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Environmental Assessment

**Lake Tahoe Adventures
Commercial Outfitter-Guide
Snowmobile Project**

**Carson Ranger District
Humboldt-Toiyabe National Forest
Alpine County, California**



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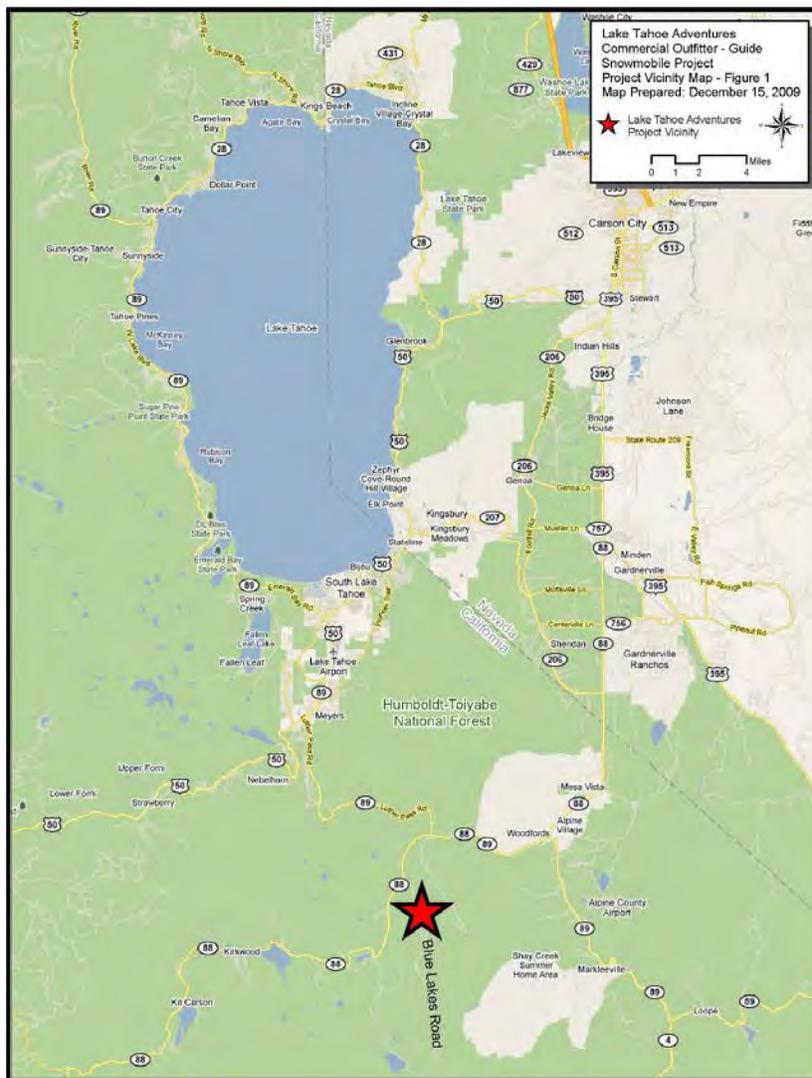
CHAPTER 1

Purpose and Need

Introduction

The Carson Ranger District of the Humboldt-Toiyabe National Forest proposes to re-issue a special use permit which would allow up to 13,408 individual snowmobiles for commercially guided tours in the area of Highway 88 and Blue Lakes Road in Alpine County, California (Township 10N Range 19E Sections 6, 7, 16, 17, 18, 19, 20, 29, 30, 31, 32, Township 9N, Range 19E, Section 6, 7, 8, 17, 20, 21, 28, and 29). The project area encompasses approximately 6,900 acres of National Forest System land ranging in elevation from 7,000 to 8,400 ft. See figure 1-1, Vicinity Map.

Figure 1-1 Vicinity Map



The area receives heavy snowfall and is a popular winter recreation area for activities including snowmobiling, snowshoeing and cross-country skiing. Blue Lakes Road is closed and opened via a series of gates as snow accumulates and recedes in the winter and spring. In the winter, the first ¼ mile of Blue Lakes Road is a designated Sno-park. Hope Valley Sno-park is operated by California State Parks under permit by the Forest Service. This portion of the road provides Sno-park permit holders parking and trailhead access to the National Forest.

The outfitter-guide operates from a base location at 7,150ft on National Forest System land, adjacent to Hope Valley Sno-park on Blue Lakes Road. Approximately one acre is used for temporary staging of approximately 85 Arctic Cat 4-stroke snowmobiles, a snow cat groomer, fuel trailers, trail-bridge, warming hut and office for employee staff.



Photo 1-1 Staging Area, Snowmobile



Photo 1-2 Portable warming hut and office



Photo 1-3 temporary bridge crossing

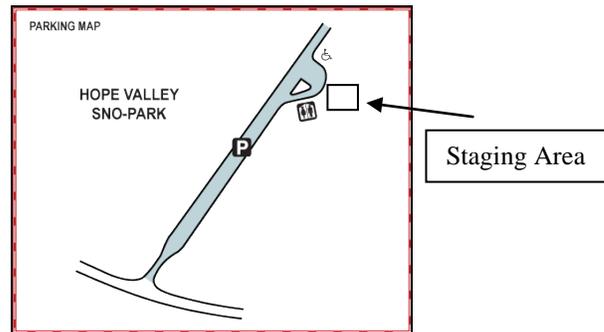


Figure 1-2 Hope Valley Sno-Park

As snow recedes in the spring, the operator moves up Blue Lakes Road through a series of gates to meet the snow line. The temporary sliding staging areas are located on the paved shoulders of the road. The operating fleet is reduced to approximately 20 snowmobiles and a portable fuel trailer is used to refuel the machines. A passenger van is used to bring clients to the staging locations from South Lake Tahoe. The permitted season runs November through May annually.

Purpose and Need

The purpose of this proposal is to provide an outfitted and guided snowmobiling recreational opportunity on the Carson Ranger District, while avoiding adverse impacts to the environment.

Lake Tahoe Adventures (LTA) has provided guided snowmobile tours under a special use permit on the Carson Ranger District since 1986. Their current special use permit will expire and they have requested that the permit be re-issued for a ten year term.

Outfitting and guiding service provides the public with a winter experience for those who may not have the specialized skills, knowledge, or equipment to do so by themselves. Tours provide the public with an experience and education about their National Forest.

Management Direction and Guidance

The project area is within the Alpine Management Area of the Toiyabe Land and Resource Management Plan (LRMP). The Alpine Management Area is noted for its scenic and historical interests and is a popular recreational destination during summer and winter. The recreational management direction for the Alpine Management Area is to provide “roaded natural experiences along county and state roads, and semi-primitive motorized and semi-primitive non-motorized experiences in other areas.” (LRMP, Pg 87). The intersection of Blue Lakes Road and State Route 88 is identified as a location at which facilities should be provided to support winter recreation opportunities and provide health and sanitation (LRMP, Pg 89).

The need to accommodate and manage for recreational growth and demand is also recognized in the LRMP, including cross country skiing, snowmobiling and general snow play, and allowing for designated snowmobile routes and coordinating with the State of California Sno-park program (LRMP Pg 86, 88). According to the LRMP, the Alpine Management Area is to be managed for a variety of uses including increasing developed site capacity and enhancing dispersed recreational opportunities while maintaining watershed, range, wildlife, aesthetic and vegetative quality. Hope Valley is identified as an area in which natural conditions and values should be retained.

The Proposed Action

The Carson Ranger District proposes to issue a special use outfitter-guide permit which would allow up to 13,408 individual snowmobiles (including guide machines) for commercially guided snowmobile tours and related grooming on approximately 30 miles of National Forest system roads. The proposed authorized level of use is similar to the previously issued level. There are no proposed changes to the operation base location, temporary sliding staging locations, or groomed routes. The existing temporary bridge crossing (Photo 1-3) at the base staging location would be replaced with a snowmobile trail bridge constructed to meet current standards for stream crossings. A more detailed description of the proposed action is provided in Chapter 2.

Public Involvement

As part of the planning process, the Forest Service involved members of the public, local residents, recreation groups and state and local government agencies. The notices and public meetings are provided below.

- A preliminary scoping notice was sent to 26 standard mail addresses and 40 email addresses on January 23rd 2009.
- Two public open house meetings were held on February 10, 2009 at Turtle Rock Park in Markleeville, California and February 12, 2009 at the CVIC Hall in Minden, Nevada.

- The project was entered into the Schedule of Proposed Actions (SOPA) published quarterly beginning January, 2009.
- The Notice of Proposed Action (NOPA) was sent to interested parties on December 18, 2009. The legal notice of the NOPA was published in the Reno Gazette-Journal on December 22, 2009, establishing a 30 day public comment period ending on January 21, 2010.
- Tribal consultation with the Washoe Tribe of California and Nevada occurred on March 16, 2010 and with the Reno Sparks Indian Colony on March 17, 2010.

Comments Received During Scoping

The interdisciplinary team reviewed all comments from public and internal scoping. Although numerous comments were received, most of the comments fell into five main issue areas that will be addressed within this analysis. Responses to scoping comments are included as Appendix D in the decision notice.

Issues

The following issues with the preliminary proposal were identified during public scoping and interdisciplinary team analysis. Issues have been incorporated into the proposed action and design features.

- Potential impacts to water quality and snow chemistry from snowmobile exhaust.
- Potential impacts to air quality from snowmobile exhaust.
- Potential impacts to soil and vegetation in meadows from off-trail use.
- Potential effects to wildlife from snowmobile use.
- Potential evening disturbance to wildlife and local residents from snowmobile noise.

Decision Needed

The Decision needed is whether or not to issue a special use outfitter-guide permit for guided snowmobile tours and related grooming, as proposed or modified.

CHAPTER 2

Proposed Action

Introduction

This chapter describes and compares the alternatives considered for the issuance of a special use permit for commercial outfitter-guide snowmobile tours and grooming.

Proposed Action/Issue Special Use Permit

The Proposed Action authorizes the issuance a special use outfitter-guide term permit for commercially guided snowmobile tours (including guides) and associated grooming on designated travel routes occurring November 1st through May 31st for up to a 10 year term in the Blue Lakes, Hope, Charity, and Faith Valleys. See Figure 2-1, Proposed Action Map on Page 9.

Forest Service outfitter-guide policy (FSH 2709.14 CH. 50 53.1n) instructs service days to be calculated for priority permits by using the single highest year over the last five years. Actual use (number of machines) over the past five years, by year, has been 2006/8,974, 2007/9,802, 2008/11,119, 2009/13,408, and 2010/11,636. Based on this policy, the permittee is eligible for 13,408 priority service days (snowmobiles), including days for guides.

Additional specific permit requirements/restrictions are proposed below. They are grouped into four categories: 1) Preliminary Proposed Action; 2) Modifications Resulting from Scoping and Preliminary Analysis; 3) Best Management Practices

Preliminary Proposed Action

- Require a client to guide ratio of 7:1. If there are more than seven clients, an additional guide is added. The maximum group size is 14 client machines. Up to six groups may leave the staging area per hour, staggered to provide spacing between groups.
- Daily hours of operation is 9am to 8pm, excluding moonlight tours.
- Authorize guided snowmobile tours on approximately 30 miles of designated groomed system routes, including approximately 13 miles of Blue Lakes Road and approximately 17 miles of gravel or dirt Forest roads.
- Authorize base operations from an approximately one acre staging area adjacent to Hope Valley Sno-park.
- Authorize six temporary sliding staging locations along Blue Lakes Road as snow begins to recede in the spring.
- Designate a 300' foot snowmobile closure around Tamarack Lake and the surrounding ponds to minimize potential impacts to the Sierra Nevada yellow-legged frog. Snowmobile

tours will continue past Tamarack Lake to the turnaround near the dam at the intersection of Forest Road 31097 and 31097A. Tours will not go off-road in this area.

Modifications to the Proposed Action Resulting from Scoping and Preliminary Analysis

- Require a client to guide ratio of 8:1. An additional guide is added to the group if the group exceeds 8 clients with a maximum group size of 16 (including guides). Up to five groups may leave the staging area per hour, staggered to provide spacing.
- Limit hours of operation to daylight hours only, with the exception of moonlight tours.
- Limit night tours (moonlight tours) to two days before, the day of and two days after a full moon. Moonlight tours are allowed to operate only on Blue Lakes Road. Tours end by midnight.
- Authorize base operations from an approximately one acre staging area adjacent to Hope Valley Sno-park. The temporary staging area contains a temporary employee warming hut, office, and two-528 gallon temporary fuel trailers and approximately 85 snowmobile fleet and groomer or comparable facilities and fleet as approved. A minimum of 12” inches of snow would be required to begin grooming operations and commercial snowmobile tours from the staging area to Blue Lakes Road. Designate the travel corridor for access from the staging area to Blue Lakes Road. Grooming equipment and snowmobile tracks will not come in contact with pavement or soil.
- Require a minimum of 12” inches of snow on dirt or gravel routes to begin grooming operations and guided commercial snowmobile operations. Grooming equipment and snowmobile tracks will not come in contact with pavement or soil.
- Require a minimum of 24” inches of snow in off-trail areas to begin grooming operations and guided commercial snowmobile operations. Grooming equipment and snowmobile tracks will not come in contact with vegetation or soil.
- Authorize guided snowmobile tours on approximately 30 miles of designated groomed system routes, including approximately 13 miles of Blue Lakes Road, approximately 17 miles of gravel or dirt Forest roads and approximately 0.63 miles of off trail to be groomed with a snow cat.
- Authorize guided snowmobile tours in un-groomed off trail areas on approximately 3,500 acres, as depicted on figure 2 proposed action map. Use within this area is not restricted to designated routes. Approximately 10% of tours occur off trail.
- Authorize four temporary sliding staging locations for approximately 20 snowmobiles on Blue Lakes Road. Staging locations will be moved to meet snow line as snow recedes in the spring. Refueling at these temporary areas is done with a portable 528 gallon re-fueling trailer.

