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# Over Snow Vehicle Program Draft Environmental Impact Report Program Years 2010 – 2020

State Clearinghouse # 2009042113

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October 2010



State of California  
Department of Parks and Recreation  
Off-Highway Motor Vehicle Recreation (OHMVR) Division

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**Prepared for:**

State of California, Department of Parks and Recreation  
Off-Highway Motor Vehicle Recreation (OHMVR) Division  
1725 23rd Street, Suite 200  
Sacramento, CA 95816  
(916) 324-4442  
[www.ohv.parks.ca.gov](http://www.ohv.parks.ca.gov)

**Prepared by:**

TRA Environmental Sciences, Inc.  
545 Middlefield Road, Suite 200  
Menlo Park, CA 94025  
(650) 327-0429  
[www.traenviro.com](http://www.traenviro.com)

# OSV PROGRAM DEIR, PROGRAM YEARS 2010-2020

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## LIST OF ACRONYMS, ABBREVIATIONS, AND SYMBOLS

Acronym/ Abbreviation/Symbol	Full Phrase or Description
AB32	California Global Warming Solutions Act of 2006
APCD	Air Pollution Control District
AQMD	Air Quality Management District
AQRV	air quality related value
ATV	all terrain vehicle
BAAQMD	Bay Area Air Quality Management District
BCP	budget change proposal
bhp-hr	brake horsepower-hour
BMP	best management practice
BSA	biological study area
CAA	Clean Air Act
CAAQS	California ambient air quality standards
Caltrans	California Department of Transportation
CAR	Critical Aquatic Refuge
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CHP	California Highway Patrol
CNDDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CRPR	California rare plant ranked
CSA	cost share agreement
CSSC	California species of special concern
CVC	California Vehicle Code
CWA	Clean Water Act
CWE	cumulative watershed effect
dB	decibel
dBA	A-weighted decibel
DEIR	draft environmental impact report
DMV	California Department of Motor Vehicles
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EIS	environmental impact statement
EO	executive order
EPA	United States Environmental Protection Agency

<b>Acronym/ Abbreviation/Symbol</b>	<b>Full Phrase or Description</b>
ESA	Endangered Species Act
ESU	ecologically significant unit
FC	federal candidate (for listing under the federal ESA)
FE	federal endangered (under the federal ESA)
FPO	forest protection officer
FSS	Forest Service sensitive
FT	federal threatened (under the federal ESA)
g	gram
gal	gallon
GHG	greenhouse gas
HC	hydrocarbons
HFC	hydrofluorocarbon
hp	horsepower
HRCA	home range core area
IS	initial study
IS/ND	initial study/negative declaration
lb	pound
Ldn	day/night average noise level
Leq	equivalent noise level - the level of a steady noise having the same sound energy as the time-varying noise measured
Leq (h)	equivalent noise level - time-weighted average for a 60-minute (hourly) period
LEO	law enforcement officer
LEPs	law enforcement plans
LOP	limited operating period
LRMP	land resource management plan
MBTA	Migratory Bird Treaty Act
MMT	million metric tons
MMTCO <sub>2e</sub>	million metric tons of carbon dioxide equivalent
MTCO <sub>2e</sub>	metric tons of carbon dioxide equivalent
MVUM	motor vehicle use map
NAAQS	national ambient air quality standards
ND	negative declaration
NEPA	National Environmental Policy Act
NF	national forest
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
N <sub>2</sub> O	nitrous oxide
NOP	Notice of Preparation
NO <sub>x</sub>	nitrogen oxides
NSR	new source review
NVUM	National Visitor Use Monitoring
NWPS	National Wilderness Preservation System
OHMVR Division	Off-Highway Motor Vehicle Recreation Division

<b>Acronym/ Abbreviation/Symbol</b>	<b>Full Phrase or Description</b>
OHV	off-highway vehicle
OSV	over snow vehicle
PAC	protected activity center
PFC	perfluorocarbon
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter
PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
PRC	Public Resources Code
PSD	prevention of significant deterioration
ROD	record of decision
ROG	reactive organic gases
ROS	recreation opportunity spectrum
RWQCB	Regional Water Quality Control Board
SC	state candidate (for listing under CESA)
SCAQMD	South Coast Air Quality Management District
SE	state endangered
SEIS	supplemental environmental impact statement
SF <sub>6</sub>	sulfur hexafluoride
S&Gs	standards and guidelines
SFP	state fully protected
SJVAPCD	San Joaquin Valley Air Pollution Control District
SOPA	Schedule of Proposed Actions
SO <sub>x</sub>	sulfur oxides
SUV	sport utility vehicle
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VMT	vehicle miles traveled
VOC	volatile organic compounds
WDR	waste discharge requirement
WHPP/HMP	wildlife habitat protection program/habitat management plan
WIN	water improvement needs

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## S.0 SUMMARY

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### S.1 PROJECT DESCRIPTION

The OHMVR Division proposes a 10-year funding commitment of the Over Snow Vehicle (OSV) Program for the operation, maintenance, and grooming of winter recreation trails and trailheads in mountainous regions throughout California. The OSV Program comprises 26 trail systems in 11 national forests. The project locations extend from the Oregon border south towards Bakersfield and range in elevations from 4,000 to 9,900 feet. In total, the Project involves plowing 97 miles of access roads, plowing parking areas and/or maintaining restroom service at 34 trailheads, and grooming 1,761 miles of trail. These project activities (snow removal, trail grooming, and facility maintenance) facilitate the primary purpose of winter recreation use of national forest trails for motorized (over snow vehicles) and also support and benefit non-motorized users, such as; cross-country skiing and snowshoeing by providing motorized access for those activities. All of the groomed trail systems in the Project Area were established over a 10-year period from 1982 to 1992 with the exception of one which was added to the OSV Program in 1996. These activities associated with the OSV Program have been occurring annually at each trail site since its inception.

OSV Program trails are used each year by an estimated 159,000 OSVs bringing upwards of 200,000 visitors to the Project Area. Growth in OSV ownership has occurred at an average annual rate of 4% since 1997. Assuming the same growth rate, project trails may have an annual OSV usage of 235,000 and 300,000 visitors by 2020. To accommodate the increased demand for motorized winter trails, the OHMVR Division anticipates expanding the groomed trail system to include new groomed trail locations, expanded trailhead parking areas, and increased frequency of grooming operations on existing trail systems. Presently, OSV Program equipment operations involve 2,076 snow removal (plowing and/or blowing) hours and 4,948 grooming hours throughout the Project Area. Projected growth by 2020 would increase equipment operations by 700 plowing hours and 1,100 grooming hours.

### S.2 IMPACTS AND MITIGATION

The impact analysis presented in this OSV Program Draft Environmental Impact Report (DEIR) considers whether continuance of state funding for trail grooming, plowing, and maintenance service and the subsequent recreational use it facilitates will cause significant effects as defined by the California Environmental Quality Act (CEQA). A summary of project impacts and mitigation measures is provided in Table S-1. A complete discussion of project impacts and mitigation measures is provided in the DEIR sections pertaining to each environmental discipline (see Chapter 3.0 through 8.0).

<b>Table S-1. Summary of Project Impacts and Mitigation Measures</b>	
<b>LAND USE PLANS AND POLICIES</b>	
<p><b>IMPACT:</b> If inventories and subsequent monitoring show that OSV use is damaging CNPS or FSS populations, the OSV Program would conflict with forest-wide LRMP biodiversity S&amp;Gs in several national forests which require maintenance of viable populations of native plant species or sensitive plant species (Appendix D, Table 1).</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure BIO-4:</b> (see Biology below or Section 5.4 of the DEIR for a complete description)</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> OSV trespass into wilderness areas facilitated by project groomed trails could occur under baseline use levels and would likely increase beyond present levels due to growth in OSV recreation over the 10-year program period. Current areas of trespass which may receive a higher incidence of intrusion include: Mount Shasta Wilderness (Klamath National Forest), Lassen Volcanic National Park and Caribou Wilderness (Lassen National Forest), Bucks Lake Wilderness (Plumas National Forest), Mokelumne Wilderness along Squaw Ridge (Eldorado National Forest), Kaiser and John Muir Wilderness (Sierra National Forest), Carson-Iceberg Wilderness (Stanislaus National Forest), Mokelumne Wilderness between Hope Valley and Lake Alpine (Eldorado and Stanislaus National Forests), Golden Trout Wilderness (Sequoia National Forest), and South Sierra Wilderness (Sequoia National Forest).</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure LU-1:</b> All national forests participating in the OSV Program shall monitor wilderness boundaries, private property, and other closed areas near the groomed trail system for OSV incursions. National forests shall submit patrol logs to Division showing hours and days of patrol in known trespass locations, number of observed trespass incidents, and number of citations issued. National forests shall identify to the OHMVR Division what management actions have been taken and what, if any, additional actions are needed to further prevent trespass into wilderness areas, private property, or other closed areas. OHMVR Division shall work with law enforcement personnel from the USFS and County Sheriff Offices to implement focused enforcement actions as needed to address trespass incidents such as increased patrol frequency, aerial patrols, public education, signage, fencing, or trail closure.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<b>AIR QUALITY, ENERGY AND GREENHOUSE GASES (GHG)</b>	
<p><b>IMPACT:</b> Direct project emissions from snow grooming and snow plowing equipment and indirect emissions from vehicle travel to Project Area and OSV use of project trails under baseline (Year 2010) and program growth (Year 2020) conditions would contribute PM<sub>10</sub>, ROG, and NOx (ozone pre-cursors) to local air basins which are in non-attainment for PM<sub>10</sub> and ozone state standards. Emissions would occur during winter months when background levels of PM<sub>10</sub>, ROG, and NOx are low and the emissions are mobile and widely dispersed. Ambient air quality standards would not be violated.</p> <p><b>Less than Significant Impact</b></p>	<p><b>No mitigation required.</b></p>
<p><b>IMPACT:</b> Direct project fuel use is 59,000 gallons per year rising to 74,000 gallons per year by 2020 with projected program growth levels. Indirect fuel consumption from OSV use and vehicle travel to project trail sites combined</p>	<p><b>No mitigation required.</b></p>



**Table S-1. Summary of Project Impacts and Mitigation Measures**

<p>is 2.9 million gallons per year rising to 3.4 million gallons per year by 2020 with projected program growth levels. Given the increased demand for OSV recreation in conjunction with the increased energy efficiency of the motorized equipment, the level of fuel consumption does not cause inefficient, wasteful, or unnecessary use of energy resources.</p> <p><b>Less than Significant Impact</b></p>	
<p><b>IMPACT:</b> Total project direct and indirect GHG baseline (Year 2010) emissions are estimated at 27,118 MTCO<sub>2e</sub>. These are existing emissions that already occur and represent no new emissions to the statewide GHG emission inventory.</p> <p><b>Less than Significant Impact</b></p>	<p><b>No mitigation required.</b></p>
<p><b>IMPACT:</b> Program growth by Year 2020 would increase in GHG emissions to 32,069 MTCO<sub>2e</sub> which is an increase of 4,951 MTCO<sub>2e</sub> above baseline conditions. No standards for GHG emissions apply to statewide mobile emissions, particularly from off-highway recreation vehicles. Therefore the Project does not conflict with applicable plans. The increase in GHG emissions is less than several significance thresholds used by several air quality management districts governing stationary sources and land use developments.</p> <p><b>Less than Significant Impact</b></p>	<p><b>No mitigation required.</b></p>
<p><b>BIOLOGICAL RESOURCES</b></p>	
<p><b>IMPACT:</b> Northern spotted owls and northern goshawks occur within or near the Project Area. USFS actively monitors nesting habits and fledgling success. Management actions are currently in place that reduce the potential effects of OSV recreation on northern goshawks and northern spotted owls to a less than significant level. The USFS employs adaptive management. Thus, based upon the results of the Regional Northern Goshawk Focused Study and the Northern Spotted Owl Focused Study, biologists may revise the USFS Management Actions.</p> <p><b>Less than Significant Impact</b></p>	<p><b>Measure BIO-1:</b> USFS shall incorporate the results of the northern goshawk and northern spotted owl studies into management actions and report these actions to the OHMVR Division for incorporation into the OSV Program as soon as revised USFS management actions are formulated.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> California wolverine is not known to be present near OSV sites. If present, disturbance caused by OSV activities may adversely affect California wolverine natal denning behaviors.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure BIO-2:</b> USFS shall continue to work with the Pacific Southwest Research Station and other partners to monitor for presence of California wolverine. If there are verified wolverine sightings, USFS shall conduct an analysis to determine if OSV use within 5 miles of the detection have a potential to affect wolverine and, if necessary, a LOP from January 1 to June 30 will be</p>

**Table S-1. Summary of Project Impacts and Mitigation Measures**

	<p>implemented to avoid adverse impacts to potential breeding.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> Disturbance caused by OSV activities may adversely affect Sierra Nevada red fox breeding behaviors, home range use, and/or establish trailhead scavenging and begging behaviors.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure BIO-3:</b> Educational materials shall be provided on red fox and the importance of minimizing direct contact with red foxes at each trailhead. USFS shall provide the results of Sierra Nevada red fox inventory and monitoring currently being performed by wildlife biologists from the Forest Service, CDFG, and the University of California, Davis, to the OHMVR Division.</p> <p>USFS shall work with CDFG, the University of California, Davis, OHMVR, and other partners to continue inventory and monitoring in the Sierra Nevada, including the Project Area where the red fox is most likely to occur (e.g., Lassen, Plumas, Tahoe, Eldorado, Stanislaus, Sierra, Inyo, and Sequoia National Forests). For those portions of the Project Area where presence is confirmed, USFS shall conduct an analysis to determine if OSV use within 5 miles of the detection have a potential to affect Sierra Nevada red fox and, if necessary, a LOP from January 1 to June 30 will be implemented to avoid adverse impacts to potential breeding. The USFS will evaluate activities for a 2-year period for detections not associated with a den site. In addition, if monitoring or other scientific information shows disturbance of Sierra Nevada red fox behaviors within the Project Area, the USFS shall implement suitable management actions to reduce any adverse impacts to a less than significant level. These management actions may include signage, barriers, LOPs, limits on night riding, trail closures, or reroutes of selected portions of OSV trails.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> OSV off-trail riding in low snow conditions could adversely impact individuals and/or populations of CRPR-listed 1B and 2 plant species and FSS plant species.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure BIO-4:</b> The USFS will do one of the following:</p> <ol style="list-style-type: none"> <li>(1) Only permit OSV use on the groomed trail system and adjacent concentrated-use riding areas when there is sufficient snow cover (minimum snow depth of 12 inches) to protect soil and vegetation;</li> <li>(2) Inventory the groomed trail system and adjacent concentrated-use riding areas for all CRPR 1B, CRPR 2, and FSS plant species not already monitored by USFS (Table 5-6) for OSV impacts. Surveys shall focus on locations that are chronically exposed to OSV use and where plants listed in Table 5-6 have a potential for occurrence and exposure to OSV impacts. The USFS shall conduct public outreach with educational materials until resource surveys are complete. Educational materials shall include information that discourages OSV travel over bare ground, exposed vegetation,</li> </ol>

**Table S-1. Summary of Project Impacts and Mitigation Measures**

	<p>and snow less than 12 inches deep, including a description of the special-status plant species potentially affected and the adverse effects on those species. The species previously assessed and not included in this Mitigation Measure include Kern Plateau milk-vetch, Hall's daisy, Kern River daisy, and Kern Plateau horkelia, Mono milk-vetch, Mono Lake lupine, slender Orcutt grass, Barron's buckwheat, and Columbia yellow cress. Follow-up monitoring shall be conducted for those species where presence is confirmed to ensure any protective measures needed to address OSV impacts are identified, implemented, and effective. Protective measures that shall be implemented when needed to avoid damage to special-status plants from OSVs include trail reroutes, barriers, seasonal closures, signage, and/or public education; or</p> <p>(3) Annually monitor the groomed trail system and adjacent concentrated-use riding areas where plants listed in Table 5-6 have a potential for occurrence. Monitoring shall focus on locations that are chronically exposed to OSV use and where plants listed in Table 5-6 have a potential for occurrence and exposure to OSV impacts. If this monitoring reveals impacts, USFS shall implement protective measures (e.g., temporary fencing, barriers, seasonal closures, signage, trail re-routes, public education, etc.) to restrict access and prevent further damage to these plants and engage in public education. Follow-up monitoring shall be conducted to ensure that protective measures are implemented and effective.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> Chronic disturbance caused by OSVs riding during low-snow conditions over wetlands, riparian areas, streams, and lake ice can adversely affect aquatic communities.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure BIO-5:</b> USFS shall annually monitor aquatic resources in the Project Area near the groomed trail system for damage by OSV use during low-snow conditions. If these assessments reveal impacts, USFS shall implement protective measures (e.g., fencing, signage, trail reroutes, etc.) to restrict access and prevent further resource damage and engage in public education.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>HYDROLOGY/WATER QUALITY</b></p>	
<p><b>IMPACT:</b> Exhaust emissions on snowpack from grooming equipment and OSV can enter surface water. Level of VOC entering water system determined to be within acceptable range and do not cause exceedance of water quality standards.</p> <p><b>Less than Significant Impact</b></p>	<p><b>No mitigation required.</b></p>
<p><b>IMPACT:</b> OSV use in low snow conditions or on bare soil could cause soil compaction and erosion.</p>	<p><b>No mitigation required.</b></p>

