, estimated snag densities would be approximately 54 per acre until dead timber starts to fall. With the number of acres that would remain untreated in the project

area due to the roadless area, and other stands not selected for treatment, snag densities would exceed requirements for three-toed woodpeckers and other cavity nesting species.

Although over the short-term woodpecker foraging habitat would remain optimum, over the long-term woodpecker habitat would be reduced more than under the no action alternative, since trees continue to die and would be harvested.

Effects of Alternative 1 (No Action):

Over the short-term, the project area would continue to provide optimum habitat for the three-toed woodpecker. Over the long-term, loss of large spruce trees from the spruce beetle epidemic would reduce habitat quality. As the spruce beetle population declines, the density of three-toed woodpeckers would decrease. Woodpecker populations would likely remain in the project area after the beetle epidemic, but at lower population levels. However, the remaining conifers would eventually out-compete aspen. Snag densities would increase dramatically if no harvest or salvage activities took place. It is estimated that snag densities in spruce/fir stands would increase to 54 snags per acre after the beetle infestation reached its peak (Cote 2008a). Snag densities that are elevated so dramatically would far exceed the requirements for cavity nesting species and would only serve to increase high intensity fire risk.

Table 6 Estimated snag densities (average snags per acre) by alternative.

Treated stands	Alternative 1	Proposed Action
Spruce/fir	54	3
Aspen/Mixed conifer	68	3
Untreated stands		
Spruce/fir	54	54
Aspen/Mixed conifer	68	68

Cumulative effects:

The cumulative effects area for the three-toed woodpecker is the project area boundary. This area is large enough to support several breeding territories for this species. The Rolfson/Staker Roadless area, and untreated spruce/fir stands outside the roadless area would continue to provide optimum habitat for three-toed woodpeckers. 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 three-toed woodpeckers.

Oil and gas drilling done from the 1950's through the 1980's would not add impacts to three-toed woodpeckers. 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, and would likely remove foraging trees for three-toed woodpeckers. Spraying of selected trees to prevent spruce beetle infestation would also impact the prey base for three-toed woodpecker. 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 woodpecker 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 woodpeckers and may affect breeding and foraging behavior. Combined effects may cause woodpeckers 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 woodpecker 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.
- The spruce beetle epidemic has resulted in optimum three-toed woodpecker habitat over thousands of acres across the forest.
- Regeneration treatments in aspen stands would remove potential nest trees in the short-term, but would provide for long-term maintenance of aspen.
- Disturbance caused by project activities might impact nesting woodpeckers, or cause abandonment or avoidance of areas close to activities.
- If no management activities take place, the project area will continue to experience increased beetle mortality, and provide optimum habitat for three-toed woodpeckers.
- If no management activities take place, in the long-term the project area would see a dramatic decline in prey species (spruce beetles) due to the fact that there is no more foraging opportunities for the spruce beetles.
- Under Alternative 1 increased snags would not benefit current populations but would only increase other hazards and risks.
- Snag density in the proposed alternative would go below the Intermountain Region guidelines for three-toed woodpecker (Spahr et al.1991).

Determination: Alternative 1 (No Action) would have a **Beneficial Impact** to the northern three-toed woodpecker over the short-term. Over the long-term, Alternative 1(No Action) **May Impact** individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species. The Proposed Action **May Impact** individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species.

Forest plan consistency:

The project 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

Northern goshawk territory monitoring and surveys have been conducted each year since 1999 (MLNF 2007) following regional goshawk inventory protocol and this information was considered in the project analysis. General information from The Northern Goshawk in Utah: Habitat Assessment and Management Recommendations (Graham et al. 1999) and the 1998 Conservation Strategy and Agreement for the Management of Northern Goshawk Habitat in Utah as incorporated in the 2000 Northern Goshawk Forest Plan amendment (USDA Forest Service 1986, as amended) #14 is also utilized.

Irreversible and irretrievable commitments:

Irreversible means that something has been done that cannot be reversed, and the resource is gone forever. No irreversible commitment of resources would occur from implementation of either action alternative. Irretrievable means there is a resource loss for a time. The loss or modification of wildlife habitat is an irretrievable commitment of resources. As vegetation recovers, the habitat also recovers. Irretrievable loss of existing habitat through silvicultural treatment, and road construction would occur under the action alternatives since the habitat is being modified from its current condition. Habitat and its effectiveness would be retrieved over the long-term. Viability of wildlife populations would not be at risk by implementing the proposed action.