- Replace the existing temporary snowmobile bridge near the staging area with a permanent bridge or semi permanent bridge that conforms to Forest Service engineering standards. Construct the bridge to support snowmobiles and a snow groomer. This area is not accessible by vehicles in the summer months and therefore may only be used as a footbridge during summer.

Wildlife

- Require that all litter/trash from snacks and lunches be packed out daily and discarded in animal resistant trash bins to reduce attraction to litter from American martens and other wildlife.

Air Quality

- Snowmobile fleet replacements will be 4 stroke or similar technology that will meet or exceed current year EPA standards for air quality.

Snowmobile Noise and Registration

- Snowmobile fleet replacement will be 4 stroke or similar technology that is as quiet as the current fleet being operated. Modified machines are not permitted. Machines must also be registered with the current year California green sticker.

Vegetation and Soil

- Following any disturbance from bridge construction, willows and riparian vegetation will be planted to improve stream bank stabilization.

Watershed

- A snowmobile trail bridge will be installed at the creek crossing to meet snow load standards and reduce potential stream bank damage. Temporary erosion control best management practices will be implemented during construction of the bridge crossing to prevent soil movement into the stream channel. Disturbed areas will be re-vegetated after construction is complete.

Recreation

- Snowmobile tours may continue to cross the Pacific Crest National Scenic Trail (PCT), crossing on the Blue Lakes Road. Portions of off trail areas near Tamarack Lake were removed from the permit area. It is prohibited from using a motorized vehicle on the PCT. (36 CFR 261.20)
- Roads will be posted in both directions with signs during grooming operations to alert the public. This will notify trail users that the snow cat is on the trail conducting grooming activities.

- Required to follow posted over snow speed limits on Blue Lakes Road (Alpine County ordinance (683-08).
- Trash pickup including rubber from snowmobile tracks and other litter will be picked up in the fall and spring each season. The permittee may also assist the Forest Service with abandoned snowmobile retrieval.

Best Management Practices

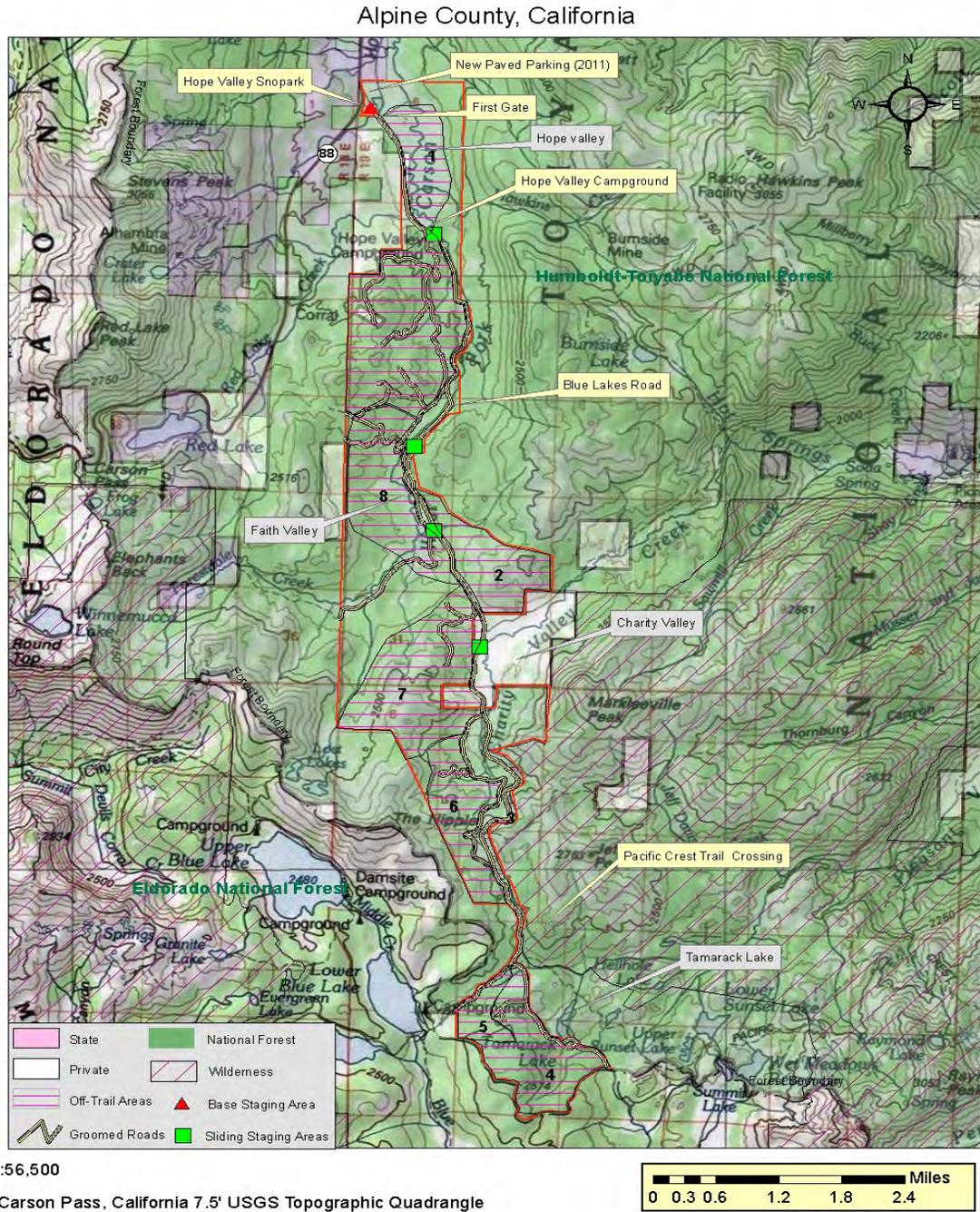
- The permittee is required to use weed free hay straw at the staging area to prevent noxious weeds from establishing in the area (Forest Order 04-00-097).
- The permittee is required to use best management practices for refueling.

Monitoring

- An Annual Operating Plan will be submitted each year and becomes part of the permit.
- Annual inspections including checking snow-depth prior to operations commencing will be conducted by the permit administrator to evaluate compliance with the terms and conditions of the permit.

Figure 2-1 Proposed Action

Lake Tahoe Adventures Snowmobile Project Figure 2: Proposed Action



No Action Alternative

An outfitter-guide special use permit for commercially guided snowmobile tours would not be reissued. Consequently, no outfitting and guiding services would be available in the area of Blue Lakes, Hope, Charity and Faith Valleys, and the trail grooming historically provided by the special use permit holder would no longer be authorized under the special use permit. The Forest Service may groom routes if there was grant funding available.

Alternatives Considered But Eliminated From Detailed Analysis

Public comments received in response to scoping identified provided suggestions for four additional alternatives. Rationale for not evaluating these alternatives in detail is summarized below.



Figure 2-2 Alternative Staging Locations

Relocate Base Operations onto Private Lands

The use of a private parcel located approximately 0.50 miles beyond the first gate on Blue Lakes Road was initially considered by the Forest Service as a potential staging location for snowmobile operations. However, the use of this site would require snow removal beyond the first gate, eliminating over snow vehicle access between Hope Valley Sno-park and the National Forest via Blue Lakes Road. The amount of snow removal would be significant, creating high walls of snow adjacent to the road that would encourage adventurous snowmobile users to jump the road. Additionally, there would be limited space for the public and the permit holder to safely drop off clients and turn vehicles around on the road. This is one of the most popular Sno-parks in the State of California and the operation could be jeopardized, if access to the National Forest via Blue Lakes Road was eliminated. Recreational users would then have to navigate Hope Valley meadow and the West Fork Carson River to gain access to upper elevations of the Forest. Public health and safety risk may be increased by attempting to cross the river and more use would occur in the meadow.

Relocate Base Operations to Hope Valley Campground

Hope Valley Campground is located approximately 1.33 miles beyond the first gate on Blue Lakes Road. The use of the campground for snowmobile base operations is not an appropriate use of a

developed recreational facility. The campground layout is not adequately sized to accommodate the snowmobile fleet, groomer, or temporary structures. Campground site furnishings may become hidden obstacles under snow, and there is risk of damaging campground property. Blue Lakes Road would need to be plowed beyond the first gate, from Hope Valley Sno-park to Hope Valley Campground. Snow removal for this portion of the road poses the same or increased impacts discussed for the private lands alternative, cited above. Access between Hope Valley Sno-park and the National Forest via Blue Lakes Road would be eliminated and the Sno-park permit issued to the State of California would be jeopardized. Snowmobile users would have to navigate through Hope Valley meadow and across the West Fork Carson River, which may increase risk to public health and safety.

Relocate Base Operation to the Blue Lakes Road Gravel Pit

In 2007, the Carson District Ranger issued the Alpine Winter Recreation Project Decision Notice/Environmental Assessment approving the construction of winter and summer trailhead parking facilities in the gravel pit at the entrance to Blue Lakes Road. Construction was completed in 2011. The gravel pit is not of sufficient size or configuration to support both public trailhead parking and commercial base operation facilities.

Reduce Authorized Number (Service Days)

The outfitter-guide permit held by Lake Tahoe Adventures is a priority use permit. Forest Service outfitter-guide policy provides for re-issuance of priority use permits at equivalent, decreased, or increased service-day levels. Maximum service-day eligibility is identified as the single highest year use over the last five years (FSH 2709.14 CH. 50 53). LTA's expiring special use permit authorized 12,522 service-days. Their highest single year use was 13,408 service days in 2007. Consequently, LTA is eligible for a maximum of 13,408 priority service days (snowmobiles), including guide machines. LTA has requested re-issuance with maximum service-days. In the absence of any conflicts related to service-day levels, the suggested reduced service-day alternative is not necessary to address a reasonable range of alternatives (36 CFR 220.7[b][2][i])

Eliminate Night Tours

The Proposed Action was modified to limit commercial snowmobile tours to daylight hours with the exception of full moon tours. Night tours are in high demand with outfitting and guiding clientele. To minimize traffic conflicts between night tours and residents, full moon tours have been modified to include the two days before, the day of, and two days after a full moon.

Eliminate Sliding Staging

Eliminating sliding staging locations along Blue Lakes Road as the snow recedes in spring, could reduce the operational flexibility and the number of commercial snowmobile tours that could occur when conditions in higher elevations still allow for snowmobile tours to commence. The majority of tours are occurring on the paved road at this point in the season and sliding staging does not occur every season. During the 2010-2011 winter season; sliding staging areas were not used, there was enough snow for commercial tours to stage from the base staging area. Sliding staging locations accommodate a small fleet of snowmobiles and just enough space to turn around a vehicle to unload clients. Sliding staging areas allows for adaptive management and operations of commercial tours.

CHAPTER 3

Affected Environment/Environmental Consequences

Introduction

This section provides a summary of the affected environment and potential direct, indirect, and cumulative environmental effects of the Proposed Action and No Action Alternatives, as described in specialist reports prepared for the project. The analysis and potential effects of each resource area are contained below. The Council on Environmental Quality effects as follows.

Direct Effects-are caused by the action and occur at the same time and place.

Indirect Effects-are caused by the action later in time or farther removed in distance, but still in the reasonably foreseeable future. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Cumulative Effects-are the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Project Area Location

The project area is located in Hope Valley at the intersection of Hwy 88 and Blue Lakes Road. The project area encompasses approximately 8,500 acres of National Forest System land, managed by the Carson Ranger District of the Humboldt-Toiyabe National Forest. The permit area is comprised primarily of National Forest System land; approximately 160 acres in the northernmost portion of the area, adjacent to State Route 88, are owned by the State of California, and there are few private land in-holdings within the permit area. However, the permit area is bordered by private lands along approximately seven miles of the 30-mile permit area perimeter in lower Hope Valley, Faith Valley and Charity Valley areas. An estimated 12 residences are located in or gain vehicular or over-snow vehicle access through the project area.

Winter Recreation

Affected Environment

Alpine County is a popular destination for winter and summer recreation, it is commonly known as the California Alps. In the winter, Blue Lakes Road and the greater Hope Valley area is blanketed with snow and provides exceptional conditions for snowmobiling, cross-country skiing, snowshoeing and dog sledding.