<b>Table S-1. Summary of Project Impacts and Mitigation Measures</b>	
<b>Less than Significant Impact</b>	
<b>NOISE</b>	
<p><b>IMPACT:</b> Equipment noise from snow grooming and plowing and noise from OSV recreation use would occur. Noise from plowing would occur on roads consistent with vehicle noise. Trail grooming noise occurs in late night hours when outdoor recreation is generally not occurring. OSV engine noise is audible to other motorized and non-motorized recreationists using the national forest. Noise levels fall within acceptable range for outdoor recreation.</p> <p><b>Less than Significant Impact</b></p>	<p><b>No mitigation required.</b></p>
<b>RECREATION</b>	
<p><b>IMPACT:</b> Potential growth in OSV use levels projected over the 10-year program period may result in increased conflicts between motorized and non-motorized user groups. Such growth could also lead to a need for additional USFS law enforcement or forest protection officer staffing to ensure adequate public safety services.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure REC-1:</b> USFS shall continue to monitor trailheads and groomed trail areas for potential conflicts between motorized and non-motorized users in the Project Area. USFS shall ensure patrols occur with the necessary frequency needed to maintain adequate police and forest protection services. If monitoring results show conflicts between motorized and non-motorized uses cause chronic public safety risks, or that existing staffing levels are inadequate to maintain necessary public safety services, the USFS and OHMVR Division shall implement necessary site-specific controls to reduce safety risks such as trail use restrictions, speed limits, segregated trail access points for motorized and non-motorized users, public outreach providing maps and other information about alternative sites for non-motorized recreationists within the Project Area, or increased staffing.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>
<p><b>IMPACT:</b> Parking demand at trailheads serving the groomed trail system exceeds parking capacity at several locations. Currently, the excess parking demand is adequately controlled by national forest staff and California Highway Patrol so that illegal or unsafe parking conditions are minimized. Increased trailhead visitor levels over the 10-year program period without corresponding increases in parking capacities could increase the potential for unsafe parking conditions.</p> <p><b>Potentially Significant Impact</b></p>	<p><b>Measure REC-2:</b> Each national forest shall document to the OHMVR Division the opportunity and constraints for addressing unsafe parking conditions at trailheads where unsafe parking conditions are documented or anticipated due to growth. Measures to address such conditions may include signage, education, directing recreationists to under-utilized sites, and increased patrols with citations as appropriate. Where trailhead road widths permit, national forests shall establish designated unloading and loading zones and vehicle turnaround areas. National forests may consider increasing parking capacity through increased road shoulder plowing provided by OSV Program funding or coordination with Caltrans or county road departments where road widths can accommodate the parking.</p> <p><b>Less than Significant Impact After Mitigation.</b></p>

Source: TRA Environmental Sciences, Inc. 2010.

### **S.3 PROJECT ALTERNATIVES**

#### **S.3.1 Alternatives Considered and Rejected**

The range of project alternatives considered in this section is limited due to the site-specific nature of the project facilities and the project objective of continuing maintenance of the existing trail systems in the national forests in support of the OSV Program winter recreation. Several potential project alternatives were considered and rejected due to infeasibility and/or not reducing or avoiding the environmental effects of the project. The rejected alternatives include: Alternative Project Locations, Closure of Trail Systems, Closure of Off-Trail Riding Areas, Prohibition of Two-Stroke Engines, Shortened 10-Year Funding Period, and Funding of OSV Program through Grants Program.

#### **S.3.2 No Project Alternative**

Under the No Project Alternative, the Division would not fund the OSV Program. Funds to the 11 national forests and 3 county transportation/road departments would not be issued. Trail grooming would not occur on 1,761 miles of trail at the 26 trail system locations. Plowing at 27 of the 34 trailheads would be discontinued. The seven OSV Program trailheads which share parking with sno-parks in Eldorado, Stanislaus, and Sierra National Forests would continue under separate funding by the state Sno-Park Program. The trailhead plowing which occurs at Inyo National Forest is not funded by the OSV Program and would also continue to be provided by the City of Mammoth Lakes. Thus, under the No Project Alternative plowed access would no longer be available for 1,342 miles of ungroomed trail but would provide access to 419 miles of ungroomed trail. Restroom facilities at trailheads maintained by OSV Program funds would not be serviced.

Without snow removal, trailheads may be inaccessible for parking due to presence of snow. Parking along the side of the access roads and highways may occur and could present a traffic safety hazard. Public use of the ungroomed trail routes would likely be substantially reduced but not eliminated. Exhaust emissions in the air and on the snow pack and noise levels would be reduced due to elimination of project grooming and plowing equipment and fewer OSV users visiting the Project Area. The potential for significant impacts to biological resources from OSV use would be reduced. Incidents of OSV intrusion into closed areas would likely be reduced but not eliminated. Ungroomed trails could slow an emergency response for search and rescue creating a public safety impact. Restroom service and garbage collection at many of the trailheads would be discontinued. This could result in trash and sanitation issues at the trailheads or along the trail routes.

#### **S.3.3 Funding Restricted Riding Areas Only**

Under the Funding Restricted Riding Areas Only Alternative, the OHMVR Division would only fund trail grooming in areas where OSV use is restricted to designated routes by the land managers; no grooming would occur where off-trail riding is permissible. At least initially, this alternative would eliminate grooming at 24 of the 26 trail systems. Grooming would continue on two trails systems in the Giant Sequoia National Monument (Big Meadow/Quail Flat and Quaking Aspen/Sugarloaf) where off-trail riding is prohibited. Grooming could be expanded to other locations where the land manager has enacted riding restrictions. With only the trails in the Giant Sequoia National Monument groomed, this alternative would reduce the trail mileage

groomed under the OSV Program from 1,761 to 130 miles. The OSV Program would also only fund access road and trailhead plowing and services at those areas with trail grooming. Direct access to trailheads plowed by Caltrans at the seven shared trailhead/sno-parks would continue unaffected.

Similar to the No Project Alternative, visitor use of the trail systems no longer groomed via the OSV Program would likely be substantially reduced. As a result, exhaust emissions in the air and on the snow pack and noise levels would be reduced due to elimination of project grooming and plowing equipment and fewer OSV users visiting the Project Area. The potential for significant impacts to biological resources from OSV use would be reduced. Incidents of OSV intrusion into closed areas from the ungroomed trail locations would likely be reduced but not eliminated from reduced OSV use. Without groomed trails to demarcate authorized routes, inadvertent trespass could increase if national forests decrease law enforcement patrols on ungroomed trails.

Ungroomed trails could slow an emergency response for search and rescue creating a public safety impact. Redirection of OSV riders to the two trail systems in the Giant Sequoia National Monument could dramatically increase OSV use in the monument and create a need for increased law enforcement patrols and public outreach to enforce trail riding restrictions, address use conflicts, and provide adequate officer presence to maintain public safety.

### **S.3.4 Redirection of Grooming Funds**

Under this project alternative, grooming frequency throughout the Project Area would be reduced to free up funding for law enforcement and resource monitoring. Plowing would remain unchanged in order to preserve access to all trailheads. Under the Redirection of Grooming Funds alternative, OSV use throughout the Project Area would still continue but likely be reduced. Based on the Winter Trailhead Survey (Appendix A), half of the respondents indicated that they were less likely to visit the trailhead if the trail system was not groomed. This alternative would not necessarily stop grooming but would substantially reduce the frequency of grooming, leaving trail conditions rough and potentially increasing safety hazards by the uneven snow surface. A reduction in grooming could also result in a proper trail width not being maintained. A narrowed trail width going around curves with two-way vehicle direction could increase the accident risk. Exhaust emissions in the air and on the snow pack as well as noise levels in the Project Area would be reduced due to reduced grooming equipment operation and fewer OSV users visiting the Project Area. The potential for impacts to biological resources from OSV use would be reduced to the degree that OSV use is reduced. Incidents of OSV intrusion into closed areas may be somewhat reduced by fewer numbers of riders on the trails; however, given that trespass occurs in ungroomed locations the number of intrusion incidents would likely remain the same as the Project. Reduced visitor use of the trail systems would reduce parking demand at project trailheads, relieving crowded conditions on peak use days.

### **S.3.5 Environmentally Superior Alternative**

The No Project Alternative is the environmentally superior alternative; however, it does not meet the project objectives. Two project alternatives can partially meet the objectives, which include Funding Restricted Riding Areas Only and Redirection of Grooming Funds. Of these alternatives, the Funding Restricted Riding Areas Only is the environmentally superior alternative.

#### **S.4 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED**

CEQA Guidelines Section 15123(b) requires the EIR Summary to identify areas of controversy known to the Lead Agency including issues raised by agencies and the public and issues to be resolved including choice among alternatives and whether and how to mitigate the significant effects.

Issues of public concern raised by the public were identified through public comment on previous Initial Studies and comment raised during public scoping meetings held on the EIR (see Introduction, Section 1.5). The primary issue of concern raised in public comment is the environmental effects of snowmobile use in general.

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## 1.0 INTRODUCTION

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### 1.1 BACKGROUND

National forests throughout California offer winter recreation trails and parks to the public for snowmobiling, cross-country skiing, snowshoeing, and snow play. Plowing of local access roads and trailhead parking lots, grooming trails for snowmobile use, and light maintenance of facilities (e.g., restroom cleaning, garbage collection) are the essential elements of the OSV Program that keep the national forests open for winter recreation use. Winter recreation in national forests has been occurring for many years with annual motorized recreation steadily increasing.

Many national forests and local agencies receive funds from the California Off-Highway Vehicle (OHV) Trust Fund for management and maintenance of OHV use in the non-winter months as well as over snow vehicle (OSV) use in the winter months. Until 2005, the OSV funds were awarded via competitive grants issued under the competitive Grants and Cooperative Agreements Program, which is administered by the California Department of Parks and Recreation (CDPR), Off-Highway Motor Vehicle Recreation (OHMVR) Division. The OHMVR Division now administers OSV Program funds for plowing, grooming, and trailhead facility maintenance activities through cost sharing agreements (CSA), which are direct contracts independent of the competitive Grants and Cooperative Agreements Program (Grants Program). Periodic funding for additional support services for winter recreation such as supplemental staffing and equipment purchases may still occur through the Grants Program.

In 2008 and again in 2009, the OHMVR Division evaluated its one-year OSV Program funding as a project under the California Environmental Quality Act (CEQA). In both years, an Initial Study (IS) was prepared resulting in adoption of a Negative Declaration (ND). The IS/ND environmental analyses concluded that OHMVR Division funding of the OSV Program would facilitate the use of an existing winter trail recreational system; the funding contracts would not expand the trail system or change the current environmental impacts of the system. Given that the contracts would not alter baseline conditions, the environmental analyses concluded that the contracts would not result in new environmental impacts. Given that the U.S. Forest Service (USFS) had resources in place to address potential impacts of the existing winter trail use (law enforcement, resource monitoring, and adaptive management), the analyses also concluded that the contracts would not facilitate the continuance of any adverse impacts from the existing use.

In 2009, the OHMVR Division proposed to modify its OSV Program from an annual consideration to a 10-year funding commitment. The OHMVR Division decided to prepare an Environmental Impact Report (EIR) for CEQA compliance and issued a Notice of Preparation (NOP) for the EIR in April 2009 and held public scoping meetings as discussed in Section 1.5 below. The purpose of this EIR is to evaluate the potential environmental effects of the OHMVR Division entering into CSAs to fund the OSV Program activities conducted by national forests and county agencies. The contracts would fund the OSV Program for 10 years covering the winter seasons from 2010/2011 through 2019/2020.



## **1.2 INTENDED USE OF EIR**

The OHMVR Division is the Lead Agency for this project under CEQA (Public Resources Code § 21000 et seq.). CEQA and the CEQA Guidelines (14 CCR §15000 et seq.) establish the OHMVR Division as the Lead Agency, which is defined in CEQA Guidelines Section 15367 as “the public agency which has the principal responsibility for carrying out or approving a project.” In this case, the OHMVR Division is allocating funds which allow the OSV Program to operate. The Lead Agency decides whether an EIR or ND is required for the project and is responsible for preparing the appropriate environmental review document.

This EIR has been prepared by the OHMVR Division of CDPR in accordance with CEQA and the CEQA Guidelines. This EIR will be used for the purpose of evaluating the environmental effects associated with issuance of state-funded contracts for the activities described in the Project Description. Other sources of funding supporting winter trail recreation such as funding by national forests is not addressed.

It is the intent that this EIR address the direct and indirect activities associated with state maintenance of established OSV Program trail systems over the 10-year program period. It is foreseeable that maintenance levels funded by the OSV Program can change over the years. It is the intent of this document to provide CEQA review that can accommodate adjustments and fluctuations in maintenance operations. It is not the intent of this document to provide CEQA review for development of new trail systems or infrastructure. However, the potential for new groomed trails to open during the next 10 years is addressed and should these identified trails undergo CEQA review and become established, it is the intent of this EIR to provide the environmental review necessary to extend the OSV Program maintenance activities described in the Project Description (Chapter 2.0) to that established trail system.

## **1.3 PERMIT REQUIREMENTS**

No permits from the OHMVR Division or regulatory agencies are required for project activities.

## **1.4 LEAD AGENCY CONTACT INFORMATION**

The Lead Agency for the proposed project is the OHMVR Division, the agency that would be funding the project. The contact person for the Lead Agency is:

Ms. Connie Latham – Associate Park and Recreation Specialist  
California Department of Parks & Recreation  
Off-Highway Motor Vehicle Recreation Division  
1725 23<sup>rd</sup> Street, Suite 200  
Sacramento, CA 95816  
(916) 324-3358

## **1.5 ISSUES OF PUBLIC CONCERN**

In April 2009, the OHMVR Division prepared a NOP (Appendix H) for the OSV Snow Program Challenge CSAs. Additionally, the OHMVR Division held three public scoping meetings in May 2009 to invite comment on the scope and content of the environmental review. These meetings were held in Redding, South Lake Tahoe, and Fresno. One written response to the NOP was

received and is attached in Appendix G. The respondent expressed support for the OSV Program citing economic, safety, and recreation benefits.

The OHMVR Division previously prepared an IS/ND in 2008 and 2009, each for a single year operation of the Snow Program. One comment letter was received on the 2008 IS/ND. The same comment was resubmitted on the 2009 IS/ND. The primary issues of public concern raised in the comment letter include:

- Grooming and snowmobile technology allows more use, farther and faster travel, and deeper incursions into remote areas, including trespass into wilderness areas.
- Increased funding for monitoring and law enforcement.
- Potential effects of snowmobile use on plants and wildlife.
- Potential effects of snowmobile use on people (noise, air quality, and water quality).

These issues are addressed in the following chapters of this DEIR: Land Use Plans and Policies (Chapter 3.0), Air Quality, Energy, and Greenhouse Gases (Chapter 4.0), Biological Resources (Chapter 5.0), Hydrology and Water Quality (Chapter 6.0), Noise (Chapter 7.0), and Recreation (Chapter 8.0).

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## 2.0 PROJECT DESCRIPTION

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### 2.1 OVERVIEW

The OHMVR Division OSV Program proposes to provide funding to national forests and local public works agencies to support winter trail recreation throughout California for a ten-year period from 2010/2011 to 2019/2020. As of 2010, the OSV Program comprises 26 groomed trail systems on 11 national forests. Operation and facility maintenance activities include plowing 97 miles of access road, plowing parking areas and/or maintaining restroom facilities at 34 trailheads, and grooming 1,761 miles of snowmobile trails. Additionally, the OSV Program funds administrative actions such as purchase and maintenance of equipment, preparation and printing of trail maps, and end of season trail monitoring. The groomed trails are predominately maintained for OSV (snowmobile or snow machines) use; however, other OHV users also use the trails in limited areas, Nordic skiers, snowshoers, and other non-motorized recreationists can also use the parking areas and groomed trail systems. This EIR considers the environmental effects of the OHMVR Division entering into contracts to fund the OSV Program under the existing program level condition as well as under a program growth condition which could occur over the 10-year program period covering the 2010/2011 through 2019/2020 winter seasons.

Through the CSAs, both the State and USFS share in the cost of implementing the OSV Program. While the State's OHV Trust Fund is used for the plowing and grooming activities, the USFS provides paid staff for law enforcement, public education, and resource protection. Depending on the terms of each CSA, either the State or USFS fund garbage collection at trailheads, restroom maintenance, and signage. For purposes of this EIR, the State-funded grooming, plowing, facility maintenance, and administrative purchases and support activities are considered direct actions (described in Section 2.4 below), while the USFS funded tasks are considered related actions (described in Section 2.5 below). Both the proposed project and related actions support the indirect action of winter trail recreation such as snowmobiling, skiing, snowshoeing, and snow play. Both the direct and indirect actions are considered in the environmental analysis.