Table 7 Determination summary.

Species	Species Recorded	Suitable Habitat	Alternative 1	Alternative 2
Canada Lynx	No	Yes	No Effect	No Effect
Bald Eagle	No	Yes	No Effect	May Effect, not likely to adversely affect
Northern Goshawk	No	Yes	No Impact	May Impact...
Three-toed Woodpecker	Yes	Yes	Short term Beneficial Impact. Long term May Impact ...	May Impact...

[1]May Impact individuals or habitat but would not likely contribute to a trend toward Federal listing or loss of viability to the population or species.

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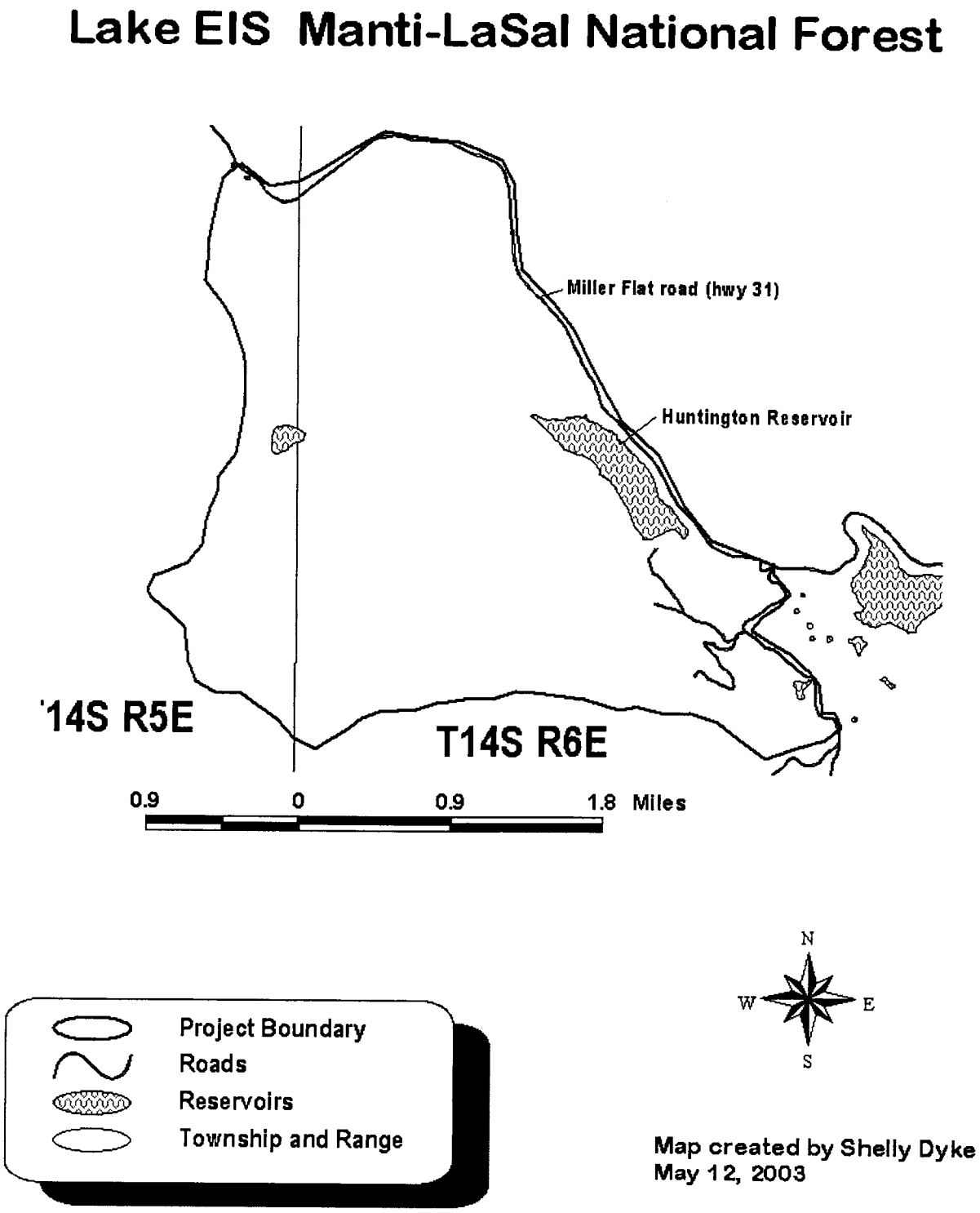
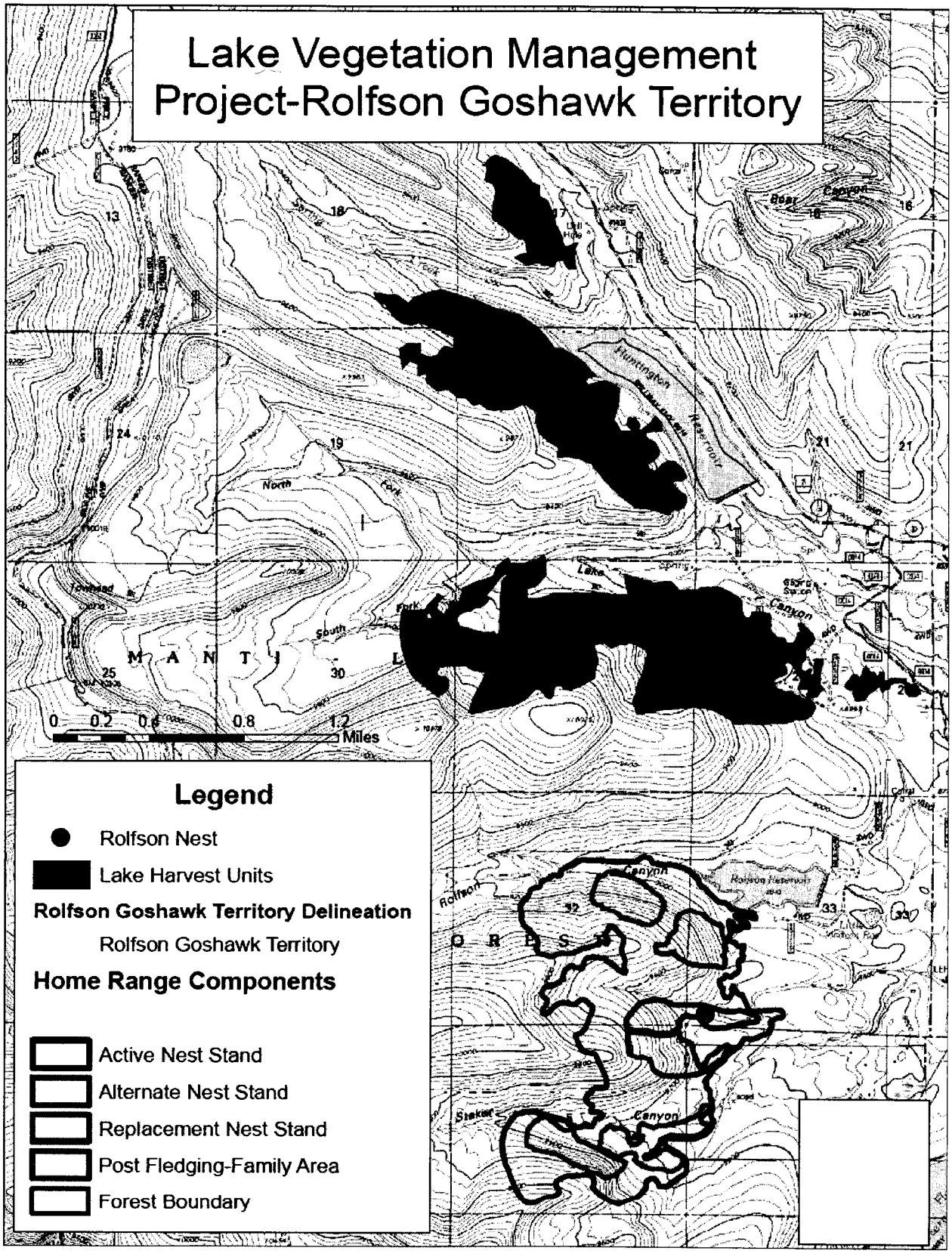
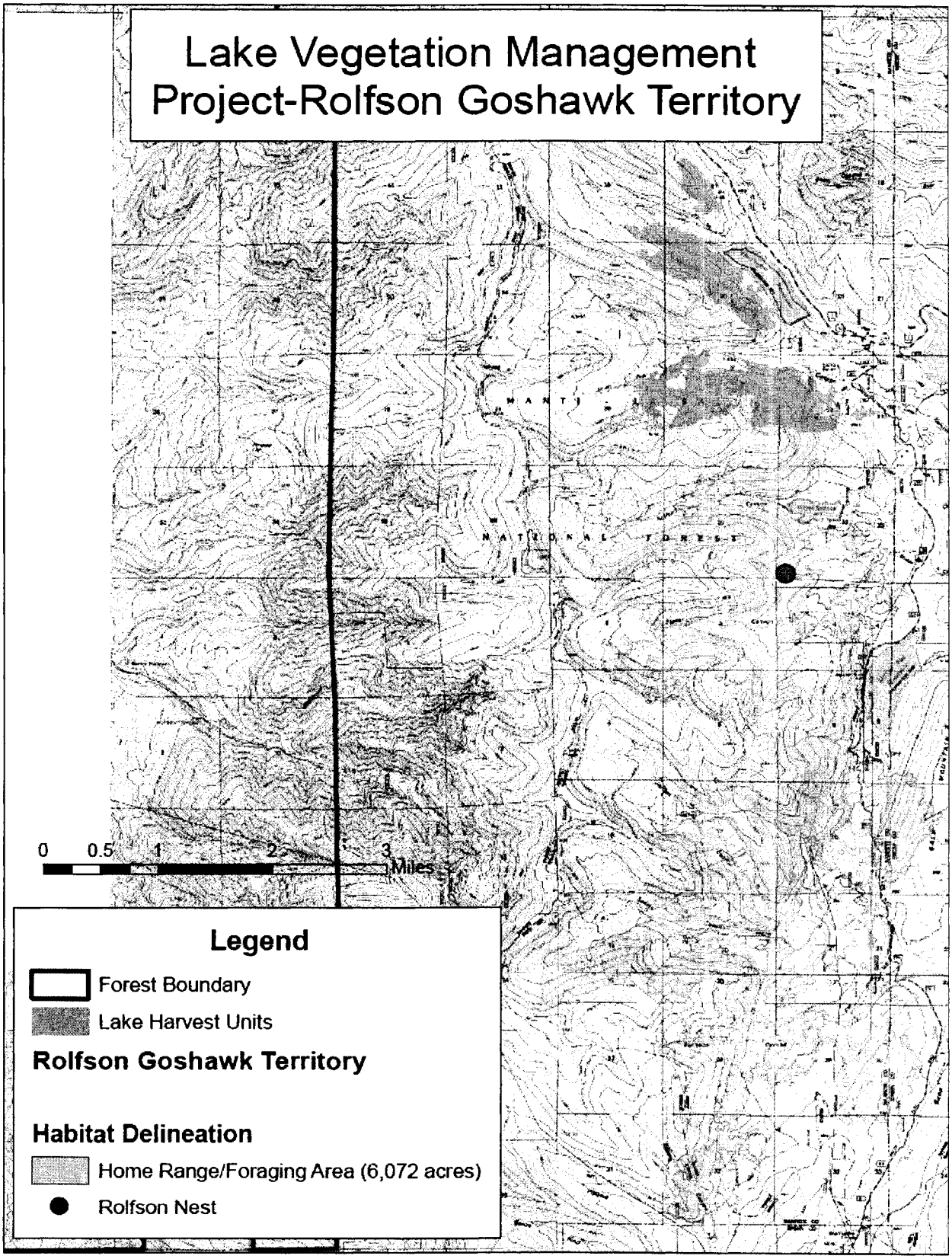
Figure 1. Lake project area location.




Lake Vegetation Management
Project-Rolfson Goshawk Territory
Legend
Rolfson Nest
Lake Harvest Units
Rolfson Goshawk Territory Delineation
Rolfson Goshawk Territory
Home Range Components
Active Nest Stand
Alternate Nest Stand
Replacement Nest Stand
Post Fledging-Family Area
Forest Boundary
0 0.2 0.4 0.8 1.2
Miles
Bear Canyon
Huntington Reservoir
North Fork
South Fork
Lake Canyon
Rolfson Canyon
Stalker Canyon
Townsend
Spring
Central


Lake Vegetation Management
Project-Rolfson Goshawk Territory
0 0.5 1 2 3 Miles
Legend
Forest Boundary
Lake Harvest Units
Rolfson Goshawk Territory
Habitat Delineation
Home Range/Foraging Area (6,072 acres)
Rolfson Nest