Hope Valley Snopark/Winter Access

During the winter, the first ¼ mile of Blue Lakes Road is a Sno-park, operated under a special use permit issued by the Forest Service. Hope Valley Sno-park provides pass holders with plowing, day use parking, trailhead access, restrooms and trash service. Preliminary estimates of non-commercial snowmobile recreation use in the Hope Valley/Blue Lakes area is between 2,700 and 5,700 snowmobiles according to preliminary trailhead data being collected by the California Off Highway Motor Vehicle Division (CA OHV, 2011). There are 2 more seasons of trailhead data (2012-2013) that will be collected. Use at the Sno-park is primarily limited by the amount of parking. Depending on how well vehicle and trailer combinations are parked, approximately 50-60 vehicles with a trailer can park in the day use parking along the first quarter mile of Blue Lakes Road. Approximately 75-100 snowmobiles may stage from the sno-park when the parking lot is full, typically over Christmas, New Years, Martin Luther King and Presidents Day holiday weekends. The busiest times at the sno-park are after a fresh snow and holiday weekends. Parking is easy to find midweek and when conditions are marginal. According to Forest Service snow rangers, there have been no conflicts reported between commercial and non-commercial snowmobile users.

In February 2008, Alpine County implemented an over-snow speed limit ordinance on Blue Lakes Road. The speed limit ordinance (683-08) designates speed limits on Blue Lakes Road from the Sno-park to Lower Blue Lakes. From the Sno-park to 0.1 miles on Blue Lakes Road, the speed limit is 15 mph. From 0.1 miles to 1.1 miles on Blue Lakes Road, the speed limit in the residential zone is 35 miles per hour, including the entrance to Blue Camas Road. From 1.1 miles to approximately mile marker 12 at Lower Blue Lakes, the speed limit is 45 miles per hour. The California State Parks, Off-Highway Motor Vehicle Division, operates Hope Valley Sno-park under special use permit by the Forest Service annually from November 1st through May 30th. Some parking spaces in the Sno-park are designated for law enforcement, emergency vehicles and year round residents. There are approximately 12 residences in the Hope Valley/Blue Lakes area. A few year round residences access property with a snowmobile or snow cat daily. Resident parking is accommodated within the Sno-park and resident over snow vehicle parking is near the first gate on Blue Lakes Road. The staging area for the commercial snowmobile operation is adjacent to the Sno-park and there is a client unloading area and approximately five employee parking spaces. Most clients participating in the commercial snowmobile tours are bused to the staging area from South Lake Tahoe.

Recreation Improvements

In 2007, the Forest Service made a decision (Alpine Winter Recreation Project) to develop the gravel pit adjacent to the Sno-park. Improvements include paving, restrooms, and an information kiosk. The design plan provides for approximately 15 pull-through spaces for self-contained vehicles, such as RV's and space for snowmobile trailers and approximately 9 single vehicle spaces. The project is expected to be completed in the summer of 2011 and operational for the 2011/2012 winter season. This new opportunity will become part of the Hope Valley Sno-park and will provide additional public parking and trailhead access to the National Forest.

Recreation Trends

Public recreation trends in California for activities that require specialized equipment and infrastructure such as trailheads and trails, like snowmobiling, are growing (California Parks and Recreation Trends, 2005). There are 22,413 registered snowmobiles with an estimated 5% unregistered factor in the State of California (email from CA OHV, 2011). Important factors identified for enjoyment in outdoor recreation included the beauty of the area, being with family and friends and having a change from the daily routine (California Parks and Recreation Trends, 2005).



Photo 3-1 Blue Lakes Road

Commercial Snowmobile Operation

The commercial snowmobile operator currently grooms approximately 30 miles of Forest roads, including Blue Lakes Road up to Tamarack Lake and Blue Lakes and several unpaved Forest Service roads and approximately 0.63 miles off trail with a snow cat for commercial snowmobile tours. There are 12,522 service days of which approximately 10% of tours occur off-trail in general forest areas on approximately 3,500 acres and approximately 50 moonlight tours. The operational season November through May.

Grooming

A snow cat is an enclosed-cab, truck sized, fully tracked vehicle designed to move on snow. Snow cats are often referred to as 'trail groomers' because of their use for grooming ski trails or snowmobile trails (Wikipedia, 2011). A snow groomer creates a smooth running surface by packing and shaping the snow. Groomed routes facilitate snowmobile travel for beginners and intermediate riders, and are an integral part of commercially guided snowmobile tours.

Grooming operations and frequency can be influenced by many factors including: temperature, type and depth of snow, terrain, snowmobile traffic volume and use patterns, wind, current or incoming storms, and avalanche terrain (International Association Snowmobile Administrators, 2008). The amount of snow depth required to begin grooming operations varies by area and is affected by the type of terrain and by the type of snow. After some storms, snowmobiles are used first by the commercial operator or public which can start the de-aeration and compression process. Generally, at least 8 to 12 inches of wet snow on smooth terrain like a road is enough to begin grooming operations. However, if the snow is drier, or if the terrain is rough or uneven, at least 12 to 18 inches of snow (or more) may be required to safely begin effective grooming operations (International Association Snowmobile Administrators, 2008). Routes groomed by the permittee are open for motorized and non-motorized public use.

Sliding Staging

In the spring when the snow begins to recede at lower elevations, at the sno-park and at the base staging location, LTA plows snow up Blue Lakes Road to paved and/or dirt shoulder pullouts and stages approximately 20 snowmobiles for commercial tours. Sliding staging locations are approximately 1.33 miles, 3.33 miles, 4.5 miles and 6.25 miles from the first gate traveling south on Blue Lakes Road. At this time the Forest Service lifts an over snow vehicle restriction and allows public access to upper elevations of the forest via Forestdale Creek Road. Forestdale Creek Road is located higher in elevation west on Highway 88 and holds snow longer.

Guided snowmobile tours have generally increased due to public interest and the experience that is offered in the backcountry. Outfitter-guide services for this activity provide the public with the equipment, knowledge and instruction on the operation of the machine and guide the public into areas of the National Forest that many people may otherwise not have the opportunity to experience. Snowmobile tours may also offer physically challenged people with an opportunity to see some of the most beautiful scenic winter landscapes in the Sierra Nevada's. The outfitter-guide program is intended to provide the public with a quality recreation experience.

Refueling

Two 528 gallon temporary/portable gasoline fuel storage tanks on trailers (or comparable facilities) would be authorized at the base staging area. These temporary fuel trailers refuel snowmobiles with gasoline. The operating plan will address best management practices including designating the refueling area, signing, barrier protection, spill kits, incidental spill cleanup, top off and overflow prevention, 24 hour environmental contractor required on retainer in the event of a major spill, training plan for employees on refueling, cleanup and chain of emergency phone contacts. One of the 528 gallon refueling trailers would be moved up temporarily to provide fuel at the five temporary sliding staging areas and returned to private lands when not in use.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

Non-commercial motorized and non-motorized recreation would continue to occur in the project area. Approximately 30 miles of Forest Roads would be groomed by the permittee which would continue to provide improved access to all winter users including the public, law enforcement, search and rescue, and residents. Off trail use would occur on approximately 3,500 acres within the total project area of approximately 6,900 acres, although only about 10% of the tours go off trail. The public would be provided with an opportunity to experience their National Forest during the winter with an experienced outfitter-guide. Non-commercial winter users would encounter commercial tour groups. Tours maintain slow speeds and follow proper trail etiquette to reduce user conflicts. The outfitter-guide provides emergency communication and response in remote areas for clients and assists Alpine Search and Rescue in emergency response for public recreation users. Recreation encounters with grooming operations may occur on designated routes; proper signage will be placed on the trail to alert trail users of the activity. The public occasionally

receives assistance from the permittee by helping them dig out their machines. A permitted snowmobile operation may reduce the number of rented snowmobiles in the area and illegal outfitting and guiding operations. Law enforcement and search and rescue operations may also be reduced by having a permitted snowmobile operation in the project area.

The permittee would continue to use the unloading zone for clients who are brought into the valley from South Lake Tahoe. Approximately five spaces would continue to be used for employee parking for the snowmobile concession. Parking in the Sno-park would remain the same as it currently is used for the public, emergency vehicles, law enforcement, and residents. As snow recedes at the base location in the spring, the permittee would plow Blue Lakes Road to sliding base locations. Four sliding base locations would provide for adaptive management in drought years and access to upper elevations that still allow for snowmobile use to commence. Plowing Blue Lakes Road may open the road early in the spring or summer for recreation purposes such as camping and provide residents early vehicle access to homes. Limiting daily operating hours to daylight only with the exception of full moons may reduce any noise or disturbance to local residents.

Cumulative Effects

The overnight parking area identified in the Alpine Winter Recreation project is expected to be completed and operational for the 2011/2012 winter season. This improvement will become part of Hope Valley Sno-park and is expected to provide the public with a new winter recreation opportunity. The design plan provides for approximately 15 pull-through spaces for self-contained vehicles, such as RV's and space for snowmobile trailers. Approximately nine individual vehicle spaces are also in the design plan. It is anticipated when the overnight parking area opens, that there will be an increase in winter recreation use. It is estimated that a maximum number of 60 snowmobiles may be able to stage from the overnight parking area if all of the parking units are occupied with a four place trailer. It is anticipated on busy weekends and after new snow that there may be more public snowmobile and commercial snowmobile encounters on the trail. Commercial tours and non-commercial recreationists may encounter one another during moonlight rides. Although there may be more encounters between public and commercial tours, clients maintain slow speeds and follow proper trail etiquette. Proper signage will be placed on the road to alert the public as grooming operations occur.

No Action

Direct and Indirect Effects

The public would continue to use the project area to snowmobile, cross-country ski, snowshoe and dog sled in this area if the commercial snowmobile special use permit was not issued.

The public would have no encounters with commercial tours. Because grooming operations would no longer be provided by the permittee, the Forest Service would consider applying for grant funding through the California green sticker program to conduct trail grooming activities. Timing to receive grant funding for grooming may take several years to obtain. Beginner and intermediate snowmobile users, non-motorized recreation users, law enforcement, search and rescue and residents may not have improved access on groomed roads to the backcountry or residences.

If an outfitter-guide special use permit for guided snowmobile tours is not issued in this area, users requiring or seeking commercial guides would not be accommodated. It is likely that some of this demand would shift to other commercial snowmobile tours in the Lake Tahoe area. Other individuals may choose to rent snowmobiles from other sources, and may not be adequately prepared to handle changing conditions or harsh weather, or may generally lack the experience to safely navigate in winter landscapes. As a consequence, search and rescue operations may increase.

The current permittee has operated a commercial snowmobile outfitter guide business for over 25 years. It is anticipated that there would be a negative financial impact to the current outfitter-guide.

There may be approximately five single-parking spaces that may become available for Sno-park parking if the outfitter-guide permit was not issued.

Cumulative Effects

Implementation of the Alpine Winter Recreation decision may provide improved trailhead parking for motorized and non-motorized recreation users. Parking improvements may provide for safer parking conditions, rather than parking along the shoulder of highway 88. Additionally, the Forest Service continues to work with a variety of partners to provide education and increase awareness of opportunities in the area.

Noise

Affected Environment

Noise sources in the project area include the sound associated with the operation of existing commercially guided snowmobile tours. There were 9,579 commercial service days in 2011 and non-commercial public snowmobile use is estimated between 2,700-5,700 visitors annually according to preliminary trailhead use data being collected by the California off highway motor vehicle division. State Route 88 highway vehicle traffic is also a source of noise. The extent of noise generally occurs from 2 stroke snowmobiles during initial start up and idling before beginning on the trail. This is usually no longer than 10 minutes. The majority of LTAs snowmobile fleet are 4 stroke snowmobiles, which are far quieter than 2 stroke machines. Once snowmobiles are being used on the trail, noise generally is heard within close proximity of the trail or off trail area.

Noise is defined as unwanted sound, a definition that includes both the psychological and physical nature of the sound. The term “sound” and “noise” are often interchangeable (International Snowmobile Association).

Snowmobile noise emissions are regulated by the State of California, Motor Vehicle Division. The California vehicle code, (SEC. 45. Section 38370) as amended in 2003, requires off-highway vehicles manufactured before January 1, 1986 to not exceed 101 dBA and snowmobiles manufactured after January 1, 1986 cannot exceed 96 dBA. Noise is measured using the Society of Automobile Engineers at a distance of 50 feet from the sound source. The Environmental

Protection agency (EPA) has not developed snowmobile noise standards since most snowmobile manufacturers produce snowmobiles that are below the voluntary noise standards (EPA Fact Sheet 420-F-01-024).

The current operator's commercial snowmobile fleet is primarily comprised of Arctic Cat 4-stroke touring snowmobiles. These machines are quieter than current California noise emission standards. Modified engines are not authorized for use under the current permit.

There are no additional noise ordinances or established maximum noise limits in the project area. As the snowmobile fleet is replaced, machines will meet or be quieter than the California vehicle code for noise emissions.