### 2.2 PROJECT OBJECTIVE

Pursuant to the California Vehicle Code, the OHMVR Division is required to manage OHV use which includes OSVs. As expressed in the California Public Resources Code, the Legislative Intent is for the OHMVR Program to manage OHV use "in a manner that will sustain long-term use." The OHMVR Division disperses a portion of OHV Trust Funds to agencies responsible for managing and maintaining the facilities supporting OSV use. To this degree, in issuing OSV Program contracts, it is the objective of OHMVR Division to facilitate and manage OSV recreation throughout California by providing plowed access roads and trailhead parking, groomed trails, and facility maintenance such as restroom and garbage services and trail signage.

### 2.3 EXISTING SITE DESCRIPTIONS AND LOCATIONS

The OSV Program funded activities (the Project) occur in national forests located throughout the mountainous regions of California (Figure 1, Regional Location). The project locations extend from the Oregon border (Klamath and Modoc National Forests) south towards Bakersfield

(Sequoia National Forest). The roads and trails are generally located between elevations 4,100 and 10,000 feet. Trails in a few locations fall above and below these elevations. For the next 10 years (winter seasons 2010/11 through 2019/2020), the OHMVR Division proposes OSV Program funding in 11 national forests and county roads which access the forest trailheads. Agency funding is further described in Section 2.9. A list of project locations is presented in Table 2-1 at the end of this section. A brief description of each national forest project site and its recreational use is presented below. Collectively, these trail sites and adjoining riding areas comprise the Project Area.

### **2.3.1 Klamath National Forest – Goosenest Ranger District**

Deer Mountain and Four Corners Medicine Lake Snowmobile Parks. The Deer Mountain and Four Corners trails and trailheads can be accessed via Highway 97 north of Weed (Figure 2A, Deer Mountain and Figure 2B, Four Corners Medicine Lake). These trails and trailheads are a part of the tri-forest grooming plan, which includes Klamath, Modoc, and Shasta-Trinity National Forests. The tri-forest grooming plan has a total of 273 miles that is groomed according to snow conditions and priority. In this plan, 135 miles of roads and trails are groomed in the Deer Mountain Snowmobile Park and Four Corners Medicine Lake Snowmobile Park areas by the Goosenest Ranger District of the Klamath National Forest and Mt. Shasta and McCloud Ranger Districts of Shasta-Trinity National Forest. The tri-forest trail system provides 250,000 acres for snowmobiling and links four trailheads that can be traveled in one day – Deer Mountain, Four Corners Medicine Lake, Doorknob, and Pilgrim Creek. Trail elevations range from 5,400 feet to 7,400 feet. The Deer Mountain and Four Corners Medicine Lake trailheads have warming huts, vault restrooms, and parking for public use. Other winter recreational activities that occur in Klamath National Forest include cross country skiing, dog sledding, and snow play. Roughly 28 miles of road accessing Four Corners Medicine Lake trailhead are plowed each winter by a private contractor to Klamath National Forest – 17 miles on Red Rock Road (county road) and 11 miles on Forest Route 15 (USFS road). Four miles are plowed on Deer Mountain Road (Forest Route 19) to access Deer Mountain.

### **2.3.2 Modoc National Forest – Doublehead Ranger District**

Doorknob Snowmobile Park. Modoc National Forest is within a four-hour drive of Reno and Redding and a one hour drive of Klamath Falls, Oregon, Merrill, Oregon, and Tulelake, California. It has one snowmobile park, Doorknob trailhead, that is located on Forest Route 49 1.5 miles south of Lava Beds National Monument headquarters (Figure 3, Doorknob). The trailhead features a paved parking lot, warming hut, and restrooms, from which users access the Medicine Lake trail system. This 10-year-old trail system has 52 miles of marked, groomed gravel road and 15 miles of unmarked trail. Trail elevations range from 5,500 feet to 7,100 feet. It connects to the tri-forest trail system that includes three trailheads and approximately 221 additional miles of snowmobile trails that are groomed and maintained in Klamath National Forest (Deer Mountain and Four Corners Medicine Lake) and Shasta-Trinity National Forest (Pilgrim Creek). Modoc National Forest receives a considerable amount of overflow use from these two other interfacing trail systems. It does not have a snowcat, and all of its trail grooming is conducted by Klamath National Forest. Four miles on Forest Route 49 are plowed to provide access and parking at the Doorknob Snowmobile Park trailhead. Plowing service is contracted out by Modoc National Forest to Lava Beds National Monument (National Park Service) using OSV Program funds.

### **2.3.3 Shasta-Trinity National Forest – Mt. Shasta and McCloud Ranger Districts**

Pilgrim Creek Snowmobile Park. The Pilgrim Creek trailhead, also part of the tri-forest trail system, is located off of State Route 89, 33 miles east of McCloud (Figure 4, Pilgrim Creek). The trailhead can be accessed by following Pilgrim Creek Road for five miles north to the junction of Forest Routes 13 and 19. Trail elevations range from 4,100 feet to 6,600 feet. Mt. Shasta and McCloud Ranger Districts of Shasta-Trinity National Forest and Goosenest Ranger District of Klamath National Forest groom the 86 miles of trails of the Pilgrim Creek trail system. Mt. Shasta and McCloud Ranger Districts plow the Pilgrim Creek trailhead and eight miles of access road (Forest Route 13) and maintain a warming hut and service a restroom. Other winter recreational activities that occur in Shasta-Trinity National Forest include cross-country skiing, dog sledding, and snow play.

### **2.3.4 Lassen National Forest – Hat Creek, Eagle Lake, and Almanor Ranger Districts**

Ashpan Snowmobile Area. The Ashpan Snowmobile Area, which has been in operation for 26 years, is on State Route 44/89 four miles northeast of the north entrance to Lassen Volcanic National Park (Figure 5A, Ashpan). Ashpan offers 35 miles of groomed trails and access to another 30 miles of groomed trails associated with neighboring Latour State Forest. The Latour State Forest trails are not groomed by OSV Program funds. This trail system travels through mixed conifer forests with the higher sections containing views of Mount Lassen, Mount Shasta, and the upper Sacramento Valley. Trail elevations range from 5,400 feet to 6,000 feet. The Ashpan trailhead has a parking lot, warming hut, and restroom. The Hat Creek Ranger District is responsible for the operation and maintenance of the Ashpan Snowmobile Area. Plowed trailhead access is provided by Caltrans but could be provided by a private vendor under contract to Lassen National Forest in the future.

Bogard Snowmobile Area. The Bogard Snowmobile Area is located 25 miles northwest of Susanville on State Route 44 (Figure 5B, Bogard). Trailhead parking and restrooms are provided off State Route 44 at Forest Route 10. Bogard offers 80 miles of groomed trail ranging in elevation from 5,600 feet to 7,700 feet. To the east of the highway are ungroomed meadows and two groomed trails: Antelope Mountain Lookout and Crater Lake. Antelope Mountain Lookout has 16 miles of trail with panoramic views of Mount Lassen, Mount Shasta, and the Warner Mountains. Crater Lake has seven miles of trail. The meadows of Pine Creek Valley are the focal point of snowmobile use in Bogard. There are also 30 miles of ungroomed forest roads that travel through the Pine Creek Valley to Eagle Lake. To the west of the highway are trails that travel through pine and fir forests and connect to Hat Creek rim to the north and Swain Mountain to the south. The Eagle Lake Ranger District is responsible for the operation and maintenance of the Bogard Snowmobile Area. Plowed trailhead access is provided by Caltrans but could be provided by a private vendor under contract to Lassen National Forest in the future.

Swain Mountain Snowmobile Area. The Swain Mountain Snowmobile Area is located north of Lake Almanor off Mooney Road (County Road A-21). The area can also be accessed from the Chester-Lake Almanor staging area at Lake Almanor on Forest Route 10 off State Route 36 (Figure 5C, Swain Mountain). Each trailhead provides parking and restrooms. Swain Mountain has 60 miles of groomed trails and three loop trails and is the hub of Lassen National Forest's snowmobile system. Trail elevations range from 5,200 feet to 6,800 feet. It provides direct access to Fredonyer and Bogard Snowmobile Areas and 200 miles of marked trails (groomed and ungroomed). The Almanor Ranger District is responsible for the operation and maintenance of

the Swain Mountain Snowmobile Area. The Swain Mountain trailhead and Chester-Lake Almanor trailhead along with 0.25 miles of Forest Route 10 are plowed by the Plumas County Road Department.

Fredonyer Snowmobile Area. The Fredonyer Snowmobile Area is located on State Route 36, 10 miles west of Susanville (Figure 5D, Fredonyer). The area has 80 miles of groomed trails, a parking area, a warming hut, and a restroom. The Fredonyer Snowmobile Area can be accessed from three different areas. The primary access is from the Fredonyer trailhead on State Route 36 at Fredonyer Pass. Additional pullout parking is available along the road shoulder dependent upon plowed conditions. Willard Hill, a few miles further east on State Route 36 also provides access with pullout parking along the road. South of Susanville, Gold Run Road (County Road 204) provides an ungroomed trail link to the Fredonyer trails. The Fredonyer trails are located on both the north and south sides of State Route 36 with the northern trail route linking to the Swain Mountain Snowmobile Area. Trails on the south side of State Route 36 offer various loop trails which traverse through a combination of forest and open meadow and offer views of the Great Basin and the high country around Mount Lassen. Trail elevations range from 4,800 feet to 7,000 feet. The Eagle Lake Ranger District is responsible for the operation and maintenance of the Fredonyer Snowmobile Area. Plowed trailhead access is provided by Caltrans but could be provided by a private vendor under contract to Lassen National Forest in the future.

Morgan Summit Snowmobile Area. The Morgan Summit Snowmobile Area is located four miles east of Mineral on State Route 36 and State Route 89 (Figure 5E, Morgan Summit). This snowmobile area has 77 miles of groomed trails, a parking lot, restrooms, and a warming hut maintained by the Almanor Ranger District. It contains loop trails and the trail to Turner Mountain Lookout that has views of the central Sacramento Valley, Sutter Buttes, Lake Almanor, and Mount Shasta. Trail elevations range from 4,800 feet to 6,900 feet. The Morgan Summit trail system is groomed by both volunteers and USFS groomer operators. Plowed trailhead access is provided by Caltrans but could be provided by a private vendor under contract to Lassen National Forest in the future.

Jonesville Snowmobile Area. The Jonesville Snowmobile Area is located in the Lake Almanor area between State Routes 32 and 89. The Jonesville trailhead is located on Humboldt Road off State Route 32 about two miles east of the Cherry Hill Campground and provides a parking lot and restrooms. The Jonesville trails can also be accessed from the Almanor Picnic Area on State Route 89 on the west shore of Lake Almanor (Figure 5F, Jonesville). Jonesville offers 70 miles of groomed trails and three loop routes that follow Humboldt and Humboldt county roads. Trail elevations range from 4,600 feet to 6,600 feet. Views of the Lake Almanor Basin can be seen from the Yellow Creek loop. Colby Mountain Lookout is a popular destination in the Jonesville area. Trail grooming is provided by Butte Meadows Hillsliders Snowmobile Club under contract to Butte County. Seven miles of Humboldt Road from State Route 32 to the trailhead is plowed by the Butte County Road Department.

### **2.3.5 Plumas National Forest – Mt. Hough, Feather River, and Beckwourth Ranger Districts**

Bucks Lake Trail System. The Bucks Lake trail system is located west of Quincy on Bucks Lake Road (Figure 6 A, Bucks Lake). The trail system offers 100 miles of groomed trails ranging in elevations from 4,000 feet to 5,900 feet. The trails are accessed from two staging areas, Bucks Summit and Big Creek, which are located on the east side of Bucks Lake off State Route 70/89

providing trail access from Quincy. Bucks Summit has a parking lot and restrooms. Big Creek provides parking via road shoulder pullouts along Bucks Lake Road and Big Creek Road. The trail system has one warming hut. Trails are groomed by the Mt. Hough Ranger District of the Plumas National Forest. Both staging area access roads (six miles on Buck Lakes Road and one mile on Big Creek Road) are plowed by Plumas County Road Department.

La Porte Trail System. The La Porte trail system is located east of Oroville on La Porte Road (Figure 6B, La Porte). A staging area with a large warming hut and restrooms is accessed from La Porte Road. The La Porte trail system offers 72 miles of groomed loop trails with views of Little Grass Valley Reservoir and the Feather River Canyon. La Porte trail elevations range from 4,900 feet to 6,600 feet. Four trailside-warming huts with wood stoves are available in addition to the trailhead warming hut. Trails are groomed by the Feather River Ranger District of the Plumas National Forest. One-half mile of plowed access on La Porte Road is provided by Plumas County Road Department.

Gold Lake Trail System. Gold Lake is located near the southern boundary of the Plumas National Forest near Graeagle on Gold Lake Highway (Figure 6C, Gold Lake) off State Route 89. Trailhead parking is provided via a parking lot accessed from Gold Lake Highway. The groomed trail follows Gold Lake Highway south to Gold Lake and into Tahoe National Forest connecting to the Bassetts trail system. Gold Lake is located in Lakes Basin and offers 10 miles of groomed trail ranging in elevation from 5,400 feet to 7,200 feet. Gold Lake trails are predominately located in Sierra County and trail grooming is contracted through Sierra County Public Works using volunteer groomers. The Plumas National Forest Beckwourth Ranger District maintains trail routes with signage and provides law enforcement. The Gold Lake trailhead is located in Plumas County. Four miles of Gold Lake Highway from State Route 89 to the trailhead is plowed by Plumas County Road Department.

### **2.3.6 Tahoe National Forest – American River, Yuba River, Truckee, and Sierraville Ranger Districts**

Bassetts Trail System. The Bassetts trail system and trailhead parking are located off State Route 49 roughly 15 miles west of Sierraville in the Yuba River Ranger District (Figure 7A, Bassetts). Trailhead parking is provided off Gold Lake Road. Some of the Bassett area trails extend north to the Gold Lake area in the Plumas National Forest. Bassetts provides 82 miles of groomed trail on the Tahoe National Forest. Trails connect to the Little Truckee Summit trailhead. Trail elevations range from 5,700 feet to 7,800 feet. Bassetts is groomed by volunteer groomers, the Sierra Buttes Snow Busters, using the State's grooming machine. These volunteers receive OSV Program funds through Sierra County for supplies for the groomer, signs, satellite phone service, and for cleaning and supplying the restrooms. Plowed trailhead access is provided by Caltrans under contract to Sierra County.

Little Truckee Summit Trail System. The Little Truckee Summit trail system is accessed from three different trailhead parking areas: Yuba Pass Sno-Park on State Route 49 eight miles west of Sierraville (Figure 7A); Little Truckee Summit on State Route 89 at Jackson Meadow Road roughly 16 miles north of Truckee (Figure 7B, Little Truckee Summit); and Prosser Hill five miles north of Truckee (Figure 7B). Little Truckee Summit offers 138 miles of groomed trail with elevations ranging from 5,700 feet to 7,800 feet. Snowmobile trail grooming is done by a private contractor through the Sierra County Public Works and Transportation Department. Some snowmobile trail grooming is done under USFS volunteer agreements by private

landowners living year-round off the groomed trail system. Plowed trailhead access is provided by Caltrans at all three trailheads; however only the Little Truckee Summit trailhead is plowed by OSV Program funds under contract to Sierra County. In the spring, temporary trailheads are set-up along the main groomed snowmobile route by plowing Jackson Meadow Road (Forest Route 07) out of Little Truckee Summit, to help provide better access for OSV users and decrease damage to the Jackson Meadow Road. Plowing of Jackson Meadow Road has historically been done by private contractor through Sierra County, however, this year (2010), plowing will be done by Sierra County. Winter rest-room cleaning and maintenance at all three locations is done with a combination of Tahoe National Forest OHV Ground Operations funds (Prosser Hill), sno-park funds (Yuba Pass Sno-Park), and OSV Program funds through Sierra County (Little Truckee Summit).

China Wall Trail System. The China Wall trail system and trailhead parking are located 12 miles northeast of Foresthill on Foresthill Road off of Interstate 80 near Auburn (Figure 7C, China Wall). Trailhead parking is provided via a parking lot accessed from Foresthill Road. The China Wall trail system provides 50 miles of groomed trail, a plowed trailhead, and a restroom maintained by the American River Ranger District. Trail elevations range from 5,000 feet to 7,200 feet. Unmarked routes follow Foresthill Road from which riders can take side trips to Humbug, Deadwood, and American Hill ridges. The groomed trails include the China Wall Staging Area to Road 66, Humbug Loop, Foresthill Divide Road, American Hill Loop (Road 13), Ford Point Trail and Tadpole Loop, Soda Springs Trail, and Duncan Y trail (Road 43). Placer County plows 3 miles of Foresthill Road and the trailhead parking.