Noise conflicts may occur along Blue Lakes Road affecting local wildlife and non-motorized forest users like cross country skiers and snowshoers.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

Noise contributions from commercial snowmobiling and grooming would continue at similar levels to those currently experienced. Sound levels would be greatest on Blue Lakes Road.

No Action

Direct and Indirect Effects

Under the no action alternative, commercial operations would not be contributing to overall noise. Noise generated from non-commercial recreational snowmobiling would continue at relatively minor levels. Noise from grooming operations may continue if the Forest Service is awarded grant funding to groom routes for winter use.

Cumulative Effects

There are no foreseeable future actions that would contribute to noise in the project area.

Air Quality

Affected Environment

Commercial and non-commercial snowmobiles, grooming operations, and vehicle access to snowmobile areas contribute to ozone levels, carbon monoxide (CO), and [particulate matter \(PM\) levels](#) (EPA, 2002). Snowmobiles also emit toxic air pollutants including benzene, 1,3-butadiene, formaldehyde, and acetaldehyde.

Snowmobile Emissions and National Standards

The EPA has adopted national snowmobile emission standards for non-road engines, including snowmobiles. Implemented in three phases, snowmobile emissions would ultimately be reduced

by 70%. Phase 1 of the standards apply to snowmobiles manufactured after 2006. Phase 2 regulations took effect in 2010, requiring emission reductions to 50% of 2002 levels. Phase 3 will take effect in 2012, requiring emission reduction to 30% of 2002 levels. (CFR, Title 40, Protection of Environment, Control of Emissions from Recreational Engines and Vehicles, Subpart B). For phase 3, hydrocarbon (HC) corporate averages may not be higher than 75 g/kW-hr and carbon monoxide (CO) may not be higher than 275 g/kW-hr.

Yellowstone National Park data measuring snowmobile carbon monoxide (CO), hydrocarbons (HC) and nitrous oxide emissions indicates that four-stroke snowmobiles have lower emissions per person than 2-stroke snowmobiles, and that snowmobiles manufactured by Arctic Cat and Polaris emitted roughly half as much CO and HC as Ski Doo (University of Denver, 2006).

State and Regional Air Quality Attainment

The project area is located in Alpine County, one of three counties within the Great Basin Unified Air Pollution Control District (GBUPCD). GBUPCD has some of the single largest point source pollutants in the United States in the form of particulate matter (PM10) (GBUPCD, 2011). They identify major concerns for particulate matter from sources predominantly in the Owens Valley and wood smoke in intensively-developed areas such as the town of Mammoth Lakes. In 2008, particulate matter pollution exceeded State (PM10) standard at Kirkwood ski area, approximately 10 miles west of the project area. Since this time, the Great Basin Control District has implemented strategies to reduce particulate matter, primarily from wood burning, including wood burning stove replacement incentives. According to the 2008 estimated annual average emission data for the Great Basin Valleys Air Basin, all off-road recreational vehicles contribute only 0.05% in [particulate matter \(PM10\)](#) and 0.03% for particulate matter (PM2.5). (California Air Resources Board, 2008).

There are no air quality monitoring sites being proposed or planned in Alpine County or in nearby counties that are representative of the project area (2010 Ambient Air Quality Network Plan for the Great Basin Unified Control District). For all pollutants designated by the Environmental Protection Service (EPA) and the California Air Board, Alpine County is considered in [attainment, unclassified or unclassified/attainment](#) (EPA, 2011).

The project area is adjacent to the 105,165 acre Mokelumne Wilderness, a Federally designated Class I Airshed. Due to westerly prevailing winds and transport patterns, the Mokelumne Wilderness receives emissions from the central valley of California, near Sacramento and Stockton, approximately 100 miles to the west. The Sacramento and San Joaquin Valley air basins are in non-attainment for Federal and State air emission standards for (PM2.5) and 8-hour Ozone standards. The Mokelumne Wilderness may be more influenced by these emissions than by emissions to the east of the Sierra Nevada crest and down the Carson River which is downwind from the Wilderness for prevailing wind directions, and has fewer sources of aerosols. (Causes of Haze Assessment, 2004).

Project Area Emissions

During the winter, emission contributors in and adjacent to the project area consist of vehicle travel on Hwy 88, non-commercial and commercial snowmobiling, vehicles accessing Hope Valley Sno-

park (motorized and non-motorized recreationists and local residents), wood smoke from local residences; and road sanding along Hwy 88.

The special use permit authorizing existing commercial snowmobiling operations in the project area requires compliance with EPA national emission standards. The operator's fleet is primarily comprised of Arctic Cat 4-stroke touring snowmobiles. Non-commercial, public snowmobiles used in the project area consist of a mix of two and four-stroke snowmobile engines. No air quality monitoring stations are located in the project area. Given the dispersed occupancy and use in the area, air quality is assumed to be consistent or minimally better than that of Alpine County as a whole (in [attainment, unclassified or unclassified/attainment](#)).

Kirkwood ski area is approximately 10 miles west of the project area and in 2008, there was recorded particulate matter pollution which exceeded the State (PM10) standard once during the monitoring period. Since this time, the Great Basin Control District has implemented strategies to reduce particulate matter, primarily from wood burning, including wood burning stove replacement incentives.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

Exhaust emissions would continue to be generated from commercial snowmobile tours, grooming activities, and a bus or van that is used to transport clients to the staging location on Blue Lakes Road. Consequently, air quality is expected to remain unchanged or improve as snowmobiles are replaced with 4 stroke or similar technology.

Emissions from commercial and non-commercial snowmobile use and non-recreation activities would continue to add to local winter emissions. Other local emissions include vehicle access to Hope Valley Sno-park, including the new overnight parking area (accommodating approximately 15 vehicles with trailers and nine single parking spaces), Hwy 88 vehicle traffic, Hope Valley residential wood smoke and road sanding in the winter.

Over the long term, if non-commercial snowmobiling numbers do not increase, overall emissions from non-commercial snowmobiling could be reduced as the public converts to the use of 4-stroke snowmobiles or similar technology. The State of California and EPA announced in 2011 a proposal that would develop clean car emission standards. The air quality board is implementing improvement plans for wood smoke and road sanding in the State which will reduce emissions.

Cumulative Effects

Elimination of emissions from the current commercial snowmobiling operation, would minimally reduce overall local winter emissions. Emissions from local non-commercial recreation and non-recreation activities would persist, including: public snowmobiling and vehicle access to Hope Valley Sno-park, including the recently constructed recreation area for overnight parking and trailhead access at the gravel pit on Blue Lakes Road (accommodating approximately 15 vehicles

with trailers in the winter and nine single parking spaces); Hwy 88 vehicle traffic; Hope Valley residential wood smoke; road sanding.

No Action

Direct and Indirect Effects

Emissions from commercial snowmobiling operations would no longer contribute particulate matter and other pollutants into the project area. However, given the relatively negligible contributions of the current commercial snowmobiling emissions to the larger Alpine County landscape, Alpine County air quality would likely not be influenced. Winter air quality in the project area during concentrated use periods could minimally improve.

Given that the primary sources of particulate matter in the Great Basin Unified Air Pollution Control District are related to non-vehicle contributions, that emissions from the Sacramento and San Joaquin Valleys are likely more influential than those from east of the Sierra Nevada crest, and that off-road recreational vehicles in total contribute 0.05% of particulate emission in California, it's likely that emissions from current snowmobile related use in the project area contribute very little to particulates in the GBUPCD, Alpine County, or the Mokelumne Wilderness.

Global Climate Change

Affected Environment

Emissions from snowmobiles and grooming may contribute greenhouse gases (GHGs) into the earth's atmosphere. Greenhouse gas emissions are associated with burning of carbon-based fuels. Carbon dioxide (CO₂), the most abundant greenhouse gas, as well as methane, nitrous oxide and other gases are a result from other sources near the project area including residential wood burning and motor vehicles use along Hwy 88.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

Issuing the outfitter guide permit would result in continued seasonal greenhouse emissions, primarily carbon dioxide along Blue Lakes Road and along other Forest roads utilized by the permittee. However, greenhouse gas emissions contribute incidentally to air quality in Alpine County.

The proposed action would involve continuation of existing seasonal greenhouse gas emissions associated with commercial snowmobile tours, but these emissions would not involve significant global climate change effects based on the low level of emissions. The snowmobile operation represents a relative reduced-emission option for accommodating public demand for this winter experience. Emissions associated with transportation to the snowmobile staging locations (Hope Valley Sno-park) are reduced by transporting multiple customers in buses or vans. Tours are organized to maintain a customer/guide ratio of 8:1. The snowmobile fleet is comprised primarily of 4-stroke machines, which have lower emission standards than 2 strokes (University of Denver, 2006).

The proposed action would not be exposed to or exacerbate potential effects associated with global climate change. The majority of the snowmobile fleet meets Phase 3 (2012) EPA emission standards for snowmobiles, which would further limit the potential for adverse impacts on air quality in the project area. It can be anticipated that additional reductions in emissions per unit of operation will be achieved over the years with newer model replacements, further reducing the emissions associated with the operation and its contribution to air pollution in the area. GHG contributions of the proposed action are minimal and will not be measureable when added to existing and foreseeable future activities.

Cumulative Effects

The proposed action would involve no substantial change in snowmobile use of the project area. Public snowmobile use and associated air pollutant emissions can be expected to increase in proportion to anticipated increases in recreational vehicle sales with population growth. However, increasingly stringent emission standards will reduce emissions per unit of use and may result in long-term improvements in local air quality. Other local emissions of GHGs include residential wood burning and motor vehicle use along Hwy 88. GHG emissions are minimal and are not expected to be measureable when added to existing and foreseeable future actions.

No Action

Greenhouse gas emissions from the commercial outfitter guide operation would be eliminated under this alternative. Although public use of snowmobiles is expected to continue to increase with population growth, (see recreation section), overall greenhouse gas emissions are expected to decrease as snowmobile emission requirements for newly manufactured snowmobiles and motor vehicles are implemented. As newer models are used, air emissions are expected to improve in the future.

Watershed and Soil Resources

Affected Environment

The project area is within the Carson River watershed. The largest tributaries are the East and West forks of the Carson River. The northern half of the project area is drained by the West Carson River. Most of the south half of the project area is drained by Charity Valley Creek, which is tributary to Hot Springs Creek and Pleasant Valley Creek. The southernmost and uppermost portion of the project area – the vicinity of Tamarack Lake – is in the headwaters area of Pleasant Valley Creek.

The proposed action involves the continued use of commercial snowmobile tours on existing roads and trails, principally Blue Lakes Road. Blue Lakes Road crosses the meadow adjacent to the West Carson River in Hope Valley and Faith Valley. Blue Lakes Road crosses the West Fork Carson River once and Charity Valley Creek once, on existing bridges. Additional crossings of the West Fork and Pleasant Valley Creek are made by existing roads and bridges.

A stream corridor condition assessment for the Upper Carson River watershed was completed in 2004. This study was conducted by MACTEC Engineering Company for the Alpine Watershed

Group and the Sierra Nevada Alliance. (MACTEC, 2004) The project goal was to assess the condition of and provide information for future restoration efforts on the Carson River and its tributaries. The West Carson River upstream of Highway 88 was included in this study. The stream reaches, through the meadow system of Hope Valley, exhibits some high and unstable banks that may be the result of incision or down-cutting. The stream reaches through Faith Valley also exhibits some unstable banks and impacts from dispersed recreation and roads. (MACTEC)

The Lahontan Regional Water Quality Control Board (LRWQCB) has placed the West Fork Carson River above Woodfords on the Clean Water Act 303(d) list of water bodies that have not attained water quality standards for nitrate (source unknown), nitrogen and phosphorous. The sources of nitrogen and phosphorous pollution are listed as atmospheric deposition, channel erosion, erosion/siltation, habitat modification, highway maintenance and runoff, natural sources, on-site wastewater systems, recreational and tourism activities, removal of riparian vegetation, silviculture and stream bank modification/destabilization (LRWQCB). The listing does not distinguish between the upper less-developed reaches of the watershed and the lower reaches. Snowmobile use results in exhaust emissions from the burning of fuel. Snowmobiles emit hydrocarbons (HC), nitrogen oxides, and particulate matter (PM), carbon monoxide (CO), and non-combusted fuel vapors. Combustion engine emissions contain carcinogens, including benzene, butadiene, and polycyclic aromatic hydrocarbons (PAH), and carbon dioxide (Musselman and Korfmacher). These airborne emissions can deposit on the snow, potentially effecting snowpack chemistry and water quality.

Soil compaction and vegetation trampling in Hope Valley, east and west of Hope Valley Sno-park, from user-created routes and camping was reported in the Alpine Winter Recreation Project Environmental Assessment (USDA, 2007); the same assessment reported riparian vegetation impacts and bank trampling during snow melt at a creek crossing in the Hope Valley Snopark, next to the law enforcement parking, apparently the result of public Sno-park use. These effects appear to be confined to the immediate vicinity of Blue Lakes Road; the meadow as a whole does not show evidence of damage from user-created routes.

Evidence of soil compaction and vegetation impacts are visible elsewhere along the Blue Lakes Road corridor, notably in the upper Hope Valley meadow where meadow views invite use and vehicle access is not restricted. These disturbances appear to be the result of summer use.