### **2.3.7 Eldorado National Forest – Amador Ranger District**

Silver Bear Trail System. The Silver Bear trail system, located 18 miles east of Jackson on State Route 88 between Silver Lake and Bear River Reservoir, has approximately 60 miles of groomed snowmobile trails (Figure 8, Silver Bear). This trail system, in operation since 1987, is the only groomed snowmobile trail system on the Eldorado National Forest. Trail elevations range from 5,700 feet to 8,000 feet. It can be accessed by the Iron Mountain Sno-Park, which has a restroom and parking strip along the highway shoulder. Some OSV users also stage out of a small parking area located near the Bear River Resort which is not maintained by OSV Program funds. Restroom service and refuse collection is maintained by the Amador Ranger District through the OSV Program. Snow removal (plowing) in the trailhead parking area is provided through state funding of sno-parks separate from the Project.

### **2.3.8 Stanislaus National Forest – Calaveras and Summit Ranger Districts**

Lake Alpine, Spicer Reservoir, and Highway 108 Trail Systems. Stanislaus National Forest has 70 miles of signed, groomed trails accessible from three sno-park trailheads: Lake Alpine by the Bear Valley ski resort, Spicer Reservoir, and Highway 108. The Lake Alpine Sno-Park is located at the winter closure gate on State Route 4 just past the turnoff to Mt. Reba Ski Area in Alpine County, about 55 miles east of Angels Camp (Figure 9A, Lake Alpine and Spicer Reservoir). Lake Alpine trail elevations range from 7,200 feet to 8,700 feet. The Spicer Reservoir Sno-Park is located on the south side of State Route 4 at Spicer Road in Calaveras County, about 45 miles east of Angels Camp (Figure 9A). Trail elevations at Spicer Reservoir range from 6,200 feet to 7,100 feet. Together Lake Alpine and Spicer Reservoir trailheads access 40 miles of groomed trail on the Calaveras Ranger District. The Highway 108 Sno-Park is located from the winter closure gate on State Route 108, six miles east of Strawberry (Figure 9B, Highway 108) in the



Summit Ranger District. The Highway 108 trailhead accesses 30 miles of groomed trail with elevations ranging from 5,900 feet to 7,800 feet. All three trailhead parking areas have restrooms and additional restrooms open next to groomed trails. Cross-country skiing, snowshoeing, snow play, and snow camping also occur in these areas. Trail grooming at all three areas is provided by private contractors to the Calaveras and Summit Ranger Districts. Parking areas at all three trailheads are plowed under separate state funding of sno-parks.

### **2.3.9 Inyo National Forest – Mammoth and Mono Ranger Districts**

Mammoth Lakes Area Trail System. The Mammoth Lakes Area trail system and Shady Rest trailhead are located between Mammoth Lakes and Lee Vining on U.S. Highway 395 (Figure 10, Mammoth Lakes). The Mammoth Lakes trail system is located off of State Route 203 while the June Lake trail system can be accessed via State Route 158. Approximately 80 miles of groomed and marked snowmobile trails exist on the Forest. Groomed trails are located in Smokey Bear Flat, Inyo Crater Lakes, Deer Mountain, and Bald Mountain. Trail elevations range from 7,300 feet to 9,100 feet. The Shady Rest trailhead which offers a plowed parking lot and four restrooms is maintained by the City of Mammoth separately from the OSV Program. A wide variety of terrain is available for recreation by OSVs from wide, open meadows to forested areas. The trails occur on both the west and east sides of U.S. Highway 395 with a tunnel beneath the highway connecting the trails.

### **2.3.10 Sierra National Forest – High Sierra Ranger District**

Huntington Lake/Kaiser Pass (Eastwood), and Tamarack Ridge Trail Systems. Huntington Lake/Kaiser Pass (Eastwood), and Tamarack Ridge are located on State Route 168, north of Shaver Lake (Figure 11, Huntington Lake/Kaiser Pass, and Tamarack Ridge). This area offers 240 miles of designated snowmobile trails, of which 209 miles are groomed throughout the winter season, along with 32 miles of designated cross-country ski trails. The Kaiser Pass (Eastwood) trailhead accesses 150 miles of looped trails. This trailhead provides a parking lot, restroom facilities, and a public telephone. The Huntington Lake trailhead services the same area as the Kaiser Pass trailhead and provides additional parking and restrooms. The Tamarack Ridge trailhead provides access to 90 miles of looped trails from a parking lot with restrooms. Trail elevations range from 4,900 feet to 9,000 feet. All three trailheads are designated as sno-parks and plowed by the High Sierra Ranger District under separate state funding of sno-parks.

The Sierra National Forest snowmobile trail system is linked together by a series of eight trail bridges over major streams and three highway crossings. A snowmobiler may park at any of the three snowmobile trailheads and have access to the entire trail system. Of the 32 designated trails, some are loop trails and many are destination trails to scenic overlooks and lakes. Most areas of the High Sierra Ranger District are open to snowmobiling.

### **2.3.11 Sequoia National Forest – Hume Lake, Western Divide, and Kern River Ranger Districts**

Big Meadow/Quail Flat Trail System. The Big Meadow/Quail Flat trail system is located off State Route 198 (Generals Highway) in the Giant Sequoia National Monument near Kings Canyon National Park. The area has 30 miles of groomed and marked trails with another 50 miles of unmarked roadbed (Figure 12A, Hume Lake Ranger District). Trails range in elevation from 5,400 feet to 8,500 feet. Four parking areas are provided for winter recreation: one on State Route 180 north of Grant Grove (Cherry Gap) and three on the Generals Highway (Quail Flat,

Big Meadow, and Upper Woodward). Plowed access is provided by Caltrans under contract to Sequoia National Forest. The USFS provides public restroom facilities at Quail Flat and Big Meadow. Trail grooming is provided by a private contractor to the Hume Lake Ranger District. Restrooms and a warming hut are maintained by the Hume Lake Ranger District. A groomed road from the Big Meadow and Upper Woodward trailheads provides snowmobilers access to Montecito Lake Resort which offers food, lodging, equipment rentals, ice skating and many other winter activities.

Snowmobile roads and cross-country ski trails are available from each of the four parking areas. There are intermittently groomed snowmobile roads available from the three trailheads on the Generals Highway. Snowmobile riding is not allowed off developed roads or on designated trail routes within the Giant Sequoia National Monument or in any designated wilderness areas. All snowmobile routes are open to skiers and snowshoers. There are also undeveloped and unmarked ski trails available and sledding and general snow play is permitted throughout the general forest area and at each of the four parking areas.

Quaking Aspen/Sugarloaf Trail System. The Quaking Aspen area is located off State Route 190 at its junction with the Western Divide Highway, 30 miles east of Porterville near Camp Nelson (Figure 12B, Western Divide Ranger District, Northern Half). Two trailheads, Quaking Aspen and Holby (Ponderosa), provide access to the trail system from this location. Trails extending north from these trailheads end at the Golden Trout Wilderness while trails extending south reach the Greenhorn Mountains and the Sugarloaf trailhead. Plowed access to Quaking Aspen and Holby is provided by Caltrans under contract to Sequoia National Forest. The Sugarloaf trailhead is accessed from State Route 155 off County Road M-9 near Posey (Figure 12C, Western Divide Ranger District, Southern Half). Tulare County plows 0.8 miles of County Road M-9 and the Sugarloaf trailhead. The trail system offers 100 miles of groomed trails. The summit elevation is just over 6,000 feet with trail elevations ranging from 5,800 feet to 8,000 feet. There is one trailside warming hut on the Western Divide trail north of the Quaking Aspen trailhead and restrooms at the Quaking Aspen and Holby trailhead parking areas. This trail system and its facilities are maintained by the Western Divide Ranger District. Most of the trails are within the Giant Sequoia National Monument. Snowmobile riding is not allowed off of roads within the Giant Sequoia National Monument, in any designated wilderness areas, or on designated trails. All snowmobile routes are open to skiers and snowshoers and other non-motorized users.

Kern Plateau Trail System. Kern Plateau trail system is located on Sherman Pass Road off Mountain Road 50 east of Johnsondale (Figure 12D, Kern Plateau Ranger District). The trails are accessed from the Kern Plateau-Westside (Sherman Pass) and Kern Plateau-Eastside (Kennedy Meadows) trailheads. The OSV trails are outside the eastern boundary of the Giant Sequoia National Monument. The area has 85 miles of groomed trails, 10 miles of ungroomed trails, and 30 miles of unmarked routes over 15,000 acres of suitable open area with riding elevations ranging from 7,800 feet to 9,990 feet at the top of Sherman Mountain. The typical trail elevation is roughly 8,400 feet. A trailside warming hut is available on Trail 101. The trail system is maintained by the Kern River Ranger District. Twelve miles on Sherman Pass Road and five miles on Kennedy Meadows Road from the USFS boundary to the trailhead are plowed by a private contractor to maintain trailhead access. Kennedy Meadows Road is located on the east side of the Sierra Nevada where snowfall is light and melts off quickly. Plowing on this road segment may occur only once or twice per year and in some years no plowing is required.

<b>Table 2-1. Overview of OSV Program Activity</b>		
<b>Project Location National Forest (NF) and County</b>	<b>Recreation Facility</b>	<b>OSV Program Funded Activity</b>
Klamath NF, Goosenest Ranger District Siskiyou County, near Weed (Deer Mountain) and near Tennant (Four Corners Medicine Lake)	Deer Mountain and Four Corners Medicine Lake Snowmobile Parks	Groom 135 miles of trail, plow 32 miles of road and 2 trailheads, trail maintenance, facility maintenance, refuse collection, restroom service.
Modoc NF, Doublehead Ranger District Siskiyou County, near Lava Beds National Monument	Doorknob Snowmobile Park	Groom 52 miles of trail, plow 4 miles of road and 1 trailhead, service 2 restrooms, and refuse collection.
Shasta-Trinity NF, Shasta-McCloud Ranger Districts Siskiyou County, near McCloud	Pilgrim Creek Snowmobile Park	Groom 86 miles of trail, plow 8 miles of road and 1 trailhead, service 1 restroom, and refuse collection.
Lassen NF, Hat Creek Ranger District Shasta County near Latour State Forest and Lassen Volcanic National Park	Ashpan Snowmobile Area	Groom 35 miles of trail, plow 1 trailhead, service 1 restroom, and refuse collection.
Lassen NF, Eagle Lake Ranger District Lassen County, near Eagle Lake (Bogard) and Westwood (Fredonyer)	Bogard and Fredonyer Snowmobile Areas	Groom 160 miles of trail, plow 2 trailheads, service 2 restrooms and refuse collection
Lassen NF, Almanor Ranger District Plumas and Lassen Counties, near Chester (Swain Mountain) and Tehama County near Mineral (Morgan Summit)	Swain Mountain and Morgan Summit Snowmobile Areas	Groom 137 miles of trail, plow 0.25 miles of road and 3 trailheads, service 2 restrooms and refuse collection
Lassen NF, Almanor Ranger District Butte and Plumas Counties, near Jonesville and Lake Almanor	Jonesville Snowmobile Area	Groom 70 miles of trail, plow 7 miles of road and 1 trailhead
Plumas NF, Mt. Hough and Feather River Ranger District Plumas County near Quincy (Bucks Lake and La Porte) Plumas and Sierra Counties near Graeagle (Gold Lake)	Bucks Lake, La Porte, and Gold Lake Trail Systems	Groom 182 miles of trail, plow 11.5 miles of road and 4 trailheads, signing along trails, maintenance of 5 trailside warming huts and 3 trailhead restrooms and 1 warming hut.
Tahoe NF, Yuba River Ranger District Sierra County, near Sierraville	Bassetts and Little Truckee Summit Trail Systems	Groom 220 miles of trail, plow 13 miles of road and 2 trailheads, and service restrooms.
Tahoe NF, American River Ranger District Placer County, near Auburn	China Wall Trail System	Groom 50 miles of trail, plow 3 miles and 1 trailhead, service 1 restroom, and refuse collection.
Eldorado NF, Amador Ranger District El Dorado County, near Jackson	Silver Bear Trail System	Groom 60 miles of trail and service 3 restrooms.

<b>Table 2-1. Overview of OSV Program Activity</b>		
<b>Project Location National Forest (NF) and County</b>	<b>Recreation Facility</b>	<b>OSV Program Funded Activity</b>
Stanislaus NF, Calaveras and Summit Ranger Districts Alpine County, near Bear Valley (Lake Alpine) Tuolumne County, near Dardanelle (Spicer) and Strawberry (Highway 108)	Lake Alpine, Spicer Reservoir, and Highway 108 Trail Systems	Groom 70 miles of trail, service 3 restrooms, and refuse collection.
Inyo NF, Mammoth and Mono Ranger Districts Mono County, near Mammoth Lakes	Mammoth Lakes Area Trail System	Groom 80 miles of trail.
Sierra NF, High Sierra Ranger District Fresno County, near Lakeshore	Huntington Lake, Kaiser Pass (Eastwood), and Tamarack Ridge Trail Systems	Groom 209 miles of trail and service 3 restrooms.
Sequoia NF, Hume Lake Ranger District Fresno and Tulare Counties, near Wilsonia	Big Meadow/Quail Flat Trail System	Groom 30 miles of trail, plow 4 trailheads, service 1 restrooms, and maintain 1 warming hut.
Sequoia NF, Western Divide Ranger District Tulare County, near Camp Nelson (Quaking Aspen) and near Posey (Sugarloaf)	Quaking Aspen/Sugarloaf Trail System	Groom 100 miles of trail, plow 0.8 miles and 3 trailheads, service 2 restrooms, and maintain 1 warming hut.
Sequoia NF, Kern River Ranger District Tulare County, near Johnsondale	Kern Plateau-Westside (Sherman Pass) and Eastside (Kennedy Meadows) Trail System	Groom 85 miles of trail, plow 17 miles of road and 2 trailheads, and maintain 1 warming hut.

Source: CDPR, OHMVR Division 2009

## 2.4 PROJECT CHARACTERISTICS

The OSV Program would provide funding to national forests and county road departments for implementation of the direct actions described below. The proposed OSV Program funding for ten winter seasons (2010/11 through 2019/20) represents a continuation of funding for routine maintenance of winter recreation facilities in the national forests and counties that first started in 1982 and has been occurring at all locations for at least 14 years.

No immediate changes to the OSV Program are proposed by the Project; thus, the snow removal (plowing and blowing), trail grooming, and maintenance activities described below are the same as what has been occurring since 1996 when the last trail system opened. The potential for future changes to the OSV Program during the next ten years, such as the addition of new trailheads or groomed trail systems, is described below in OSV Program Growth Levels, Section 2.7 below.

The length of the snow season varies from year to year dependent upon snow fall. Accordingly, annual plowing and grooming activities funded by the Project would vary over the 10-year project period. Heavy snow years would require more plow days and grooming hours than years with light snowfall. In light snow years, trails at lower elevations may not be groomed, reducing the annual number of miles groomed and hours of equipment operation.

### 2.4.1 Grooming Trails

Groomed trails are designated for winter recreation and OSV use by the forest plans governing the national forests. All snow groomed trails are existing dirt or gravel trails or paved roads. These trails are used in the summer for OHV and non-motorized recreation. All project trails have been used annually for winter recreation for since 1982. The purpose of the grooming program is to provide a high quality snowmobile trails system that is smooth and stable for the rider. The groomed trail is designed so that the novice rider can use it without difficulty.

The grooming season generally begins in mid-December and continues through March. Start and stop times vary per trail location dependent upon snow presence. Grooming starts in most locations with minimum snow depth of 12 inches. Eldorado, Stanislaus, and Inyo National Forests require a minimum snow depth of 18 inches and Sequoia National Forest requires a minimum depth of 24 inches. Trails are prioritized for grooming based on visitor use. Grooming on priority trails occurs several times per week and after significant storms. The total hours of trail grooming occurring expected at each site for an average season is shown in Table 2-2. Trail grooming occurs as soon as possible after a storm in which snow accumulations have been substantial. The ideal air temperature for grooming is 35 degrees Fahrenheit or less with the temperature dropping. Wet snow requires a lower temperature to set and is best groomed at night. Heavy, wet snow at the end of a warm storm is packed as soon as possible with most of the grooming at night regardless of the temperatures. Grooming generally occurs at night (between 4:00 PM and 6:00 AM) except when circumstances require daytime grooming. Daytime grooming occurs when the snowmobile traffic is lightest so the trail surface has time to harden. Daytime grooming is generally not conducted on weekends or during periods of heavy use except for emergencies or when the situation otherwise precludes grooming during periods of low use.

Trails are groomed to a minimum width of 10 feet and up to 30 feet wide in the more heavily used areas such as near trailheads. Groomed trail width is determined by variety of factors such as width of the underlying road bed, width of grooming tractor, heavy two-way traffic on the trail, and trail corners. Trail width is not groomed beyond width of underlying roadbed. Where the terrain allows, main ingress and egress trails that connect to the trailhead are groomed to 18 feet wide or greater to facilitate the added traffic. Moguls (snow mounds) are cut off as deep as possible (halfway down or more) to fill the low spots and voids in the trail. Moguls are not cut to the bottom if it will result in bringing dirt into the snow. Snowdrifts are groomed as level as possible.

Snowcats are operated at speeds in the range of three to seven miles per hour. The vehicle is operated with warning lights on at all times. The maximum hours of equipment operation is generally a 12-hour day during peak season (Table 2-2).

Trail grooming is conducted in accordance with 1997 Snowmobile Trail Grooming Standards set by the OHMVR Division as summarized in Table 2-3. Individual national forests may have their own policies such as the 2007-2008 Grooming Program Policy prepared as part of the Memorandum of Understanding between California and Nevada Snowmobile Association and Eldorado National Forest – Amador Ranger District.

**Table 2-2. OSV Program Annual Grooming Operations**

National Forest	Grooming Location	Annual Groomed Miles	Total Groom Days	Annual Snowcat Hours	Max Day Hours
Klamath	Deer Mountain and Four Corners	1564	37	272	16
Modoc	Doorknob	--			
Shasta-Trinity	Pilgrim Creek	1440	33	240	13
Lassen	Ashpan	1743	n/a	249	12
Lassen	Bogard and Fredonyer	5076	n/a	680	12
Lassen	Swain Mountain	660	n/a	94	12
Lassen	Morgan Summit	900	n/a	300	12
Lassen	Jonesville	2222	34	420	25
Plumas	Bucks Lake	949	38	409	12
Plumas	La Porte	744	34	207	12
Plumas	Gold Lake	--			
Tahoe	Bassetts	1050	n/a	175	12
Tahoe	Little Truckee Summit	3600	n/a	600	15
Tahoe	China Wall	823	21	137	10
Eldorado	Silver Bear	900	16	150	10
Stanislaus	Lake Alpine and Spicer	356	13	59	12
Stanislaus	Highway 108	910	22	175	12
Inyo	Mammoth Lakes	1264	31	195	9
Sierra	Huntington Lake/ Kaiser Pass	852	38	181	12
Sierra	Tamarack Ridge	930	28	178	12
Sequoia	Big Meadow/Quail Flat	165	7	41	12
Sequoia	Quaking Aspen/Sugarloaf	71	4	58	12
Sequoia	Kern Plateau	199	7	128	12
<b>Total</b>		<b>26,418</b>		<b>4,948</b>	

Notes:  
Based on 2008/2009 or 2007/2008 winter season grooming data submitted to OHMVR Division.  
Maximum Day assumed to be 12 hours unless otherwise specified.  
Trails in Modoc National Forest are groomed by Klamath and Shasta Trinity National Forests. Snowcat hours and miles for Modoc are included in Klamath and Shasta totals.  
Trails in Gold Lake are groomed by Tahoe National Forest. Snowcat hours and miles for Gold Lake are included in Bassetts totals.  
(Appendix E, Table AQ-14).

Source: USFS 2009

**Table 2-3. 1997 Snowmobile Trail Grooming Standards**

Operators shall be trained and directed by a Grooming Coordinator.

Identify hazards in advance of grooming, preferably in Autumn before snow falls.

Begin grooming when the snow depth is at least 12 to 18 inches.

Typical grooming season is from December to March.

Operate the snow tractor on approved designated trails only.

Maintain a 10-foot vertical clearance from potential obstructions.

Limit grooming speeds to between three to seven miles per hour.

Groom trails to a minimum of 10 feet wide with a typical width of 10 to 14 feet.

Source: CDPR, OHMVR Division 1997

Trails are typically groomed using a snowcat with a blade and tiller attachments. OHMVR Division owns 15 snowcats which are stationed near the OSV Program trail locations. Eight additional snowcats are owned by private contractors on trails in the Sierra National Forest, Stanislaus National Forest, and Tahoe National Forest. A list of the state and privately owned grooming equipment used for the OSV Program is presented in Table 2-4. Grooming is performed by USFS staff, private contractors, or volunteers.

**Table 2-4. OHMVR Division OSV Program Grooming Equipment**

National Forest	Location	TIER	Type
Klamath	Four Corners	0	Piston Bully 260D
Shasta-Trinity	Mt. Shasta	0	Piston Bully 260D
Lassen	Ashpan	3	Piston Bully 400
Lassen	Fredonyer	2	Piston Bully 200 Edge
Lassen	Bogard/Swain	3	Piston Bully 400
Lassen	Morgan Summit	1	Piston Bully 200
Lassen	Jonesville	0	Bombardier*
Lassen	Jonesville	0	Tucker*
Plumas	Bucks Lake	0	Bombardier BR 400
Plumas	La Porte	0	Bombardier BR 400
Tahoe	Bassetts	0	Piston Bully 300
Tahoe	Little Truckee Summit	1	Bombardier MP 275*
Tahoe	China Wall	1	Piston Bully 200
Eldorado	Silver Bear/Iron Mountain	0	Piston Bully 260
Stanislaus	Lake Alpine	0	Bombardier BR 400*
Stanislaus	Spicer Reservoir	0	Bombardier BR 400*
Stanislaus	Highway 108	1	Bombardier BR 200*
Inyo	Mammoth	1	Piston Bully 200
Sierra	Shaver Lake	0	Piston Bully 240D
Sierra	Huntington Lake	0	Bombardier BR 400*
Sequoia	Montecito Lake Resort		n/a
Sequoia	Kernville	0	Piston Bully 240D
Sequoia	Hot Springs	0	Piston Bully 240D

\* Equipment owned by contract groomers. All other equipment is state owned.

"Tier" refers to engine age class and pertains to compliance with CARB diesel off-road emissions regulations.

Tier 0 1988-1995  
 Tier 1 1996-2002  
 Tier 2 2003-2006  
 Tier 3 2007-2010  
 Tier 4 2011-2013  
 Tier 5 2014-

Source: CDPR, OHMVR Division 2009

The OHMVR Division's snowcat fleet is subject to emission regulation by the California Air Resources Board (CARB) as off road equipment. CARB sets an emission limit for the vehicle fleet as a whole rather than for individual pieces of equipment. Based on the total horsepower of the vehicle fleet, and the model and year of the individual equipment within the fleet, CARB determines how much horsepower per year must be repowered, retrofitted, or retired. The OHMVR Division then determines what modifications to make to its fleet in order to satisfy CARB requirements. Accordingly, the snowcat vehicle fleet identified in Table 2-4 would be modified throughout the 10-year project period. The retrofit and replacement schedule is shown in Table 2-5. Six snowcats were retrofitted in 2009 and are included in Table 2-4. Starting in 2010, nine snowcats will be replaced over a five-year period.

<b>Year</b>	<b>OHMVR Division Action</b>	<b>Equipment</b>
2010	Vehicle Replacement	Klamath NF, Four Corners PB260 Shasta Trinity NF, Mt. Shasta PB260
2011	Vehicle Replacement	Tahoe NF, Bassetts PB300 Eldorado NF, Iron Mountain PB260
2012	Vehicle Replacement	Plumas NF, Bucks Lake BR400 Plumas NF, LaPorte BR400
2013	Vehicle Replacement	Sierra NF, Shaver Lake PB240 Sequoia NF, Kernville PB240
2014	Vehicle Replacement	Sequoia NF, Hot Springs PB240

Source: CDPR, OHMVR Division 2009

## 2.4.2 Plowing Access Roads and Parking Areas/Trailheads

Snow removal on access roads and trailhead parking areas, serving the OSV Program trail systems, occurs several times during storm events as necessary dependent upon weather conditions. Typical snow removal equipment used includes a motor grader or a snowplow blade mounted on a standard dump truck or loader, and a snow blower. Snow removal may be done by USFS staff, a private contractor, or by the California Department of Transportation (Caltrans). Trailheads that are located on State Routes are plowed by Caltrans under separate contracts with Lassen and Sequoia National Forests and Sierra County. Trailheads that are located on County Roads are plowed by local county road departments or their contractors. The plowed roads and contractors funded by the OSV Program are listed in Table 2-6. OSV Program funding of snow removal presently occurs on 97 miles of paved roads and 17 of the 34 trailhead parking areas. The typical hours of snow removal equipment operation per OSV Program location are estimated in Table 2-7.

<b>National Forest/Trailhead</b>	<b>Contract Agency/ Service Provider</b>	<b>Access Road</b>	<b>Plowed Length</b>
Klamath/Deer Mountain	Klamath NF/private	Forest Route 19	4 miles
Klamath/Four Corners	Klamath NF/private	Red Rock Road	17 miles
Klamath/Four Corners	Klamath NF/private	Forest Route 15	11 miles
Modoc/Doorknob	Modoc NF/Lava Beds	Forest Route 49	4 miles
Shasta-Trinity/Pilgrim Creek	Shasta-Trinity NF	Forest Route 13	8 miles

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<b>Table 2-6. OSV Program, Plowed Access Roads And Trailheads</b>			
<b>National Forest/Trailhead</b>	<b>Contract Agency/ Service Provider</b>	<b>Access Road</b>	<b>Plowed Length</b>
Lassen/Ashpan	Lassen NF/Caltrans	State Route 89/44	Trailhead
Lassen/Bogard	Lassen NF/Caltrans	State Route 44	Trailhead
Lassen/Fredonyer	Lassen NF/Caltrans	State Route 36	Trailhead
Lassen/Swain Mountain	Plumas County	County Road A-21	Trailhead
Lassen/Morgan Summit	Lassen NF/Caltrans	State Route 89/36	Trailhead
Lassen/Chester-Lake Almanor	Plumas County	Forest Route 10	0.25 mile
Lassen/Jonesville	Butte County/private	Humboldt Road	7 miles
Plumas/Bucks Summit	Plumas County	Bucks Lake Road	6 miles
Plumas/Big Creek	Plumas County	Big Creek Road	1 mile
Plumas/La Porte	Plumas County	La Porte Road	0.5 mile
Plumas/Gold Lake	Plumas County	Gold Lake Hwy	4 miles
Tahoe/Bassetts	Sierra County/Caltrans	State Route 49	Trailhead
Tahoe/Little Truckee Summit	Sierra County/private	Forest Route 07	13 miles
Tahoe/Little Truckee Summit	Sierra County/Caltrans	State Route 89	Trailhead
Tahoe/China Wall	Tahoe NF/Placer County	Foresthill Road	3 miles
Eldorado/Iron Mountain	Sno-Park	State Route 88	--
Stanislaus/Lake Alpine	Sno-Park	State Route 4	--
Stanislaus/Spicer Res.	Sno-Park	State Route 4	--
Stanislaus/Highway 108	Sno-Park	State Route 108	--
Sierra/Huntington Lake	Sno-Park	State Route 168	--
Sierra/Kaiser Pass	Sno-Park	State Route 168	--
Sierra/Tamarack Ridge	Sno-Park	State Route 168	--
Sequoia/Big Meadow	Sequoia NF/Caltrans	State Route 180	Trailhead
Sequoia/Quail Flat	Sequoia NF/Caltrans	State Route 180	Trailhead
Sequoia/Cherry Gap	Sequoia NF/Caltrans	State Route 180	Trailhead
Sequoia/Upper Woodward	Sequoia NF/Caltrans	State Route 180	Trailhead
Sequoia/Quaking Aspen	Sequoia NF/Caltrans	State Route 190	Trailhead
Sequoia/Holby	Sequoia NF/Caltrans	State Route 190	Trailhead
Sequoia/Sugarloaf	Sequoia NF/Tulare County	County Road 9	0.8 mile
Sequoia/Kern Plateau Westside	Sequoia NF/private	Sherman Pass Road	12 miles
Sequoia/Kern Plateau Eastside	Sequoia NF/private	Kennedy Meadows Road	5 miles
Notes:			
Caltrans plows State Routes under separate state transportation funding. Trailheads on State Routes are plowed by Caltrans using OSV Program funds.			
Swain Mountain trailhead is plowed by Plumas County using OSV Program funds. County road access to trailhead is plowed by Lassen County through separate county road department funding.			
Trailheads which are also designated as sno-parks are plowed under separate state funding for sno-park recreation.			

Source: CDPR, OHMVR Division 2009

<b>National Forest/Trailhead</b>	<b>Total Days</b>	<b>Plow Truck, Tractor, and Grader Hours</b>	<b>Blower Hours</b>	<b>Max Day Hours All</b>
Klamath/Deer Mountain and Four Corners	14	61	0	7
Modoc/Doorknob	14	84	n/a	8
Shasta-Trinity/Pilgrim Creek	25	234	--	16
Lassen/Ashpan, Bogard, Fredonyer, and Morgan Summit	*			
Lassen/Swain Mountain and Chester-Lake Almanor	8	21	0	6
Lassen/Jonesville	18	90	90	18
Plumas/Bucks Summit and Big Creek	60	275	85	8
Plumas/La Porte	13	18	6	2
Plumas/Gold Lake	49	709	32	6
Tahoe/Bassetts	n/a	n/a	n/a	n/a
Tahoe/Little Truckee Summit	n/a	124	0	8
Tahoe/China Wall	15	28	4	2
Eldorado/Iron Mountain	**			
Stanislaus/Lake Alpine, Spicer, and Highway 108	**			
Sierra/Huntington Lake, Kaiser Pass (Eastwood), and Tamarack Ridge	**			
Sequoia/Big Meadow, Quail Flat, Cherry Gap, and Upper Woodward	*			
Sequoia/Quaking Aspen, Holby (Ponderosa)	*			
Sequoia/Sugarloaf	n/a	n/a	n/a	n/a
Sequoia/Kern Plateau-Westside and Eastside	42	215	0	11
<b>Total</b>	<b>258</b>	<b>1859</b>	<b>217</b>	<b>92</b>
Notes: * Plowing provided by Caltrans. Data not available. ** Plowing funded through Sno-Park recreation program separate from OHMVR Division OSV Program Data from 2008/2009 season records except as noted. Modoc NF estimate of plowing once per week during season. Assumes average plow day of 6 hours. Shasta NF based on 2007/2008 data to represent a more accurate level of plowing activity in an average snow year. 2008/09 had 5 plow days and 56 total hours. n/a = not available (Appendix E, Table AQ-15)				

Source: USFS 2009

Snow removal equipment involved in the OSV Program is not dedicated to the funded activities and is part of several vehicle fleets maintained by federal, state, local, or private entities. Fleet composition is not fixed from year to year and will vary throughout the season. The snow removal component of the OSV Program includes truck mounted plows and snow blowers; some of the latter may be dedicated snow removal equipment.

CARB established regulations requiring strict emissions reductions for nitrogen oxides (NO<sub>x</sub>) and particulate matter (PM) for new equipment, and setting a schedule for replacement or retrofit

for on road heavy trucks. The plows used in snow removal are general purpose and are subject to emissions reduction. Snow blowers may be exempt if they are dedicated solely to use for snow removal. As a practical matter, newer diesel engines will share the reduced emissions tendency and so even dedicated snow removal equipment will likely have a reduced emissions profile in the future as newer equipment replaces older equipment. Projected Project-associated air pollutant emissions discussed in Air Quality, Chapter 4.0 reflect assumptions for cumulative fleet emissions reductions that will occur over the 10-year OSV Program period.

### **2.4.3 Facility Maintenance**

The OSV Program provides funds for the servicing of trailhead restrooms, garbage collection, and sign maintenance and replacement. At some sites, these actions are State funded through the OSV Program and at other sites these actions are federally funded through the USFS. Garbage is typically collected twice a week during the peak of the grooming season using one person and a standard pickup truck. Most trailheads funded by the OSV Program have vault toilets rather than flush toilets. In addition to periodic cleaning of the restrooms (sweeping, cleaning, and stocking toilet paper), the vault toilets are pumped as needed. Pumping is typically done under contract with a private contractor. Many of the trail systems have warming huts which are wood or fiberglass structures with a wood-burning stove at its center and bench seating for 10 to 15 people. Warming huts are cleaned and stocked with firewood by the USFS or volunteers.

Trail route signs are posted and maintained throughout the OSV areas to assist users with route location and orienteering. Signs are also clearly posted to identify closed areas and dissuade illegal trespass. Trail marker signs are placed along popular routes as well as at the periphery of closed areas. Barriers may be used to block access, if monitoring indicates that OSV use is occurring in closed or rehabilitating areas despite signing. Individual forest roads are marked with small wooden signs at intersections to further provide the public and agency personnel with locational information. Informational and regulatory signs and barriers are replaced as needed.

Preseason trail maintenance occurs periodically along all groomed trail routes. Groomed trails are typically used in summer by OHV and are kept clear of debris. Tree trimming occurs in summer months to maintain trails for OHV recreation. However, winter grooming requires a greater vertical clearance to be maintained for snowcats due to operation on an elevated snowpack. Light tree trimming can be required to maintain a vertical clearance limit of 12.5 feet for snowcats. Trails are checked in the fall before the first snow and obstructions are removed before trail grooming begins. Foreign material along the groomed areas is removed beyond the clearing limits by the groomer operator. Material that cannot be removed or rerouted around safely is brought to the attention of the grooming coordinator and flagged by the groomer operator as a hazard. All down trees are removed unless snow depth makes it impractical. Preseason trail maintenance is federally funded at some trail sites through the USFS and State funded by OHV Trust Funds (either through the Grants Program or the OSV Program) at other sites.