There is no soil compaction or erosion associated with the existing outfitter-guide operation. Snowmobile tours cross a small drainage adjacent to the operation base by an existing bridge. The existing outfitter-guide operation occurs only when adequate snow cover is available to prevent substantial or damaging snow machine contact with soils or vegetation.

Blue Lakes Road supports substantial summer traffic, and this traffic results in contributions of fuel, oil, grease and particulate matter to the roadway surface. Public snowmobile usage and the outfitter-guide's refueling and snowmobile operation also contribute fuel, oil, grease and particulate matter to the staging area and the roads and trails in the project area. While some of this material is entrained in roadside soils, a portion may contribute to pollutant loads in the project area waterways. There are no changes to water quality from this proposed action.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

The operations base area would be at its existing location and late-season base areas would be located in existing paved areas along Blue Lakes Road. Snowmobile tours would gain access to Blue Lakes Road across a bridge or culvert. Construction of a new bridge or placement of a culvert may result in temporary soil disturbance and potential impacts to water quality. Implementation of best management practices (BMPs), such as straw bales around the site to prevent movement of soil into the stream channel, would lessen this impact. This new crossing would eliminate the existing flatbed trailer, with wheels in the creek. The new crossing would lessen potential impacts to water quality and stream-bank erosion over the long term.

Grooming activities and snowmobile use during regular and moonlight tours would be confined to existing Forest system roads and trails. Off trail tours would utilize general forest areas, but this usage would only be allowed when snow conditions warrant, i.e. when adequate snow cover is available to prevent soil or vegetation disturbance. As a result, soil and vegetation disturbance would be avoided. An operating minimum snow depth of 12” on paved or gravel roads and 24” off trail will be used to prevent any vegetation or soil disturbance.

Snowmobile use in the permitted area may result in snowmobile exhaust pollutants accumulating in the snow. Snowmobiles emit hydrocarbons (HC), nitrogen oxides, particulate matter (PM), carbon monoxide (CO), and non-combusted fuel vapors. Exhaust pollutants may initially persist on the surface of the snow, but as the snow melts the exhaust pollutants could dissipate or melt into nearby water sources, potentially increasing exposure to toads and other aquatic organisms. While contaminants can enter the snow from snowmobiles, studies in Yellowstone National Park show the level of contaminants rapidly decreased with distance from concentrated use of snowmobiles (Ingersoll 1998). Additionally, it was determined that the elevated emission levels in concentrated snowmobile use areas dispersed in surrounding watersheds are levels that are not likely to threaten human or ecosystem health (Ingersoll 1998). Additionally, the Environmental Protection Agency (EPA) requires all new snowmobiles to meet emission standards by the year 2012. The EPA also developed permeation standards that will minimize fuel lost through the walls of plastic fuel tanks and rubber hoses. Based on these standards, snowmobile emissions are expected to decrease over time and cause fewer impacts.

Snowmobile fueling and temporary fuel storage represents a potential water quality threat at the base and sliding staging areas. Two 528 gallon portable fuel trailers would be used at the base staging area surrounded by large boulders, trees and straw bales which would provide barrier protection. Refueling at base staging would be done with one 528 gallon portable fuel trailer. Best management practices for refueling would be required in addition to a spill kit. Best management practices for refueling is part of the annual operating plan which includes designating the refueling area, signing, barrier protection, spill kits, incidental spill cleanup, 24 hour environmental contractor required on retainer in the event of a major spill, training employees on refueling, cleanup and chain of emergency phone contacts. There have been no fuel spills over the course of the permit.

Continuation of the existing outfitter-guide operation would likely have minimal impacts to soil and water quality.

Cumulative Effects

Past, present and future activities and natural disturbances in a watershed can contribute to sediment delivery to streams, resulting in degradation of water quality and aquatic habitat. Restoration activities can result in positive impacts to soil and water quality.

Historical disturbances in this watershed include mining and grazing. More recent activities and potential sources of disturbance include dispersed camping, residential development and roads and trails. Other winter activities in this area include non-commercial or private use snowmobiling. The Forest Service has plans to pave some of the gravel pit area for overnight parking. The rest of the gravel pit will be re-vegetated. In addition to this restoration the Alpine Watershed Group has worked on re-vegetating stream-banks along the West Carson River downstream of the snowmobile area.

The proposed action would likely have minimal new effects on soil or water quality. Cumulative effects are also anticipated to be minimal.

No Action

Under this alternative the Forest Service would not issue a permit for commercial outfitter-guide snowmobile tours in the Hope Valley area. There would be no impacts to watershed condition from a commercial operation. Non-commercial or public snowmobiling would continue.

Heritage Resources

Affected Environment

Prehistoric use in the project area includes hunting and gathering by the Washoe Tribe. Historic uses in the general region include an extensive history of ranching, mining and grazing. A trace of early migrants is evidenced by sections of the Emigrant Trail near the project area. The Federal Highway Administration (FHWA) identified one historic site and several prehistoric sites within a one mile radius of Blue Lakes Road (FHWA, 2001).

Winter uses in the project area occur on existing roads and snow-covered terrain. As a consequence, there is minimal risk of impact to surface and subsurface artifacts. For this reason, heritage surveys were limited to the one-acre commercial snowmobile base staging area, where temporary facilities have traditionally been placed prior to snowfall. There are no properties identified that are currently included or eligible for inclusion in the National Register of Historic Places. No known American Indian traditional properties or sacred sites have been identified in the project area.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

Given the absence of properties eligible for the National Register of Historic Places, and the absence of American Indian traditional properties or sacred sites, a decision to not authorize continued commercial snowmobile operations would have no effects upon heritage resources. In the absence of direct or indirect effects, taking no permit action would not result in any cumulative effects.

No Action

Given the absence of properties eligible for the National Register of Historic Places, and the absence of American Indian traditional properties or sacred sites, a decision to not authorize continued commercial snowmobile operations would have no effects upon heritage resources. In the absence of direct or indirect effects, taking no permit action would not result in any cumulative effects.

Wildlife, Plants, Aquatics

Affected Environment

Due to its mountainous setting, the Hope Valley area contains complex soil associations with multiple soil types. The general landscape is moderately sloped with deep to moderately deep, gravely or stony, coarse sandy loam soils (USDA 2010b). Steeper slopes are characterized with rock outcroppings occurring in shallow, coarse, sandy loam soils (Ibid). The West Fork of the Carson River controls the groundwater and forms a chain of terraces and oxbow lakes and ponds that meander throughout the valley. The project area is represented overall by high elevation forest from 7000 to 8000 feet, upland brush communities, and a mix of riparian associated communities including aspen, willow, and wet meadow habitat types. High elevation lakes occur near the upper elevations of the project area including Tamarack and Sunset Lakes, as well as Wet Meadows and several un-named ponds that lie east of Tamarack Lake. Tamarack and Sunset Lakes are surrounded by large rocky outcrops interspersed with wet meadow conditions. Wet Meadows is dominated by dense stands of willow immersed in standing water for portions of the meadow.

Lower elevations of the project area contain a series of wet and dry meadows that line each side of the river and contain montane willow scrub, sagebrush, and some open stands of conifer. Common plants associated with these communities vary with the location of the local ground water table. Mesic meadows surrounding oxbows are primarily herbaceous sedge marshes along with tufted hairgrass, and willow scrub. Drier portions of the meadow include mountain strawberry and thick spike wheatgrass. Soils in the area were formed from granitic and volcanic origin (USDA, 2007). The project area that is above the meadow riparian and upland sagebrush occurs between 7,500 feet and 8,400 feet in elevation with slopes ranging between 10-60%. Habitat consists of relatively open lodgepole, red fir and juniper plant communities. Conifer distribution is clumped and patchy in the more xeric sections of the analysis area (approximately 20-40% canopy cover) becoming more dense within the narrow stringers of conifer along drainages and seeps (approximately 40-60% canopy cover). Understory plants include pinemat manzanita, huckleberry

oak, bitter cherry, Sierra gooseberry, Brewer's daisy, mountain pennyroyal, Sierra wallflower, squirreltail, and Western needlegrass. Aspen and willow scrub communities occur in small patches intermittently throughout the analysis area and are associated with more hydrophilic plant species such as corn lily, mountain sweet cicely and sedge (USDA, 2007).

The Hope Valley area is heavily used by both summer and winter recreationists for dispersed camping, fishing, hiking, snowmobiling and cross country skiing. Camping occurs throughout the Hope Valley area in both developed and undeveloped campsites. Upper and Lower Blue Lakes campground are popular designated camping areas that occur outside of, but directly adjacent to, the project area. Summertime dispersed camping occurs off Forest Service Roads within Hope Valley Meadow and off user created roads immediately west of the gravel pit area in the northern portion of the project area. Dispersed camping also occurs in the Wet Meadows area approximately a half mile east of the most southern portion of the project area.

Federally Listed Threatened and Candidate Species

One threatened species, Lahontan cutthroat trout, and three candidate species including Sierra Nevada yellow-legged frog, Yosemite toad, and fisher have potential to occur within the project area (U.S. Fish and Wildlife Service, Reference No. 2009-SI-0812). Potential effects to each are analyzed in detail in the project record (Biological Assessment/Biological Evaluation, 2011). That analysis concluded that the historical distribution of the fisher did not include the project area, and that available habitat for the fisher was lacking in the project area. As a consequence, the fisher will not be assessed in this EA. A summary of information analyzed for each of the other three species is described below.

Lahontan cutthroat trout

Cutthroat trout are found throughout western North America (Moyle 1976). Historically, the Lahontan cutthroat trout was endemic to the Lahontan basin of northern Nevada, eastern California, and southern Oregon (USDI 1995). In California, the subspecies historically occurred in the streams and lakes of the Lahontan system, on the east side of the Sierra Nevada (Moyle 1976). The historic distribution of LCT in the Carson River basin included the drainage downstream from Carson Falls, California, on the East Fork, and Faith Valley, California, on the West Fork (USDI 1995). Across its range, the current distribution of LCT is a fraction of the historic distribution. On the Carson Ranger District, small isolated populations occur within the Carson River and Truckee River Basins. However, LCT are not known to occur within the West Fork of the Carson River (USDI 1995).

Lahontan cutthroat trout are obligatory stream spawners and spawn from April to July, with eggs being deposited in one fourth to one half inch gravels within riffles, pocket water, or pool crests (USDI 1995). In the Sierras, native Lahontan cutthroat trout habitat primarily consists of eastern Sierra high mountain meadow streams (over 6,000 feet elevation). Optimal habitat for Lahontan cutthroat trout is characterized by: Clear cold water and relatively stable summer water temperatures, with an average maximum summer temperature of less than 43° to 72°F and variations of no more than 37°F; one-to-one pool-to-riffle ratios and a relatively silt free, rocky substrate in the riffle-run area; well vegetated, stable stream banks; approximately 25 percent of the stream area providing cover; and relatively stable water flow regimes, with daily fluctuations

less than 50 percent of the average annual daily flow (Hickman and Raleigh 1982). Cover is an important habitat component (Ibid). Lahontan cutthroat trout occupy areas with overhanging banks, vegetation, or woody debris, and within stream cover (e.g., brush, aquatic vegetation, and rocks) is very important for juvenile survival.

As part of the restoration effort for LCT, various streams have been identified within the Carson River Basin as having existing populations of LCT or as potential reintroduction sites (USDI 1995). Recovery objectives associated with these sites include maintaining and improving the hydrology, water quality, and fish passageways of the Carson River Basin and its tributaries. The West Fork of the Carson River currently does not contain LCT nor is it identified as a potential reintroduction site in the 1995 Plan. Recent stream habitat surveys conducted by the Forest Service however, identified over 18 miles of potential habitat for LCT (USDA 2008). Threats to LCT include habitat loss, livestock grazing, urban development, mining, water diversion, poor water quality, and hybridization and competition with non-native salmonids (USDI, 1995).

The West Fork of the Carson River currently does not contain LCT nor is it identified as a potential reintroduction site in the 1995 LCT Recovery Plan. Recent stream habitat surveys conducted by the Forest Service however, identified over 18 miles of potential habitat for LCT along the main stem of the West Fork of the Carson River (USDA 2008).

Environmental Consequences

Direct and Indirect Effects

According to the LCT Recovery Plan, the major threats to LCT and their potential habitat include habitat loss, livestock grazing, urban development, mining, water diversion, poor water quality, and hybridization and competition with non-native salmonids.

No effects to LCT or their potential habitat are expected under the proposed action. Snowmobiles emit exhaust and other pollutants which can settle into snow and eventually be transferred into nearby watersheds through snow melt. According to a study conducted by the United States Geologic Survey (USGS) however, pollutants found in snow from snowmobile use have negligible impacts on water quality (Ingersoll 1999). Because snowmobile use in the Blue Lakes area is considerably less than the USGS study area (Yellowstone National Park), it is expected that snowmobile emissions would have even less of an impact on water quality.