Maintenance of restroom and warming hut facilities do not result in a physical change in the environment. Trail route markers are installed on Carsonite posts (flexible fiberglass marker) which can be pounded into the ground with a mallet with very little ground disturbance. Tree trimming for preseason trail maintenance involves removal of annual vegetative growth along forest routes using hand tools and a bucket lift truck. Trimmed vegetation is removed from trail by a haul truck. All tree trimming work occurs along existing forest roads and does not modify

habitat values or change the use of the area. The maintenance activities associated with the OSV Program do not have the potential for significant environmental impacts and therefore are not considered further.

#### **2.4.4 Administrative Purchases and Support**

The OSV Program includes periodic funding of national forests and local agencies to provide support services for winter trail recreation outside of the grooming, plowing, and facility maintenance services described above. Funding of additional administrative services may include equipment purchases and maintenance (snowmobiles, trailers, blowers, etc.) used by national forest staff during monitoring and maintenance activities, information kiosks, and trail maps and brochures. This administrative support may also include supplemental funding for national forest staff for activities such as visitor contacts, facility cleaning maintenance, and end of the season monitoring along trail routes to check for indications of soil erosion, resource damage, or trespass into restricted areas from OSV use. These administrative services are funded through the Grants Program as described below in Section 2.9.1. These grant-funded OSV activities are one-time commitment of funds to a grant applicant and do not represent a recurring OSV Program activity. Whereas the Budget Change Proposal (BCP) funded annual OSV Program activities of grooming, plowing, and maintenance occur on a set system of trails and trailheads with specific agencies (see Section 2.3), the Grants Program funded OSV activity can be provided to other national forests or local agencies. These administrative actions do not result in direct or indirect physical changes to the environment and do not create access to or subsequently enable recreational use of winter trails. Therefore, these actions are not subject to further consideration in this environmental analysis (CEQA Guidelines, Section 15378).

### **2.5 RELATED ACTIONS**

Separate from the State funding of the OSV Program project activities described above, the USFS supports the OSV Program by funding law enforcement and public education and works with CDPR to ensure resource protection is implemented in each national forest. These activities are described below. These activities do not have a physical effect on the land and are not considered further in this environmental analysis except to the extent they are relevant to addressing potential effects of the OSV Program.

Law Enforcement Activities. Most of the national forest's law enforcement plans (LEPs) include coverage of OSV activities. The LEPs are designed to provide direction and guidance to USFS OSV managers and employees with regards to the operation of national forest law enforcement OSV activities. Additionally, the LEPs supplement direction found in the Regional LEPs and the National Forest Land Resource Management Plans (LRMPs; see Land Use Plans and Policies, Section 4.0). The forests actively investigate and enforce OSV laws and regulations related to the National Forest System, California Vehicle Code (CVC), and the Public Resources Code (PRC). The primary emphasis of the OSV Law Enforcement Program is first, prevention, and second, enforcement of applicable laws and regulations found in the United States Code, the Code of Federal Regulations, the CVC, and PRC.

The broad mission of law enforcement efforts on the national forest is to protect employee and public safety, and natural resources. Law enforcement efforts on individual forests are based largely on an approach of recognizing or identifying problems and then acting to resolve them.

Issues are identified and prioritized based on an analysis of potential threats to public safety or resource damage.

Patrol Captains work with Forest Supervisors and District Rangers to develop enforcement plans and ensure identified law enforcement needs within the forest are met. Patrol Captains in conjunction with line officers have the discretion to allocate resources throughout the forest in order to meet priority needs. Law Enforcement Officer (LEO) staffing levels on national forests are generally static between seasons whereas Forest Protection Officer (FPO) staffing levels may vary with the season

Public Education. Information regarding OSV opportunities and regulations is available at each of the Forest's visitor centers. Maps and informational pamphlets are provided free-of-charge to the public depicting popular route locations and closed areas. The written material also explains applicable State and Federal regulations and emphasizes the "Tread Lightly" message. Several popular staging areas have informational kiosks with maps and resource protection literature posted.

Resource Protection. Management Actions would be undertaken concurrent with the OSV Program to protect sensitive biological and soil resources as described below in Section 2.8. Management Actions addressing special-status plant and wildlife species are also listed in Biology (see Chapter 5.0). Management Actions addressing soil erosion are identified in Hydrology (Chapter 6.0). Additionally, several focused wildlife studies investigating OSV recreation impacts on northern spotted owls and regional vertebrate assemblage are ongoing by the Pacific Southwest Region of the USFS. Results from all the studies are expected in 2010. A study investigating OSV and OHV impacts on martens was completed in 2007 (Zielinski et al. 2007).

## **2.6 INDIRECT RECREATIONAL USES FACILITATED BY OSV PROGRAM**

The proposed Project facilitates winter recreational use of the national forest trail systems identified in Table 2-1. Designated trails are predominately maintained for snowmobile use; however, other OHV users on a limited basis, cross-country skiers, and snowshoers can also use the trailhead parking areas and groomed trail systems. Snowmobiling also occurs in open riding areas within the national forests which are accessed from the groomed trail system. These recreational activities, both motorized and non-motorized, are considered indirect effects of the proposed project activity, which is maintaining the facilities (roads, parking, restrooms, warming huts, and trails) to provide public access to and availability of the winter recreation sites. Wintertime recreation activities have been occurring annually at these project sites since early the 1990s.

CEQA requires the indirect effects of project activities to be addressed in the environmental analysis. The environmental effects of winter use recreation that result from the Project as described below are considered in this document.

### **2.6.1 OSV Recreation**

#### **2.6.1.1 Winter Visitor Survey**

In 2009, CDPR in association with California State University Sacramento conducted a pilot visitor survey at ten OSV Program trailheads and one additional trailhead (Hope Valley, which is

operated as a sno-park) to obtain accurate, scientifically-collected baseline information on winter trail use. The surveys were conducted over a two-month period during winter 2009. The surveyed trailheads represent the northern and central geographic areas of the OSV Program project sites – from Deer Mountain in Klamath National Forest at the northern end of the Project Area to Highway 108 in Stanislaus National Forest at the southern end. In all, 413 individuals participated in the surveys representing groups totaling 1,732 visitors to the trailheads.

The survey employed a representative number and geographic distribution of trailheads and a randomized schedule of survey dates that included both weekdays and weekends throughout the winter season. A very strong response rate, with over 85% of invited visitors agreeing to participate, resulted in a high degree of confidence in the survey results. The survey explored visitor characteristics, visitor use levels, types of recreation occurring, details on OSV equipment use, the range and speed of OSV travel, observation of and attitudes toward problem behaviors, the origins of visitors traveling to the trailheads, as well as how plowing and grooming affect visitor choices. The full survey results are presented in Appendix A.

According to the 2009 Winter Trailhead Survey, snowmobiling is by far the predominant activity by visitors at the Project trailheads. Approximately 89% of visitors surveyed reported snowmobiling, 18% reported general snow play, and 14% reported engaging in cross-country skiing and snowshoeing. Other very popular activities included sledding/tubing and snowboarding (Appendix A, Table 18).

#### **2.6.1.2 Visitor Use Levels**

OSV use is the predominant recreational use at each trailhead, with non-motorized recreation concentrated at popular locations such as Iron Mountain in Eldorado National Forest. By providing plowed access and parking and groomed riding trails, the OSV Program facilitates OSV use of the project trailheads and riding areas. Participants in the Winter Trailhead Survey were asked whether their use of the trailhead for snowmobiling would change if plowing or grooming services were not provided (see Appendix A, Tables 48 and 49). Roughly half (50 to 54%) of those surveyed said they would snowmobile less or not at all. Almost one-third (27 to 30%) responded they would continue to use the trailheads regardless. A small fraction (3 to 5%) indicated their use of the trailhead would increase in the absence of these services. No response to this question was given by 15% of those surveyed. Based on these results, it is evident the OSV Program project facilitates OSV use of the trailheads for at least half of the survey participants. The plowing and grooming activities of the OSV Program support higher OSV levels at trailheads than what would otherwise occur. For the purposes of the EIR, it is assumed that two-thirds of the existing 2010 baseline level and projected 2020 levels are attributed to the OSV Program.

The OSV Program trail systems attract roughly 3,700 snowmobiles throughout the Project Area on a maximum day from OSV Program-funded trailheads (plowed parking and restrooms) as well as other non-program parking areas based on observed parking demand (Table 2-8). Annual OSV usage is estimated at approximately 159,000 user-days based on a 14 week season from December through mid-March, which broadly assumes heavy use on weekends and holidays and light use during weekdays. Parking areas shared with sno-parks likely have a lower number of machines per vehicle due to the presence of non-motorized visitors. Vehicles parking at popular OSV trailheads can have trailers carrying up to four OSVs. Estimates for maximum day and season totals assume an average of two OSV per parked vehicle. Roughly 79,000 vehicles per

year visit the trail system parking areas. Assuming a vehicle occupancy of two to three persons, the trail systems and parking serve upwards of 200,000 visitors per year.

Actual use levels at each trailhead depend upon snow conditions which in California vary greatly per season and per geographic region within the same year. These estimated use level assumptions are based on observed trailhead parking capacities and overflow conditions during both weekday and weekend days by USFS staff and visitor surveys conducted for the 2009 Winter Trailhead Visitor Survey.

<b>Table 2-8. 2009 OSV Program OSV Visitor Use Levels</b>			
<b>National Forest</b>	<b>Parking Capacity</b>	<b>Max Day Vehicles Parked*</b>	<b>Seasonal OSV Use-days**</b>
<b>OSV Program Trailheads</b>			
Klamath	95	46	5,506
Modoc	20	15	1,510
Shasta-Trinity	25	25	2,300
Lassen	152	106	10,948
Plumas	145	280	22,250
Tahoe	97	202	15,854
Eldorado	30	15	1,770
Stanislaus	330	480	40,260
Sierra	230	230	21,160
Sequoia	83	76	7,174
<b>Subtotal</b>	<b>1,207</b>	<b>1,475</b>	<b>128,732</b>
<b>Other Non-Program Parking Areas</b>			
Tahoe	48	43	4,086
Sierra	75	75	6,900
Inyo***	172	226	17,152
Sequoia	16	22	1,868
<b>Subtotal</b>	<b>311</b>	<b>366</b>	<b>30,006</b>
<b>Total</b>	<b>1,518</b>	<b>1,843</b>	<b>158,738</b>
Notes:			
*Max Day is based on conditions observed by USFS staff			
**Season is from mid-December through March (14 weeks). Seasonal total assumes 33 weekend/holidays of observed maximum day and 65 weekdays at 20% capacity. Assumes 2 OSV per average vehicle parked.			
***Inyo NF notes that parking area fill multiple times in a day with some non-motorized visitors returning 2x and some staying only 1 hour. Max Day vehicles and Seasonal OSV use-day estimate assume 50% of parking is OSV use for Inyo parking areas.			

Source: Data USFS 2009; Calculations TRA Environmental Sciences, Inc. 2010

### 2.6.1.3 Visitor Use Characteristics

The Winter Trailhead Visitor Survey results showed visitor use characteristics, used in this EIR, as a basis for assessing the indirect Project effects on winter recreation. The survey results provide an indication of visitor use levels at the trailheads, the types of recreation occurring at the trailheads, the speed of OSV travel, and the point of origin for visitors traveling to the

trailhead. A summary of the visitor use characteristics used in the EIR to assess the indirect effects of OSV use is presented in Table 2-9.

A 1997 survey of California snowmobile users by the OHMVR Division found the majority of users (83%) traveled less than 80 miles in a single day (CDPR 1998). The same travel range was also identified by OSV organizations for present day riders. These sources show that riding habits remain consistently around 80 miles as a maximum roundtrip travel range. Without groomed conditions to start from, the range of OSV travel from the trailheads would likely be smaller. Distance and speed of travel is influenced by trail conditions. Roughly three-quarters of OSV users spend at least 40% of their riding time on the groomed trails (Table 2-9). Groomed trails enable higher OSV travel speeds due to smooth packed snow surface and greater fuel efficiency. Travel off trail on slopes and in soft powder conditions reduces both speed and fuel efficiency. Thus the range of OSV travel depends upon the riding habits of the individual. A small minority (10%) ride almost exclusively ( $\geq 81\%$  of the time) off trail (Appendix A, Table 21).

<b>Table 2-9. Trailhead Visitor Characteristics For EIR Analysis</b>	
Point of Origin	100 miles from trailhead (approximate)
Miles Traveled	80 miles or less*
Speed	40 mph average
Group Size	4 people per group
Recreation Type	89% OSV**
OSV Engine Type	96% 2-stroke, 4% 4-stroke
Hours on Snow	6 hours per day
On-trail vs. Off-trail Riding Time	73% on trail 40% to 100% of riding time 19% off trail 60% to 100% of riding time
Night Use of Trail	29%
Notes: * Based on owner survey of snowmobiles registered by California Department of Motor Vehicles (CDPR 1998) and OHMVR Division knowledge of current riding habits. ** Represents an average over all trailheads in Survey. Snowmobiling was predominant at all surveyed trailheads (84 to 100%) except at Iron Mountain where snowmobiling was 57%	

Source: Roloff et. al 2009; CDPR 1998

## 2.6.2 Non-Motorized Recreation

The OSV Program trail systems in three national forests share trailhead parking with non-motorized snow play areas designated as sno-parks by the CDPR. Sno-parks are maintained by CDPR under separate funding from the proposed OSV Program. At shared sno-park/OSV Program trailheads, the parking areas that provide access to the groomed trail system are plowed by Caltrans using sno-park funds. Restroom service and garbage collection at these trailheads are provided through the OSV Program. The seven OSV Program trailheads which share sno-park parking as described above are in Eldorado National Forest (Iron Mountain), Sierra National Forest (Huntington Lake, Kaiser Pass, and Tamarack Ridge), and Stanislaus National Forest (Lake Alpine, Spicer Reservoir, Highway 108).

Due to shared trailhead parking with the sno-parks and proximity of the snow play areas to groomed trails, it is possible that more non-motorized recreation may occur on the project trails at these seven trailhead locations. The availability of groomed trails facilitates cross-country



skiing, snowshoeing, and other non-motorized recreation in locations where it might not otherwise occur.

## 2.7 OSV PROGRAM GROWTH LEVELS

### 2.7.1 Growth in OSV Program Operations

The OHMVR Division proposes funding the OSV Program for a 10-year period from 2010/2011 to 2019/2020. EIR Section 2.4 describes the typical grooming, plowing, and maintenance operations associated with the existing program that would continue forward over the next 10 years. No new trail systems are proposed to be added to the OSV Program at this point in time. However, it is conceivable that during the 10-year project horizon, the OSV Program could be expanded to include additional trail systems and trailheads. It is also possible the OSV Program operations at existing trail sites could be expanded by increasing the groomed trail mileage or by increasing the frequency of trail grooming. Either of these scenarios would directly result in increased hours of equipment operation. New plowing is proposed in one location, as described below, to improve winter access to an existing trail system.

Expanded Trailhead Parking. Additional parking at two existing trailheads is under consideration.

- The Four Trees trailhead is located on the southwest side of Bucks Lake in Plumas National Forest (Figure 6A). Vehicle access to this trailhead is from Oroville Quincy Highway. Four Trees was developed as a winter trailhead in 1991 although neither Oroville Quincy Highway nor the Four Trees parking area was ever plowed. Snow removal is planned on ten miles of Oroville Quincy Highway (County Road 414; Figure 6A) and at the Four Trees trailhead to provide western access to Bucks Lake and 20 additional parking spaces needed for the trail system visitors. This could generate an increase of 920 passenger vehicles and 1,840 OSVs per season (based on a 14-week season of 33 weekend/holidays and 65 weekdays and 2 OSV per passenger vehicle) on the Bucks Lake trail system or accommodate existing users from overcrowded parking at the Bucks Summit and Big Creek trailheads. Snow removal on the Oroville Quincy Highway would be performed by Butte County and/or its contractors. Based on snow depth levels expected on this stretch of road, and known plowing requirements for the Bucks Summit and Big Creek trailheads (Table 2-7), it is estimated that opening the Four Trees trailhead would require 500 hours of snow removal operations (plowing and/or blowing) per year.
- The China Wall trailhead is located on Foresthill Road in Tahoe National Forest (Figure 7C). The USFS is looking to expand the existing trailhead parking lot to provide 30 additional long spaces for vehicles pulling trailers. This would expand estimated parking capacity from 32 to 62 vehicles and could generate an increase of 1,380 passenger vehicles and 2,760 OSVs per season on the trail system based on a 14-week season. The parking lot would be closed during non-winter months due to lack of visitor demand. Environmental review for parking lot development is required under NEPA separate from the OSV Program. Environmental review of the parking lot development would be required under CEQA if state funded through the Grants Program. NEPA and if required, CEQA review, for this parking lot expansion is expected to commence this year with construction completed in two to three years. Placer County is under contract to Tahoe National Forest to plow three miles on Foresthill Road and the existing China Wall

trailhead parking lot and would plow the expanded parking area to maintain visitor access. Annual snow removal equipment operations for the existing road and parking area are 32 hours (Table 2-7). Thus the increase in snowplow or blower hours required to maintain the expanded portion of the China Wall parking area would be minimal.