Snowmobile tours currently cross a small tributary to the Carson River, utilizing a temporary bridge system. Under the proposed action, a permanent bridge will be constructed to improve crossing safety and minimize potential impacts to streambanks and water quality. Snowmobile tours do not occur immediately adjacent to the Carson River and therefore no impacts to streamside vegetation will occur.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect Lahontan cutthroat trout or their habitat, nor contribute to a downward trend in their population.

Sierra Nevada yellow-legged frog

Yosemite toad

Forest Sensitive Species

In accordance with Forest Service Manual 2670.32, a Biological Evaluation (BE) was prepared to analyze the potential impacts of the proposed project on Forest Sensitive wildlife and plant species which are known to occur or have potential habitat in the project area. Species with some level of potential to occur in the project area include wolverine, northern goshawk, peregrine falcon, bald eagle, mountain quail, flammulated owl, white-headed woodpecker, great gray owl, Sierra Nevada yellow-legged frog, Yosemite toad, slender moonwort, dainty moonwort, upswept moonwort, and three-ranked humpmoss.

According to the BE, of the above listed Forest Sensitive species, only the northern goshawk may be impacted from the proposed project activities. Although the project area lacks suitable nesting habitat, goshawks appear to be nesting in adjacent stands where suitable habitat is present. Goshawks that may be foraging within the project area may be directly impacted from being flushed from the area during foraging activities. Snowmobile activity occurring adjacent to nesting territories could directly impact goshawks by causing displacement and potential nest abandonment if noise disturbance is excessive. However, snowmobile use levels typically drop by over 75% in April, which is the egg-laying period for goshawks and when goshawks can be most impacted from disturbance. Furthermore, known nesting habitat is only located outside of the project area and therefore direct impacts from loud noise disturbance and/or human presence would be less likely to occur.

Sierra Nevada yellow-legged frogs (SNYLF) also are known to occur near the Tamarack Lake area. Sierra Nevada yellow-legged frogs typically hibernate until the end of May and early June and are therefore not expected to be present during the snowmobile operating season. Furthermore, as extra precaution, a 300 foot closure will be enforced around Tamarack Lake and surrounding ponds during the snowmobile operating season. (See Biological Evaluation for more detailed information).

Management Indicator Species

Thirteen management indicator species (MIS) are identified in the Toiyabe National Forest Land and Resource Management Plan (1986) as representing a group of species having similar habitat requirements. A review was conducted to determine: 1) if the project is within the range of any MIS, 2) if habitat is present within the proposed project area, and 3) if there are potential direct, indirect or cumulative effects on habitat components. MIS associated with habitats that may be affected by the project will be analyzed below.

The following MIS were selected for analysis for this project:

Mule deer	<i>Odocoileus hemionus</i>
American marten	<i>Martes americana</i>
Yellow warbler	<i>Dendroica petechia</i>
Yellow-rumped warbler	<i>Dendroica coronate</i>
Hairy woodpecker	<i>Picoides villosus</i>

Williamson's sapsucker	<i>Sphyrapicus varius</i>
Northern goshawk	<i>Accipiter gentilis</i>
Sage grouse	<i>Centrocercus urophasianus</i>
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>
Macro invertebrates	

Palmer's chipmunk (*Eutamias spp*) and Paiute cutthroat trout (*Oncorhynchus clarki seleniris*) were not selected for further analysis due to absence of habitat or because the project will not directly or indirectly affect the habitat.

Mule Deer

Affected Environment

The Carson River mule deer herd is a bi-state herd whose range encompasses much of Alpine County, California and portions of Douglas County, Nevada. Deer in this area generally move to the higher elevations near the Sierra Crest in May and will remain until the first heavy snowfall begins to force them down below the snowline in the lower elevations of the eastern Sierra front (CDFG 2007-a). The higher elevation sites in the Hope Valley area, including the project area, are characterized by montane forests, aspen and mountain shrub plant communities, which are considered critical habitat components for mule deer during the fawning season. Mule deer typically occupy the Hope Valley between May and November and then migrate to lower elevations as snow depths increase. As of 2007, the Carson River deer herd is considered stable to slightly declining (CDFG 2007-a). Population levels for the herd have fluctuated over the years. For example, population estimates in 1956 were recorded at approximately 11,000 animals and peaked in 1959 at 21,500 (Fowler et al 1981). Populations have declined from approximately 4700 deer in 1978 to 1000 currently and the long term trend for this herd is downward (Cox 2007). Loss of habitat from urban development and type-conversion of critical habitat to cheatgrass are considered to be two of the major factors for the herds decline (Ibid). The project area receives high amounts of snowfall through winter months which cover most of the sagebrush and other brush used by mule deer for winter forage.

Environmental Consequences

Direct and Indirect Effects

Under the proposed action there will be no direct effects to mule deer. Mule deer are typically only found in the project area during spring, summer, and fall months when the area is relatively snow free. During winter months when deep snow covers the vegetation, mule deer move to lower elevations several miles east of the project area and would therefore not be impacted from snowmobile operations.

The proposed project will have no indirect effects to mule deer due. Snowmobile tours within the project area are restricted to paved or dirt roads or approved trails, or to off road areas only when snow depths meet the 24 inch requirement. This requirement is designed to protect vegetation, including plants on which mule deer may forage, from being disturbed or destroyed. Some minor

damage to willows or other shrub species may still occur, however impacts are expected to be negligible and will not affect foraging and/or summer habitat for mule deer.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect mule deer or their habitat, nor contribute to a downward trend in their population.

American Marten

Affected Environment

In California, marten occur in the northern Sierra Nevada at elevations between 3,400 feet and 10,400 feet (USDA 2001). Martens have a large home range of over 8.1 square miles for males, and 2.3 square miles for females; however home range size may vary with location, available habitat, and local climatic conditions (Buskirk et al 1994). Preferred habitat for denning and resting is characterized by dense (60 to 100% canopy), multi storied, multi species late seral coniferous forests with a high number of large (> 24 inch diameter at breast height; henceforth DBH) snags and downed logs (Freel 1991). These areas are generally in close proximity to both dense riparian corridors (used as travelways), and include an interspersion of small openings, usually less than one acre, with good ground cover (Ibid). Marten use rest sites daily and therefore availability of these sites in suitable habitat is critical to their well being (Martin and Barrett 1991). Marten prey items vary seasonally feeding primarily on ground squirrels and chipmunks during spring through fall and squirrels, mice, and snowshoe hares in the winter (Zielinski et al. 1983). Alterations to marten habitat are their greatest threat and may even promote local extinctions (Lacy and Clark 1993, Ruggiero et al., 1994). Martens can generally tolerate human disturbance provided the disturbance is temporary and the martens habitat is not impacted (Koehler et al 1975).

Suitable habitat for marten is found throughout the project area. Between 1999 and 2002 mesocarnivore surveys were conducted each winter in the project area using remote cameras at baited stations. Numerous marten were detected during these surveys. The majority of detections occurred along Forest Service roads that are currently used by the permittee for day time guided tours. No detections were recorded along the immediate Blue Lakes Road corridor where moonlight tours occur during full moon events.

Environmental Consequences

Direct and Indirect Effects

Marten may be directly affected from snowmobile use by being displaced from foraging and or denning areas. Continued disruption to foraging may cause martens to permanently avoid traditional hunting sites or adjust the size and structure of their home range, limiting their ability to sufficiently hunt prey. Martens may also be directly impacted from inadvertent collisions with snowmobiles particularly during night time tours when marten are typically most active. However, moonlight tours occur only on full moon events which equates to approximately only three to five nights a month and usually only one tour a night at the most (seven to eight snowmobiles). Furthermore, moonlight tours are restricted to Blue Lakes Road where marten activity is presumed to be less than adjacent sites due to the openness of the area. Speeds are usually kept below the posted speed limit (near 25 mph) during night tours for safety purposes. Because night time tours are infrequent, restricted to Blue Lakes Road and occur at relatively slow speeds, the potential for

inadvertent collisions with marten is considered minimal. Day time collisions with marten and snowmobiles are considered even more unlikely due to the nocturnal behavior of marten.

Marten typically den in dense (60 to 100% canopy), multi storied, multi species late seral coniferous forests with a high number of large (> 24 inch DBH) snags and downed logs (Freel 1991). They prey primarily on ground squirrels and chipmunks during spring through fall and squirrels, mice, and snowshoe hares in the winter (Zielinski et al. 1983). Snowmobile tours usually occur on paved or dirt roads or other approved trails; however some tours occur off trail in fields or open meadow areas. Operations are not likely to occur within dense tree stands where maneuvering snowmobiles would be difficult and possibly damaging to the equipment, therefore denning sites should not be disturbed. Additionally the 24 inch off trail snow depth requirement will minimize the potential for impacts to habitat for prey species.

Marten have been reported in high numbers at several ski resorts and other winter recreation sites in the Sierra Nevada eating human food (e.g., dumpsters) and using resort structures as rest sites (Slausen et al 2006). Human attractants, such as garbage, can disrupt foraging patterns and nutritional uptake for marten leading to an overall reduction in fitness (Kucera, 2004). Under the proposed action, the outfitter will be required to pack out all garbage daily and take down all temporary buildings at the end of the season; therefore, no impacts to foraging behavior will occur.

Cumulative Effects

Cumulatively, martens may be impacted by an increase in winter and summer recreation use in the Alpine County area. The Alpine County area receives thousands of visitors and each year the number continues to grow. In particular, the Blue Lakes area receives heavy use from recreationists during the summer and the winter for fishing, camping, and snowmobiling. Recently, the Blue Lakes Road was paved for its entire length, creating easier access for all types of vehicles to the area. Vehicle traffic noise and other human recreation may cause increased disturbance to martens. However, martens can generally tolerate human disturbance provided the disturbance is temporary and the martens habitat is not impacted (Koehler et al 1975). Historic and recent logging in the Horsethief and Woodfords Canyon area may have reduced some habitat for marten. Alteration of habitat is considered the greatest threat to marten and may promote local extirpation (Lacy and Clark 1993). Under the proposed action, no alterations to habitat will occur.

Based on the above assessment, it is expected that the proposed action may affect individual martens, but will not affect habitat and will not lead to a downward trend in the population.

No Action

Under the no action alternative there would be no commercial snowmobile tours in the Blue Lakes area. The timing of snowmobile activity combined with protective design features in the proposed action negates potential direct and indirect impacts for most species. Therefore no difference in effects between the no action and the proposed action are expected with the exception of the marten. Marten are known to occur throughout the project area and are active during the winter months when snowmobile activities are in progress. High detection rates of marten have been noted along permitted routes, particularly in the Faith Valley area. Under the no action alternative, snowmobile activity would be reduced and potential direct impacts, such as collision with martens,

would also likely be reduced. Less trash and other human disturbance would be present in the project area minimizing the potential impacts to marten behavior. However, design features in the proposed action such as limiting night rides when marten are most active and packing out garbage, minimize the potential effects to marten from permitted operations and are not expected to have long term effects on marten population trends or their habitat.

Yellow Warbler

Affected Environment

Yellow warblers are a neotropical migrant, spending winters in central and south America and migrating as far north as Alaska and Canada for breeding (Lowther 1999). Spring migration generally begins in April, but has been known to occur as early as mid-March and as late as early May (Ibid). Fall migration in the western United States may begin as early as July, but is widespread in August and peaks in late August or early September (Ibid). Yellow warblers breed in the Sierra Nevada from late-May through mid-July, and are uncommon to common summer residents on the Toiyabe National Forest (Finch 1991). Yellow warblers are closely tied to riparian habitat that contains willow, alder, and elderberry components. Characteristics of yellow warbler habitat include adequate cover for nesting, tall singing posts, and feeding areas in trees. Diet of the yellow warbler consists primarily of insects and arthropods (spiders) (Ryser 1985). The USGS Breeding Bird Survey reports that yellow warbler population trends in the Sierra Nevada have declined between 1966 and 2006 (Sauer et al. 2007). Habitat destruction and brown-headed cowbird parasitism are the biggest threats to yellow warblers (Erlich et al. 1988). Suitable habitat for yellow warblers is present along the perennial creeks found throughout the project area.

Direct and Indirect Effects

Because Hope Valley occurs at relatively high elevations in the Sierra Nevada, yellow warblers would likely not be present in the area until mid- to late May after snow mobile operations have ceased. Likewise, fall migration begins in late August and September long before snowmobile activity begins. Yellow warbler habitat is also not expected to be affected because off trail snowmobile tours generally stay in open areas and do not occur over stream banks or through riparian areas. Furthermore, off trail tours are not permitted to occur in areas that do not meet the 24 inch snow depth requirement, further reducing potential impact to vegetation.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect yellow warblers or their habitat, nor contribute to a downward trend in their population.

Yellow-rumped Warbler

Affected Environment

The yellow-rumped warbler is considered to be highly adaptable and can be found in a variety of habitats including coniferous forest, mixed woodlands, deciduous forest, pine plantations, bogs, forest edges, and openings (Sibley 2000). The Audubon subspecies (*Dendroica coronate auduboni*), to which the local yellow warbler populations belong, have a summer range from western Canada south into the Rocky Mountains, as well as into the Cascades and Sierra Nevada mountains. The winter range for this subspecies includes lower elevations from Southern

California, Nevada, and Arizona through Central America to approximately the Yucatan Peninsula (Hunt 1998). Spring migration generally begins in April, and individuals generally begin arriving in their northern locations by late-April and late May in the higher elevations (Ibid). Fall migration in the western United States may begin as early as mid-September, but is widespread in late-September and October (Ibid). Yellow-rumped warblers are primarily insectivores but also depend on berries to supplement their diet in the winter.

Direct and Indirect Effects

No effects to yellow-rumped warblers will occur under the proposed action. Yellow-rumped warblers migration into the project area can be expected to occur in mid-to-late May after a majority of the snowmobile tours have finished. Fall migration of yellow-rumped warblers out of the area can be expected to occur around mid-September to mid-October, before the snowpack is great enough to sustain snowmobile use. Snow depth requirements and other design features will minimize potential impacts to habitat features.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect yellow-rumped warblers or their habitat, nor contribute to a downward trend in their population.

Hairy Woodpecker

Affected Environment

Hairy woodpeckers are associated with deciduous and coniferous woodlands found throughout North America (Ryser 1985, Erlich et. al 1988). In the Sierra Nevada, hairy woodpeckers nest in low to moderate canopy closure (< 70%) with an intermediate density of snags. Nesting habitat could be further described as containing trees with a minimum DBH of 25 cm and minimum height of 4.6 meters (Sousa 1987). Breeding occurs from mid-March to late August with peak activity occurring in late May through June. Nesting occurs in cavities from three to 100 feet above the ground in snags or dead branches. The hairy woodpecker requires cavities for nesting and foraging and feeds primarily on wood boring insects and insect larvae. They will feed from a variety of substrates including snags and downed logs (Sousa 1987). Generally considered nonmigratory, individuals living in higher altitudes may disperse to lower elevations during winter months, presumably due to lack of food (Jackson et al. 2002). The USGS Breeding Bird survey reports population trends of hairy woodpeckers in the Sierra Nevada appear to be stable (Sauer et. al 2007). Threats to hairy woodpeckers include loss of habitat from activities such as logging that remove large diameter trees and snags (Siegel and DeSante 1999). Several dispersed conifer and aspen stands found throughout the project area provide potential habitat for hairy woodpeckers.

Direct Effects and Indirect Effects

Hairy woodpeckers are not expected to be winter residents in the Hope Valley due to the high elevation, abundant snowfall and presumed lack of insect populations necessary to sustain hairy woodpecker populations. Snowmobile activity is not expected to have any effect on habitat for hairy woodpeckers.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect hairy woodpeckers or their habitat, nor contribute to a downward trend in their population.

Williamson's Sapsucker

Affected Environment

Williamson's sapsuckers breeding range is known to the mountainous regions west of the Rocky Mountains. They typically winter south of this range from New Mexico and Arizona into central Mexico; however those of the Sierra Nevada, such as those found on the Humboldt-Toiyabe National Forest, are considered year-round residents but migrate downslope to lower elevations during the winter (USGS 2006). This sapsucker breeds at middle to high elevations, generally from 4,900–10,500 feet in montane mixed deciduous-coniferous forest. Many studies have shown a preference to quaking aspen, when available, as an important nesting substrate (Crockett and Hadow 1975, Smith 1982, Sousa 1983, Li and Martin 1991, Conway and Martin 1993, Finch 1991). Availability of dead trees or live trees with heartwood rot is a critical component of breeding habitat (Finch 1991). Williamson's Sapsucker nests are located in fairly large snags between 1 foot and 2.5 feet in diameter (GBBO 2005). If large snags are preserved, the species appears to be fairly tolerant of habitat disturbances and may even respond to forest fires with population increases, (Ibid). In the Sierra Nevada, population trends were reported as slightly decreasing between 1966 and 2006 (Sauer et al 2007). Several dispersed conifer stands found throughout the project area provide suitable foraging habitat, and Aspen stands found throughout the project area provide suitable breeding habitat for Williamson's sapsuckers.

Direct Effects and Indirect Effects

No direct or indirect effects are expected under the proposed action. Williamson's sapsuckers are not expected to occur in the project area during the winter months when snowmobile use is in progress. Furthermore, the project will not impact important habitat features for Williamson's sapsuckers, such as large snags and trees.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect Williamson's sapsucker or their habitat, nor contribute to a downward trend in their population.

Northern Goshawk

Affected Environment

Northern goshawks are typically associated with late seral or old growth forests, characterized by contiguous stands of large trees and large snags with closed canopies, generally greater than 40 percent, and an understory which contains varying vertical structure but is not over crowded with "dog-hair" thickets of trees or other vegetation types (Clough, 2000). Stick nests are often built in trees on north or northwest facing slopes of less than 30 percent and near water. Large aspens or conifers within a stream corridor are often selected as nest trees (Ibid). Within the Sierra Nevada, northern goshawks breed from approximately 2,500 feet in ponderosa pine vegetation type through approximately 9,000 feet in the red fir and lodgepole pine vegetation types, and throughout eastside pine forests on the east slope (Keane 1999). On the Carson Ranger District, known

goshawk nest sites are in large aspens and conifers within stream corridors with an average canopy cover of 55%.

Goshawks begin courtship and nest building during February and March with egg laying usually occurring the beginning of April. Goshawks tend to have a lower disturbance threshold during the egg laying period and may readily abandon nests if disturbed by humans (Woodbridge, 1992). The nesting cycle is usually complete by mid-August when juveniles are flying and foraging independently. Winter habitat use is currently poorly understood, however limited research from Europe suggests that goshawks prefer large patches of mature forest, similar to breeding habitat preference (Squires and Reynolds 1997). The major threats to goshawks include loss of critical nesting and foraging habitat from land management practices such as logging, and livestock grazing, or natural events such as fires or wind storms (Reynolds et al, 1982). Human disturbance may also affect viability if the disturbance occurs during the critical egg-laying period. Goshawks are known to occur in several locations near the project area including a recently discovered fledgling found adjacent to the project area near the Blue Lakes Campground in 2009. The nest was not located but is believed to be in the immediate vicinity due to the young age of the fledgling. Recent goshawk activity has also been detected at Horsethief Canyon approximately three miles east of the project area and Grover's Hot Springs State Park, approximately three miles southeast of the project area. Reported sightings of goshawks have occurred in the Poor Boy area south of Markleeville, and near Scotts Lake in Hope Valley.

Forested stands within most of the project area are not considered dense enough to support nesting northern goshawks. However, given the recent detection of a juvenile goshawk near the Blue Lakes Campground, it is possible that goshawks may forage within some of the more open stands found adjacent to the project area.

Direct Effects and Indirect Effects

The project area does not contain suitable nesting habitat for goshawks. However, given that goshawks are known to nest adjacent to the project area, it is likely foraging occasionally occurs within the project area.

Direct effects: Goshawks foraging within the project area may be flushed from perch sites and or foraging areas from snowmobile activity. Although little is known about how snowmobile activity impacts goshawks, Grubb et al. (1998) reported that vehicle traffic from roads did not elicit any discernable behavioral response from goshawks as long as distances exceeded 400 meters (0.25 miles) from nests. However, other studies have shown goshawks flushing in response to snowmobile activity, especially when snowmobiles stopped near a perched bird (Lee 1981). Consistent disturbance would likely deter goshawks from foraging in the area and over time potentially impact foraging success. However, the majority of snowmobile tours occur on roads/trails and more open areas where goshawks would not likely be foraging. Off-trail snowmobile tours occur most often in open areas where few trees and little foraging habitat exist. Therefore, disturbance to foraging will be intermittent and is not expected to have measureable impacts on goshawk foraging behavior.

Snowmobile activity occurring adjacent to nesting territories could directly impact goshawks by causing displacement and potential nest abandonment if noise disturbance is excessive. However,

snowmobile use levels typically drop by over 75 percent in April (Morris, personal communication 2011), which is the egg-laying period for goshawks and when goshawks can be most impacted from disturbance. Furthermore, known nesting habitat is located outside of the project area and therefore direct impacts from loud noise disturbance and/or human presence will be minimal.

Indirect effects: Impacts to soil structure and/or vegetation could indirectly impact goshawks by reducing prey populations. However, under the proposed action, snowmobiles will only be allowed to operate when snow depths are at least 24 inches off trail and at least 12 inches on trail. Therefore, no damage to vegetation or soils will occur and prey populations will not be impacted.

Cumulative effects: The Blue Lakes area is a popular winter recreation site for snowshoers, cross-country skiers, and snowmobilers. These activities could potentially increase the disturbance level to foraging and/or nesting goshawks. Similarly, summer recreation in the area including camping, hiking, biking and horseback riding may also cause some intermittent disturbance to goshawks. However, the proposed project will have only minor and temporary disturbance-related impacts and therefore will not cumulatively impact goshawks or their habitat.

Based on the above assessment, it is expected that the proposed action may affect individual northern goshawks, but the effects are expected to be minor and will not lead to a downward trend in the population.

Sage Grouse

Affected Environment

Core populations of sage grouse occur in Colorado, Idaho, Montana, Nevada, Oregon, and Wyoming with remnant populations occurring in other states including California (Neel 2001). In California, sage grouse occur from the Oregon border, south along the east side of the Cascade Range and the Sierra Nevada Range to Inyo County (USDA 2001). In March 2010, the United States Fish and Wildlife Service added the sage grouse to a list of species that are candidates for protection under the Endangered Species Act.

Breeding sites, or “leks”, are usually situated on ridge tops or grassy areas surrounded by a substantial brush and herbaceous component (Schroeder et al 1999). Nesting habitat for sage grouse is characterized primarily by Wyoming big sagebrush communities that have 15 to 38 percent canopy cover and a grass and forb understory (Terres 1980). Dense sagebrush cover is important to nesting success of sage grouse (Connelly et al 2000). Sage grouse breed between mid-February and late August with nesting and brood-rearing occurring during May through July (Neel 2001). Summer and dispersal habitat consists of sagebrush mixed with areas of wet meadows, riparian, or irrigated fields.

The project area contains sparse patches of sagebrush that are not considered dense enough to support sage grouse.

Direct and Indirect Effects

Due to the lack of available habitat, sage grouse are not expected to be in the project area and therefore project activities will not directly, indirectly, or cumulatively affect sage grouse or their habitat, nor contribute to a downward trend in their population.

Lahontan cutthroat trout

The Lahontan cutthroat trout (LCT) was listed as an endangered species in 1970. In 1975, under the Endangered Species Act of 1973, the LCT was reclassified as threatened to facilitate management and to allow for regulated angling. In 1995, the USFWS released its recovery plan for LCT, encompassing six river basins within LCT historic range, including the Carson River basin.

Cutthroat trout are found throughout western North America (Moyle 1976). Historically, the Lahontan cutthroat trout was endemic to the Lahontan basin of northern Nevada, eastern California, and southern Oregon (USDI 1995). In California, the subspecies historically occurred in the streams and lakes of the Lahontan system, on the east side of the Sierra Nevada (Moyle 1976). The historic distribution of LCT in the Carson River basin included the drainage downstream from Carson Falls, California, on the East Fork, and Faith Valley, California, on the West Fork (USDI 1995). Across its range, the current distribution of LCT is a fraction of the historic distribution. On the Carson Ranger District, small isolated populations occur within the Carson River and Truckee River Basins. However, LCT are not known to occur within the West Fork of the Carson River (USDI 1995).

Lahontan cutthroat trout are obligatory stream spawners and spawn from April to July, with eggs being deposited in one-fourth to one-half inch gravels within riffles, pocket water, or pool crests (USDI 1995). In the Sierras, native Lahontan cutthroat trout habitat primarily consists of eastern Sierra high mountain meadow streams (over 6,000 feet elevation). Optimal habitat for Lahontan cutthroat trout is characterized by: Clear cold water and relatively stable summer water temperatures, with an average maximum summer temperature of less than 43° to 72°F and variations of no more than 37°F; one-to-one pool-to-riffle ratios and a relatively silt-free, rocky substrate in the riffle-run area; well vegetated, stable stream banks; approximately 25 percent of the stream area providing cover; and relatively stable water flow regimes, with daily fluctuations less than 50 percent of the average annual daily flow (Hickman and Raleigh 1982). Cover is an important habitat component (Ibid). Lahontan cutthroat trout occupy areas with overhanging banks, vegetation, or woody debris, and within stream cover (e.g., brush, aquatic vegetation, and rocks) is very important for juvenile survival.

As part of the restoration effort for LCT, various streams have been identified within the Carson River Basin as having existing populations of LCT or as potential reintroduction sites (USDI 1995). Recovery objectives associated with these sites include maintaining and improving the hydrology, water quality, and fish passageways of the Carson River Basin and its tributaries. The West Fork of the Carson River currently does not contain LCT nor is it identified as a potential reintroduction site in the 1995 Plan. Recent stream habitat surveys conducted by the Forest Service however, identified over 18 miles of potential habitat for LCT (USDA 2008). Threats to LCT include habitat loss, livestock grazing, urban development, mining, water

diversion, poor water quality, and hybridization and competition with non-native salmonids (USDI, 1995).