Increased Grooming on Existing Trails. Presently, the OSV Program operates grooming equipment for roughly 5,000 hours annually (Table 2-2). Annual grooming hours fluctuate according to seasonal variations in snow volume and length of season. Over the 10-year program period, it is reasonable to expect that increased OSV use at the trail sites could result in demand for increased grooming frequency of existing groomed trails or new grooming of trail routes which are presently ungroomed. However, the grooming schedule is set by snowfall events and not by OSV use levels. Grooming operations at most trail systems currently operate near a maximum level. The OHMVR Division estimates that any increase in annual grooming equipment operation hours over the 10-year program period would not likely exceed 500 hours – roughly 10% of existing annual grooming operations. Equipment hours could also be reduced during the 10-year project period due to replacement of older equipment in the grooming vehicle fleet with newer, more powerful, and more efficient models. The replacement program for the OHMVR Division off-road vehicle fleet is further described in Section 2.4.1.

New Trail Systems. During the 10-year program period, the number of trail systems groomed by the OSV Program could be expanded to include new trail locations. No new trail sites are currently proposed for future inclusion in the OSV Program. However, given present day demands for OSV recreation and the popularity of some ungroomed locations, OHMVR Division staff has identified several locations that could be considered for State funding under the OSV Program within the next 10 years. These sites include:

- Lake Davis (Plumas National Forest). Lake Davis is located in Plumas County north of Portola off State Route 70 (Figure 13, Lake Davis). The trailhead parking lot was developed in 1989. This recreation area has existing parking for 25 vehicles with a single vault restroom located off Lake Davis Road. Plumas County currently plows approximately 10 miles of access road from Portola to Lake Davis. Based on parking capacity, potential OSV use of the groomed trail system from this trailhead is estimated at 2,300 OSV per season based on a 14 week season. There is general interest by Plumas National Forest in establishing 20 miles of groomed trail to be maintained by contract groomers. Grooming would occur on an existing road system which is seasonally closed. There are no immediate plans to create a new groomed trail system at Lake Davis as part of the OSV Program and no future groomed trail routes have been determined.
- State Route 4 – Carson Ranger District (Humboldt-Toiyabe National Forest). A new trailhead and groomed trail may be established on the Humboldt-Toiyabe National Forest to connect to the Lake Alpine trail system on the Stanislaus National Forest (Figure 14, State Route 4). Although there are no immediate plans available, the possibility of establishing a new trailhead and groomed trail is being discussed between OHMVR Division and the USFS. The new trailhead would be located near the State Route 4/State Route 89 junction below Monitor Pass and would consist of parking for 30 vehicles and a double vault restroom. Based on parking capacity, potential OSV use of the groomed trail system from this trailhead is estimated at 2,760 OSV per season. The new grooming would occur on approximately 30 miles of State Route 4 (seasonally closed) between Bear Valley and the State Route 4/State Route 89 junction. Grooming would be provided by a contract groomer. New plowing on roughly 6 miles of State Route 89 from Markleeville south to the new trailhead would be provided by Alpine county.

- Bass Lake (Sierra National Forest). Bass Lake is located in Madera County east of the State Route 49/State Route 41 junction (Figure 15, Bass Lake). There is no existing trailhead parking or restrooms at this location. Eight miles of plowed county road access on Beasore Road is provided by Madera County. Road side parking for winter recreation occurs on Beasore Road. There is general interest by Sierra National Forest in establishing 18 miles of groomed trail to be maintained by contract groomers. Grooming would occur on an existing road system which is seasonally closed. Assuming roadside parking capacity is 10 vehicles, potential OSV use of the groomed trail system is estimated at 920 OSV per season. There are no immediate plans to create a new groomed trail system at Bass Lake as part of the OSV Program and no future groomed trail routes have been determined.

The three trail systems combined would add 68 miles of groomed trail and 3 plowed trailheads to the OSV Program. This total grooming mileage represents the average size of one existing trail system (1,761 miles of trail over 26 trail systems). The addition of Lake Davis, State Route 4, and Bass Lake trail systems to the OSV Program would likely require up to 600 hours of grooming equipment operation per year based on average operations as shown in Table 2-2 (5,000 grooming hours over 26 trail systems). This level of activity would provide 20 days operation at 10 hours per day at each trail system. Plowed access to Lake Davis and Bass Lake is already provided by county road departments; therefore new plowing associated with future groomed trail systems at these two locations would be minimal. New plowing would be required to open a new trailhead on State Route 4 at Monitor Pass. Based on average snow removal operations as shown in Table 2-7 (2100 hours over 14 trailheads), the addition of this trailhead to the OSV Program would require 150 hours per year of snow removal equipment operation. This level of activity would provide 18 days of snow removal operation at 8 hours per day.

As discussed in Introduction (Section 1.2), site specific impacts of developing new State-funded groomed trail sites where the use does not already exist would be subject to environmental review under CEQA as a separate project. OSV Program maintenance of the three potential new trails identified above is covered by this EIR.

Thus, based on the potential described above, for increased operations at existing trail sites as well as the expansion to new locations, the maximum growth in OSV Program operations during the next 10 years (2010 to 2020) is defined by the EIR as increasing annual grooming equipment operations by 1,100 hours and snow removal operations by 700 hours. This takes into account the planned new plowing on Oroville Quincy Highway to open the Four Trees trailhead and plowing on the expanded China Wall trailhead, the flexibility of increasing grooming operations at existing sites (identified in Section 2.3 above) as needed to meet user or weather demands, and the potential to expand grooming and plowing operations at new locations not currently funded by the OSV Program.

### **2.7.2 Growth in Winter Trail Recreation**

In 1982, the OHMVR Division began funding its first groomed trail system in the Sierra National Forest (Tamarck). Nine more trail systems were added in the mid to late 1980's and 15 more trail systems were added between 1990 and 1992. The last trail system, Jonesville in Lassen National Forest, was added to the groomed trail system in 1996. The groomed trail system funded by the OHMVR Division has since remained static. The following section describes the growth trends in winter recreation and the change in visitor use levels which can be expected at the project sites during the proposed 10-year program funding.

### 2.7.2.1 OSV Recreation

According to a CDPR snowmobile user survey, approximately 14,000 snowmobiles were registered in the State of California in July 1997 (CDPR 1998). A survey was sent to every tenth registered snowmobile owner (800 out of 8,000 families) to inquire about trailheads visited and the level of visitor satisfaction. The return rate from the 800 surveys was 44%. The results indicated that the most often used staging areas were located in Eldorado National Forest (Hope Valley Sno-park, Iron Mountain), Tahoe National Forest (Little Truckee Summit, Bassetts) and Plumas National Forest (Bucks Lake, La Porte). However not all OSV Program trailheads were listed as options in the survey. The survey did not include the Inyo National Forest snowmobile area of Mammoth Lakes/June Lake or Sequoia National Forest trailheads of Sugarloaf, Eastside, Greenhorn Summit, and Quaking Aspen. For the majority of survey respondents there were four or more people in their typical snowmobile group (72%), and the number of miles traveled by snowmobile on a typical day was less than 80 miles (87%). These results are consistent with the findings of the 2009 Winter Trailhead Survey presented in Appendix A.

The California Department of Motor Vehicles (DMV) identifies 22,499 snowmobiles actively registered in California as of April 30, 2009 (Appendix B). An additional 392 snowmobiles are registered to out-of-state owners. Total Year 2009 registrations are an increase of approximately 8,900 over the 14,000 registrations in 1997, representing a 4.2% average annual increase. 2009 OSV registrations with DMV are down slightly from a peak level of 23,202 in 2008. Although snowmobile sales have weakened with the recession, it is reasonable to expect that OSV use will continue to increase at a similar average rate over the next 10 years resulting in additional snowmobile use of groomed trails and open riding areas as well as increased visitor parking at trailheads. The EIR assessment of project effects over the 10-year program period reflects a 4% average annual increase in project supported OSV use. Based on this growth rate, seasonal OSV use in the Project Area could increase 48%<sup>1</sup> from 159,000 (Table 2-8) to 235,000 by Year 2020. This corresponds to roughly 117,000 vehicles and 300,000 visitors per year at the trailhead parking areas assuming two OSVs per parked vehicle and vehicle occupancy of two to three persons.

### 2.7.2.2 Non-motorized Recreation

General snow play and non-motorized recreational use of groomed trails (e.g., cross-country skiing and snowshoeing) is likely to continue at similar levels in the Project Area over the 10-year planning horizon for the project. An indicator of non-motorized recreation use levels is the number of sno-park permits purchased for use of the 19 sno-parks operated by CDPR throughout the state. The number of sno-park day permits sold has declined significantly since 2005 while the number of sold season permits has remained fairly constant over the eight years that CDPR has collected data (Table 2-10).

Over the 10-year life of the project planning period, it is assumed that non-motorized recreation at the seven sno-parks which provide trailhead parking for OSV Program trail systems will remain steady. Given the downward trend in day permit purchases, projecting an increase in non-motorized recreation use levels at sno-parks over the next ten years of the OSV Program project is tenuous. For the purposes of the EIR, it is assumed that the number of non-motorized users at the seven sno-parks which share parking with OSV Program trail systems as well as the number

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<sup>1</sup> 4% average annual increase over 10 years = 1.04 multiplied 10 times or  $(1.04)^{10} = 1.48$  which is a 48% increase

of non-motorized users which may visit other OSV Program trail systems will remain similar to current use levels with no substantial increase.

<b>Season</b>	<b>Season Permits Sold</b>	<b>Day Permits Sold</b>
2001/2002	5,214	43,997
2002/2003	4,700	44,771
2003/2004	5,530	43,534
2004/2005	5,852	43,447
2005/2006	4,667	42,381
2006/2007	4,376	24,252
2007/2008	4,811	28,921
2008/2009	4,485	25,679

Source: CDPR 2009

## **2.8 MITIGATING MEASURES INCORPORATED INTO THE PROJECT**

### **2.8.1 USFS Resource Management**

OHMVR Division has incorporated the following measures into the OSV Program. These measures are implemented by the USFS as an ongoing part of the OSV Program operation.

Resource Monitoring. Each national forest monitors its trail systems for evidence of OSV trespass into closed areas, OSV use near or damage of sensitive plant and wildlife sites, and low snow areas subject to erosion concerns. Field inspection results are recorded on a Monitoring Checklist shown in Appendix C. Based on the results of monitoring, corrective actions can be taken as needed to address observed problems. Each national forest would continue to submit checklists annually to the OHMVR Division for review at the close of each winter season.

Management Actions. The national forests have identified special-status species known to occur or potentially occurring in OSV use areas during the winter season. Each national forest has Management Actions which address special-status wildlife species and habitat protection in the Project Area. These Management Actions serve to minimize potential effects of OSV use on these special-status species. The Management Actions include continued forest monitoring of the plant and wildlife species of concern and limiting the operating period on groomed trails within ¼ mile of known den sites or Protected Activity Centers. The specific Management Action for each species further described in Biological Resources (Section 5.2.7).

### **2.8.2 Vehicle Fleet Replacement or Upgrade**

Both trail grooming and snow removal equipment used in the OSV Program are subject to state regulations requiring replacement or upgrade/retrofit to reduce air pollutant emissions. Compliance with regulations would cumulatively reduce the average OSV Program vehicle emissions and would more than offset increases in overall activity that may result from foreseeable program growth as described in Section 2.7.

### 2.8.3 Water Quality Management Practices

Snow removal operations conducted by the USFS, county road departments, or their contractors as part of the OSV Program (Table 2-6) are subject to federal (if on USFS lands) or state regulations governing water quality. Best Management Practices are implemented at the federal, state, and local level for compliance with by the federal Clean Water Act (CWA) and state Basin Plans as described in Section 6.1.

## 2.9 OSV PROGRAM ADMINISTRATION

### 2.9.1 OSV Program Funding

OSV Program activities are funded by the OHV Trust Fund and dispersed through one of two funding mechanisms. Annual funding of OSV Program operation and maintenance activities primarily occurs through the 2002 BCP which secured OSV Program funding from the OHV Trust Fund. The BCP allows for up to \$1,000,000 to support grooming, plowing, and facility maintenance operations. The total amount encumbered each year varies somewhat based on anticipated fuel and labor costs and length of the snow season. The OSV Program has consistently provided roughly \$900,000 annually over the past six years (2004 through 2010). Provided funds which have not been spent at the end of the contract period revert back to the OHV Trust Fund. Currently, 11 national forests and three county agencies as shown in Table 2-11 receive funding through the BCP for grooming, plowing, and facility maintenance services described above in Section 2.4.

The second funding mechanism for OSV Program related activity is the Grants Program. Whereas the BCP strictly funds grooming, plowing, and facility maintenance activities, the Grants Program funds can be used to fund supplemental OSV activities not allowed under the BCP such as purchase and maintenance of equipment and administrative support services described in Section 2.4.4. Historically, the Grants Program has not funded OSV Program related activities since the BCP was established. However, in 2010, five national forests were granted one-time funds totaling \$227,445 for equipment purchases and supplemental staffing for cleaning maintenance, visitor contacts, and/or resource monitoring as shown in Table 2-11.

Typical funding levels expected over the 10-year program period may increase reflective of program growth levels described in Section 2.7 above. Such increases would be subject to availability of OHV Trust Funds. The OHV Trust Fund has a fluctuating revenue source (OHV registration fees, gas tax, and State Vehicular Recreation Area fees) and supports other OHV-related programs in addition to the OSV Program.

**Table 2-11. OSV Program Funding, BCP Contract Years 2004 through 2010 and Grants Program Year 2010**

Funding Recipient	BCP Funding				Grants Funding
	2-Yr Contract 2004-2006	2-Yr Contract 2006-2008	1-Yr Contract 2008-2009	1-yr Contract 2009-2010	1-yr Grant 2010
Klamath NF	94,000	134,000	58,500	58,500	
Modoc NF	34,776	40,000	21,500	21,500	
Shasta-Trinity NF	39,982	69,200	39,600	39,600	

<b>Table 2-11. OSV Program Funding, BCP Contract Years 2004 through 2010 and Grants Program Year 2010</b>					
<b>Funding Recipient</b>	<b>BCP Funding</b>				<b>Grants Funding</b>
	<b>2-Yr Contract 2004-2006</b>	<b>2-Yr Contract 2006-2008</b>	<b>1-Yr Contract 2008-2009</b>	<b>1-yr Contract 2009-2010</b>	<b>1-yr Grant 2010</b>
Lassen NF	190,886	155,000	84,500	84,500	
Butte County	220,590	100,000	60,000	60,000	
Sierra County	80,000	220,000	118,500	118,500	
Plumas County	129,382	130,000	105,250	105,250	
Plumas NF	132,250	142,000	49,000	49,000	51,500
Tahoe NF	76,000	112,000	65,500	65,500	46,500
Eldorado NF	81,560	80,000	30,000	30,000	
Humboldt-Toiyabe NF	0	0	0	0	105,000
Stanislaus NF	213,000	194,000	120,500	120,500	6,650
Inyo NF	72,200	74,000	42,000	42,000	
Sierra NF	140,000	127,000	76,062	76,062	
Sequoia NF	283,234	202,200	106,100	106,100	17,795
<b>Totals</b>	<b>1,787,860</b>	<b>1,779,400</b>	<b>977,012</b>	<b>977,012</b>	<b>227,445</b>

Source: CDPR, OHVMR Division 2009

## 2.9.2 OSV Program Administration

Under the proposed 10-year program period, the OHMVR Division would issue multi-year contracts to each participating agency.

Prior to annual release of OSV Program funds, each recipient must submit to the OHMVR Division the following data from the prior season: 1) Summary log of equipment hours for the season, 2) Monitoring checklist forms completed for all trails, 3) Summary log of patrol hours on trails and any enforcement actions taken, 4) Vehicle count at trailheads on weekend patrol days, 5) Summary of OSV trespass incidents and management actions taken or planned, 6) Demonstration of compliance with any OSV Program mitigation measures identified in this EIR. County recipients of OSV Program funds are responsible only for plowing or grooming and would report only on equipment hours since national forests conduct the resource monitoring and enforcement patrols.

OHMVR Division would review all end of the season reports submitted by the OSV Program CSA and contract recipients to determine whether all required resource monitoring and patrols have occurred and that recipients are in compliance with OSV Program requirements. Based upon this review, the OHMVR Division would make an administrative finding as to whether each recipient is in compliance with the OSV Program requirements and whether contracts would be issued for the following winter season. If during the course of its review, OHMVR Division determines that a recipient is not in compliance with the OSV Program requirements, the OHMVR Division would make an administrative finding of non-compliance and would not renew the contract with that agency until compliance can be demonstrated.