Environmental Consequences

Direct and Indirect Effects

The West Fork of the Carson River currently does not contain LCT nor is it identified as a potential reintroduction site in the 1995 LCT Recovery Plan. Recent stream habitat surveys conducted by the Forest Service however, identified over 18 miles of potential habitat for LCT along the main stem of the West Fork of the Carson River (USDA 2008).

According to the LCT Recovery Plan, the major threats to LCT and their potential habitat include habitat loss, livestock grazing, urban development, mining, water diversion, poor water quality, and hybridization and competition with non-native salmonids.

No effects to LCT or their potential habitat are expected under the proposed action. Snowmobiles emit exhaust and other pollutants which can settle into snow and eventually be transferred into nearby watersheds through snow melt. According to a study conducted by the United States Geologic Survey (USGS) however, pollutants found in snow from snowmobile use have negligible impacts on water quality (Ingersoll 1999). Because snowmobile use in the Blue Lakes area is considerably less than the USGS study area (Yellowstone National Park), it is expected that snowmobile emissions would have even less of an impact on water quality.

Snowmobile tours currently cross a small tributary to the Carson River, utilizing a temporary bridge system. Under the proposed action, a permanent bridge will be constructed to improve crossing safety and minimize potential impacts to streambanks and water quality. Snowmobile tours do not occur immediately adjacent to the Carson River and therefore no impacts to streamside vegetation will occur.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect Lahontan cutthroat trout or their habitat, nor contribute to a downward trend in their population.

Macro invertebrates

Affected Environment

Freshwater benthic macroinvertebrates, more simply known as benthos, are animals without backbones that are larger than ½ millimeter in size. These animals live on rocks, logs, sediment, debris, and aquatic plants during at least a portion of their life cycle. The benthos include crustaceans such as crayfish, clams and snails, aquatic worms and the immature forms of aquatic insects such as stonefly and mayfly nymphs. Macroinvertebrates are an important part of the food chain, and can be used as an indicator of stream health. Microinvertebrates play an important ecological role in aquatic ecosystems as benthic detritivores. They feed on algae, bacteria, benthic detritus material, and other primary producers which are generally considered lower on the food chain. As macro invertebrates die, they decay, leaving behind nutrients that are reused by aquatic plants and other primary producers in the food chain. Due to their unique position on the food

chain, macro invertebrates play a critical role in the natural flow of energy and nutrients through the aquatic system. Macro invertebrates are likely present in the perennial streams located within the project area.

Direct Effects and Indirect Effects

Although little is known on how snowmobiling activities may impact macro invertebrate communities, it is possible that pollutants derived from fuel spills and snowmobile exhaust could arrive in water systems through snowmelt (Ingersoll 1998). However, guided snowmobile tours do not go near perennial water sources where macro invertebrates are most likely to occur. Best management practices and design features in the proposed action will limit and/or improve water quality conditions for LCT. For example, under the proposed action, a permanent bridge will be constructed over a small drainage to provide for more stable crossings of snow machines. The permanent bridge will replace an existing temporary bridge which is not considered adequate protection from stream bank erosion and other potential water quality hazards. In addition, LTA recently purchased a new fuel tank and provided the Forest Service an amended spill response plan. The Forest Service had reviewed and approved the new fuel tanks and spill prevention plan, which should minimize the possibility of a discharge into the aquatic environment.

Cumulative Effects

This area is a popular summer and winter recreational area. Many of the public activities include the use of Off-Highway Vehicles (OHV) or Over-Snow Vehicles (OSV). Motorized vehicle use from summer and winter recreationalists coupled with commercial snowmobile tours could increase nonpoint-source pollutants in the watershed and affect macro invertebrates.

According to the Carson Ranger District Motorized Use Vehicle Map, all motorized vehicles are required to stay on existing system routes (with the exception of snowmobiles). Any activity such as direct stream crossings that may cause resource damage is prohibited. These restrictions help minimize non-source pollutants into the watershed that might potentially impact habitat quality for macro invertebrates.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect macro invertebrates or their habitat, nor contribute to a downward trend in their population.

Other Species Considered

Willow Flycatcher

Affected Environment

Two subspecies of the willow flycatcher are found in the Sierra Nevada, the little willow flycatcher (*E.t. brewsterii*) and the Great Basin flycatcher (*E.t. adastus*) with combined numbers of approximately 300 to 400 birds (CDFG 2007-b). The willow flycatcher is a migratory bird wintering in tropical areas from south Mexico to South America (Ibid). Willow flycatchers typically breed between elevations of 4,000 feet and 8,000 feet, although nesting has been known to occur as high as 9,500 feet (Stefani 2001). Habitat for this sub-species of willow flycatchers typically includes moist meadows larger than 10 acres with perennial streams and smaller spring

fed or boggy areas with willow or alders (Fowler et al 1991, Green et al. 2003). In the Sierra Nevada, the presence of standing water and abundant willows during the breeding season appears to be an important habitat component (Fowler et al 1991). Willow flycatchers have also been found in riparian habitats of various types and sizes ranging from small lakes or ponds surrounded by willows with a fringe of meadow or grassland, to willow lined streams, grasslands, or boggy areas (Bombay et al. 2003). Compared to other passerines nesting in Sierran meadows, willow flycatchers arrive late in the breeding season. In the northern Sierra Nevada, nesting usually begins in late June and ends in early September when most territories are vacated (Green et al 2003). The largest threats to willow flycatcher are nest parasitism from brown-headed cowbirds and habitat loss and degradation from cattle grazing (Green et al. 2003, Fowler et al.1991, USDA 2001). The willow flycatcher is continuing to decline in the Sierras and is listed as a State endangered species and a Sierra Nevada Species at Risk (USDA 2004).

Willow flycatchers are known to nest within the Blue Lakes area in Faith and Charity Valleys and in the willows at the northwest edge of the Red Lakes area. Additionally, a new nest was discovered near Wet Meadows in 2009 and was found to be active in 2010 as well.

Direct and Indirect Effects

No direct or indirect effects to willow flycatchers are expected under the proposed action. Local populations of willow flycatcher are not known to arrive in the project area until June 5th through 10th, well after the snowmobile season has concluded (Loffland 2011). Furthermore, snowmobile tours generally stay on designated routes minimizing potential impacts to important habitat features such as willows. Tours which are conducted off trail generally stay in open areas and do not occur over stream banks or near riparian areas where willows grow. Furthermore, no off trail tours occur in areas that do not meet the 24 inch snow depth requirement, further reducing the potential impact to vegetation.

Based on the above assessment, project activities will not directly, indirectly, or cumulatively affect willow flycatchers or their habitat, nor contribute to a downward trend in their population.

Neotropical Migratory Birds

Affected Environment

The migratory songbirds found in North America include roughly 350 species, of which about 250 are known as “neotropical migrants” (NTMB). Neotropical migratory birds spend their winters in the tropics of southern Mexico, Central and South America, and the West Indies. They can be found in virtually every habitat on the continent, and usually half or more of the breeding birds in any sampled area are migratory (Robinson 1997). Meadow-riparian habitat found throughout the project area is identified as “high priority” habitat for neotropical migratory birds (NTMB) in the 1999 Draft Avian Conservation Plan for the Sierra Nevada Bioregion (Siegel and DeSante. 1999). The 1999 Draft Plan lists species considered critically dependent upon meadow-riparian habitats found in the Sierra Nevada including the Alpine County area.

The two largest threats to NTMB are habitat fragmentation on breeding grounds and deforestation of wintering habitat (Finch 1991). Compared to other birds, migratory species are the most

negatively affected by fragmentation, and are usually absent from small or highly isolated forests (SERC 2003). The distribution and diversity of birds is highly associated with structural diversity in vegetation. Land management activities, such as grazing, can simplify vegetation structure generally causing bird diversity to decrease. Although some birds may respond positively to these changes, generally they are not species whose population viability is of concern. Human disturbance can also have an effect on songbirds. Birds may habituate to predictable disturbances such as driving, or hiking, but disturbance during certain times of the year may have an impact on bird behavior (Marzluff 1997). For example, repeated intrusions during the nesting season may cause birds to minimize or stop singing, decrease defensive behavior at nests, and possibly cause birds to abandon nest sites leading to an overall decline in nesting productivity (Knight and Tempel 1986). Along the Eastern Sierra, the critical breeding season is generally between March 1st and August 30th (Heath and Ballard 1999).

Migratory bird surveys were conducted in Faith Valley along the west fork of the Carson River during the spring of 2008. The species, and number of individuals detected, during the survey are listed below in Table 1.

Table 3-1: Species observed during migratory bird survey, spring 2008.

Species	Number Observed	Species	Number Observed
American Dipper	1	Pine Siskin	1
American Robin	20	Red-Breasted Nuthatch	1
Brown-headed Cowbird	8	Red-winged Blackbird	25
Black-headed Grosbeak	2	Savannah Sparrow	1
Brewer’s Blackbird	9	Song Sparrow	11
Cassin’s Finch	6	Spotted Sandpiper	8
Chipping Sparrow	1	Stellar’s Jay	1
Common Raven	2	Tree Swallow	2
Dark-eyed Junco	3	White-crowned Sparrow	11
Dusky Flycatcher	12	Western Tanager	1
Hairy Woodpecker	1	Wilson’s Snipe	1
Killdeer	1	Wilson’s Warbler	2
McGillivray’s Warbler	1	Swift (Unknown species)	1
Mountain Chickadee	5	Yellow-rumped Warbler	3
Northern Flicker	1	Yellow Warbler	12
Orange Crowned Warbler	2		

Environmental Consequences

The plant communities which occur on project area, including sagebrush/scrub, willow riparian and montane meadows, as well as aspen and mixed conifer stands, and host a large diversity of migratory songbird species. Meadow-riparian habitat is considered “highest priority” habitat for Neotropical migratory birds (NTMB) in the 1999 Draft Avian Conservation Plan for the Sierra Nevada Bioregion (Siegel et al. 1999).

Direct Effects and Indirect Effects

The majority of Neotropical birds are not expected to be in the project area during months of commercial snowmobile operations. Many of these species migrate as far as Mexico and South America and do not arrive in the high elevation sites until mid to late May when snowmobile use is usually over. Others disperse elevationally and reside in the low elevations below snowline in winter. Though a majority of neotropical migratory birds would not be present during winter months, some occasionally arrive early during the spring months and may be displaced from foraging and breeding areas due to snowmobile activity. If disturbance levels are consistently high, migratory birds may permanently avoid these areas. However, snowmobiling activity during late spring is typically very minimal and therefore very few birds are likely to be disturbed.

Neotropical migratory birds could be indirectly affected from habitat damage caused by snowmobile use in the project area. However, snowmobile use associated with LTA's commercial operation is guided on groomed or track-packed trails and would avoid operating in areas, or doing maneuvers, which would cause damage either to the vegetation or the operator's equipment. Furthermore, snow depth requirements and other design features associated with the proposed action will minimize effects to neotropical migratory bird habitat.

Cumulative Effects

Recent wildfires on the Sierra Front have burned thousands of acres and reduced available nesting and foraging habitat for a number of migratory birds. However, habitat conditions are gradually improving in these burned areas from natural regeneration and rehabilitation/replanting efforts. Under the proposed action, no alterations or impacts to habitat for migratory birds will occur. The Blue Lakes Road was recently paved for its entire length allowing easy public access to the area. The newly paved road may result in an increase in summer visitation to the area which could increase disturbance to nesting migratory birds. For example, a popular dispersed camping area in the Faith Valley area is immediately adjacent to a large willow riparian area which many species of migratory birds, including the willow flycatcher, are dependent upon. The Forest Service is currently reviewing management solutions to minimize disturbance in this area.

Based on the above assessment, individual migratory birds may be temporarily displaced or otherwise affected, however the proposed project will not cause a downward trend in the population of any migratory bird species or loss of viability.

CHAPTER 4

Consultation with Others

The opportunity for public participation for this project was initiated through the Schedule of Proposed Action in January 2009. A 30-day public comment period began January 29, 2009 and a scoping notice was sent to 66 individual, organizations or agencies. The document was available at www.fs.fed.us/r4/htnf and at the new forest website location www.fs.usda.gov/htnf. Two public meetings were held in February 2009.

Federal, State, County, Tribal agencies, organizations and individuals involved in the development of the environmental analysis are included below.

Tribal

Washoe Tribe of Nevada and California

Federal

U.S. Fish and Wildlife Service
Natural Resources Conservation Service

County and State

Alpine County Board of Supervisors
Alpine County Sheriff's Department
California State Historic Preservation Office
California Off-Highway Motor Vehicle Division
Lahontan Regional Quality Control Board
Great Basin Air Quality Control Board

Organizations

Snowlands Network
California-Nevada Snowmobile Association
Pacific Crest Trail Association

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Definitions

Air Related Terms

Non-attainment-any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment-any area (other than an area identified in clause (i)) that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable-any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Particulate Matter (PM10) - "Particulate matter," also known as particle pollution or PM, is a complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particle.