## **3.0 LAND USE PLANS AND POLICIES**

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The following discussion presents the land use plans and policies governing the winter recreational trail system in the national forests affected by the proposed OSV Program. This section addresses project consistency with federal land use policy as set forth by the Land Resource Management Plans of each national forest as well as consistency with the Wilderness Act, which protects wilderness areas adjoining many of the winter trail systems. Consistency with other applicable plans, such as air quality management plans, is discussed in relevant EIR chapters. All project activities occur on forest land with the exception of snow removal on county roads and the Chester-Lake Almanor trailhead, which is also on county land (Plumas County). Land use activities within the national forests are not subject to county general plan land use policies.

### **3.1 REGULATORY SETTING**

#### **3.1.1 Land Resource Management Plans**

Each of the 11 national forests participating in the OSV Program have LRMPs which set forth Standards and Guidelines (S&Gs) relevant to OSV management. The S&Gs are divided into two types: forest-wide S&Gs (Appendix D, Table 1) and management prescriptions and management area S&Gs (Appendix D, Table 2). Forest-wide S&Gs apply to the entire national forest, whereas management prescriptions and management area S&Gs are narrower in scope applying only to specific resources, activities, or areas within the forest. The OSV Program groomed trail system and riding areas can extend across several different management areas within a single national forest.

There are seven national forests (Klamath, Modoc, Shasta-Trinity, Lassen, Plumas, Tahoe, and Inyo) that divide the forest geographically into management areas. These national forests have management area S&Gs in addition to the forest-wide S&Gs and management prescriptions (Appendix D, Table 2). Management area S&Gs define specific management actions within a management area.

Forest-wide S&Gs and management prescriptions relevant to OSV management can be generally combined into eight natural resource policy categories: Air Quality, Biology, Cultural Resources, Recreation, Resource Management, Timber, Watershed Management, and Wilderness. Many of the LRMPs are 20 or more years old and do not distinguish between OSVs and the all encompassing term OHV.

##### **3.1.1.1 Forest-wide S&Gs**

Below is a summary description of the eight policy areas addressed by forest-wide S&Gs which are relevant to OSV use and the OSV Program. Table 3-1 shows which LRMP policy areas identified by each national forest apply to the OSV Program project sites. A full listing of all forest-wide S&Gs relevant to the OSV Program is presented in Appendix D, Table 1.



<b>Table 3-1. Overview of LRMP Forest-Wide Standards and Guidelines Relevant to OSV Program Trail Systems</b>		
<b>National Forest</b>	<b>Trail System</b>	<b>S&amp;G Categories</b>
Klamath	Deer Mountain, Four Corners Medicine Lake	1,2,3,4,5,7
Modoc	Doorknob	1,2,3,4,5,7
Shasta Trinity	Pilgrim Creek	1,2,4,5,7,8
Lassen	Ashpan, Bogard, Fredonyer, Swain Mountain, Morgan Summit, Jonesville	1,2,4,5
Plumas	Bucks Lake, La Porte, Gold Lake	2,4,5,7
Tahoe	Bassetts, Little Truckee Summit, China Wall	2,4,7
Eldorado	Silver Bear	2,4,5,7
Stanislaus	Lake Alpine, Spicer Reservoir, Highway 108	1,2,4,7
Inyo	Mammoth Lakes Area	2,4,5,6,7
Sierra	Huntington Lake/Kaiser Pass, Tamarack Ridge	2,3,4,5,7
Sequoia	Big Meadow/Quail Flat, Quaking Aspen/Sugarloaf, Kern Plateau	2,4,5,7
Key: 1 Air Quality; 2 Biology; 3 Cultural Resources; 4 Recreation; 5 Resource Management; 6 Timber; 7 Watershed Management; 8 Wilderness		

Source: TRA Environmental Sciences, Inc. 2010

### **Air Quality**

Air quality forest-wide S&Gs for each national forest require compliance with federal, state, and local air quality statutes and regulations for all projects. These include the Federal Clean Air Act and California Air Resources Board (CARB), and Air Pollution Control District (APCD) regulations. Each national forest identifies, maintains an inventory of, and monitors air quality related values (AQRV), which are air pollutants resulting from forest management activities. AQRV include but are not limited to road dust, wood smoke, and vehicle emissions (Appendix D, Table 1).

### **Biology**

Biology related forest-wide S&Gs encompass fish, wildlife, plants, their habitats, and overall biodiversity management. The intent of these S&Gs is to ensure that biodiversity is managed sustainably such that viable populations of sensitive species and protection of their habitats are maintained in each national forest. Biodiversity S&Gs also address impacts to more common species such as black-tailed deer (*Odocoileus hemionus columbianus*). For example, all national forests have a guideline that protects the winter range of black-tailed deer. For federally-listed threatened and endangered wildlife and plants and their habitats, national forests are required to conduct a biological assessment of new activities on project sites to determine the presence or absence of species and sensitive habitats. These assessments are to be carried out in coordination with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) (Appendix D, Table 1).

## **Cultural Resources**

Cultural resources forest-wide S&Gs state that all national forests must comply with the National Historic Preservation Act of 1978, the American Indian Religious Freedom Act of 1978, the National Environmental Protection Act (NEPA), as well as the Archaeological Resources Protection Act of 1979. The cultural resources S&Gs protect access to sites and locations important to traditional Native American religious and cultural practices. The cultural resources S&Gs also protect cultural resources by directing activities and use away from sensitive areas (Appendix D, Table 1). Mitigation plans are required for projects where impacts are unavoidable. A forest-wide inventory of cultural resources is maintained by each national forest.

## **Recreation**

Every national forest maintains Recreation Opportunity Spectrum (ROS) guidelines and a motor vehicle use map (MVUM) to manage motorized recreation. The ROS guidelines divide each national forest into six classes: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural, and modern-urban. Motorized travel is prohibited in the primitive and semi-primitive non-motorized ROS classes. OSV trails are identified for users on the MVUM of each respective national forest. In national forests over-the-snow cross-country travel is open except where it is prohibited by law (Appendix D, Table 1). This means that OSVs are able to travel off of designated routes in national forests and into open riding areas which permit motorized use. In national monuments such as the Giant Sequoia National Monument, OSV use is restricted to designated roads.

## **Resource Management**

The resource management forest-wide S&Gs address natural resources including water, riparian, geology, range, wild and scenic rivers, and law enforcement. The S&Gs state that projects are to follow NEPA and Forest Service Manual processes which include identifying best management practices (BMPs) during project-level environmental analysis. Also, all national forests shall utilize the Water Improvement Needs (WIN) inventory to maintain a watershed level list of water quality impacts and restoration needs. Riparian areas are to be given primary management emphasis to protect riparian habitat and sensitive species. Riparian management areas are to extend 100 feet horizontally from the edge of perennial streams, lakes, and reservoirs. Existing trails and roads are considered for rerouting outside riparian areas where necessary to eliminate or reduce unacceptable deterioration of riparian dependent resources. Management plans are to be developed for each established research natural area, special interest area, and for each existing wild, scenic and recreation river (Appendix D, Table 1).

## **Timber**

The timber forest-wide S&Gs are written to limit potential resource conflict. Access to timber roads is open for designated nordic and snowmobile trails. Timber management policies do not apply to OSV use but do defer to recreation policies which delineate use of timber access roads for designated OSV trails.

## **Watershed Management**

Watershed management S&Gs focus on conducting analyses before project implementation to limit impacts to watersheds. National forests are to cooperate with local, state, and federal

agencies in long-range watershed planning. Each national forest conducts a WIN inventory to assess and prioritize water problems. Each national forest also applies cumulative watershed effects (CWE) methodology to assess the potential cumulative effects of each project. As well, all national forests are to designate OSV trails and open areas to minimize conflicts with sensitive watershed areas (Appendix D, Table 1).

### **Wilderness**

Wilderness S&Gs focus on minimizing potential trespass into wilderness areas. Wilderness areas are closed by federal law to motorized vehicles (see Section 3.1.3 below). Encroachment signs are to be posted next to trails and areas open to OSV uses that are adjacent to wilderness areas (Appendix D, Table 1).

#### **3.1.1.2 Management Prescriptions**

Below is a description of the four natural resource policy areas addressed by the management prescriptions which are relevant to OSV use and the OSV Program. A full listing of management prescriptions is presented in Appendix D, Table 2.

### **Biology**

Biodiversity management prescriptions range from broad landscape-level guidelines in which projects are to be subjected to interdisciplinary analysis before their implementation to species-specific actions within a given management unit. For example, in the Klamath LRMP, the special habitat prescription states that project activities shall be evaluated by a local interdisciplinary team, and appropriate guidelines for the project shall be written and documented (Appendix D, Table 2). Within a management area, each LRMP describes management actions for specific species. For example MA 14-2 of the Klamath LRMP states that seasonal restrictions may apply to activities that interfere with fawning, herd movement, or behavior (Appendix D, Table 2). Following this pattern, the biodiversity management prescriptions are structured so that each national forest can follow specific actions to limit the impacts to biodiversity.

### **Recreation**

Recreation management prescriptions designate the locations where OHV use, including OSVs, is restricted, open, or closed. Every LRMP states that it will follow the ROS guidelines for each management area. The ROS guidelines list the types of recreation activities allowed. For example, if the management area is listed as ROS primitive then it is closed to OHV use. If the management area is listed as ROS roaded natural then it is open to OHV use. All LRMPs have ROS guidelines listed in the management direction section, and all management areas are given an ROS designation. Within each national forest specific management actions are outlined within some management areas. For example, Lassen LRMP lists specific OHV guidelines in eight of the thirty-eight management areas of the Project. Also, the Inyo LRMP limits OSV use in each prescription area based on the Winter Motor Vehicle Use Map (Appendix D, Table 2). In this manner, each national forest places specific restrictions on OSV use to limit its impacts.

### **Resource Management**

Resource Management prescriptions are focused on limiting impacts to soil, water, range, and visual resources. The Modoc National Forest LRMP is the only plan that discusses soils and

OHV use. This LRMP states that in the Medicine management area, all OHV use will be restricted to roads and trails in sensitive soil areas (Appendix D, Table 2). Water prescriptions are outlined in three LRMPs: Inyo, Klamath, and Lassen. These LRMPs state that the national forests will support state water quality control requirements and local ordinances to mitigate adverse impacts from runoff onto national forest lands. Specifically, in Inyo National Forest at the Mammoth Escarpment management area, the national forest will work with responsible agencies to assure compliance with the water management plan for Mammoth Lakes Basin (Appendix D, Table 2).

Visual Resource prescriptions are found in Klamath and Modoc LRMPs. MA11-8 of the Klamath LRMP states that the national forest is to manage recreational settings to generally achieve semi-primitive and rural ROS conditions. In Modoc National Forest areas within the visual retention prescription are open to OHV use if impacts cannot be seen from primary roads.

### **Watershed Management**

Watershed Management prescriptions state that national forests are to manage at the watershed scale by utilizing BMPs that follow regional water quality control board standards. Within some management areas the national forests work with agencies to ensure implementation of water management plans. For example, in Inyo National Forest, in the Mammoth Escarpment management area, the national forest works with agencies to assure compliance with the provisions of the Mammoth Lakes Basin water management plan. In some national forests watershed management actions are in place for the protection of endangered species. In the Upper Owens River management area, also in Inyo National Forest, riparian areas are managed to maintain high quality habitat for fish. In Klamath National Forest wilderness area watersheds are not altered or manipulated. Projects that take place near important water features are evaluated on a project by project basis. In the Bucks management area of Plumas National Forest, each project in the watershed is evaluated for its potential to degrade Bucks Lake water quality (Appendix D, Table 2).

#### **3.1.2 Sierra Nevada Framework**

The Sierra Nevada Framework applies to nine of the eleven national forests in the Project Area receiving OSV Program funding. The two forests not covered by the Framework are Klamath and Shasta-Trinity. The Record of Decision (ROD) for the Sierra Nevada Forest Plan Amendment Project was signed on January 12, 2001. This decision added a number of S&Gs to the Forest LRMPs. These include the establishment of Limited Operating Periods (LOPs) around sensitive species' reproductive sites if ongoing activities are shown to be causing unacceptable impacts. Several new analysis requirements have also been added to address the spread of noxious weeds in general and cumulative watershed effects for activities occurring within Riparian Conservation Areas (USFS 2001).

Specifically, OSV management is addressed in the forest-wide S&G R09 for roads (FEIS Volume 4, Appendix D1-25, Preferred Alternative Standards and Guidelines; USFS 2001). This S&G states that "Unless otherwise restricted by current forest plans or other specific area S&Gs, cross-country travel by over-snow vehicles would continue. Each national forest will designate its own access policies where off road travel is permitted." Thus, each national forest is to design policies with regard to over-snow vehicle access within their respective forests.

In 2004, the USFS amended the Sierra Nevada Framework. This decision was appealed and on May 14, 2008, the U.S. Court of Appeals placed an injunction on the amendment and remanded the decision back to the District Court. On August 1, 2008, the Eastern District Court of California issued its order on the 2004 Framework. The District Court found in favor of the government on all claims except one: failure to consider reasonable alternatives to the 2004 Framework as required by NEPA. On November 4, 2009, the District Court issued a remedy order that allows the USFS to continue implementing the 2004 Framework while it addresses the following court ordered remedies:

- Detailed consideration of a noncommercial funding alternative for fuels reduction projects planned in the future.
- Develop a supplemental EIS (SEIS) to the 2004 Framework to address the range of alternatives issue, to be completed by May 1, 2010.

On April 2, 2010, the plaintiff motioned the U.S. Court of Appeals for an injunction pending the conclusion of an appeal. The court granted the motion and preparation of the SEIS is on hold until the appeal process is concluded.

The Sierra Nevada Framework does not add any new policies governing OSV use and therefore is not further addressed in this land use plans and policies section.

### **3.1.3 Wilderness Act**

The United States was the first country in the world to define and designate wilderness areas through law. The Wilderness Act of 1964 (16 U.S.C. 1131-1136, Public Law 88-577) permanently protected some of the most natural and undisturbed places in the U.S. The Wilderness Act continues to be the guiding piece of legislation for all wilderness areas. The Act describes wilderness as follows:

"...lands designated for preservation and protection in their natural condition..." Section 2(a)

"...an area where the earth and its community of life are untrammelled by man..." Section 2(c)

"...an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvement or human habitation..." Section 2(c)

"...generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable..." Section 2(c)

"...has outstanding opportunities for solitude or a primitive and unconfined type of recreation..." Section 2(c)

"...shall be devoted to the public purposes of recreation, scenic, scientific, educational, conservation and historic use." Section 4(b)

The wilderness designation is a protective overlay Congress applies to selected portions of federal lands administered by National Park Service, USFS, USFWS, and Bureau of Land Management.

The Wilderness Act created the National Wilderness Preservation System (NWPS), the system that collectively unites all individual wilderness areas. California has 148 wilderness units, with the second largest wilderness complex (contiguous wilderness acreage) in the contiguous United States found in the southern Sierra Nevada consisting of the southern half of the Yosemite Wilderness and the Ansel Adams, Dinkey Lakes, John Muir, Monarch, Sequoia-Kings Canyon, Golden Trout, and South Sierra Wildernesses (2,241,439 acres). Wilderness areas near the Project Area are identified in Table 3-2.

Hiking, camping, hunting, fishing, picnicking, kayaking and canoeing, swimming, backpacking, horseback riding, rafting, skiing, snow-shoeing, bird-watching, and many other forms of recreation are allowed in wilderness areas. Any form of non-mechanized use is generally permitted, and motorized travel is allowed in cases of emergencies. The Wilderness Act prohibits logging, road-building, and vehicle use, including both motor vehicles (such as snowmobiles, OHVs, and dirt bikes) and other mechanical vehicles.

### 3.2 ENVIRONMENTAL SETTING

All land in the Project Area occurs in national forests located throughout the mountainous regions of California (Map 1). Land uses within national forests are varied supporting recreation, lodging, tourism, and commercial industry related to natural resources contained within the forests such as timber harvesting, mineral resources, fishing, etc. The size of each national forest and the recreation opportunity for OSV use is described in Recreation, Table 8-2. Land uses in the national forests are governed by forest plans or Land Resource Management Plans which are described above in Section 3.1.1.

Lands adjoining the Project Area are typically undeveloped forest land available for recreational use. Wilderness areas, national parks and monuments, and state wildlife refuges are some of the special interest areas located in the project region (see Figures 16 through 36). The geographic and cultural areas of interest located nearest the project trail sites are shown in Table 3-2. Parcels of non-forest owned land are dispersed throughout the national forests many of which may be developed with rural residences.

<b>Table 3-2. Special Interest Areas in Project Area Vicinity</b>		
<b>National Forest</b>	<b>OSV Trail System</b>	<b>Wilderness, Geographic, and Cultural Special Interest Areas</b>
Klamath	Deer Mountain	Mount Shasta Wilderness
Klamath	Four Corners Medicine Lake	Lava Beds National Monument, Medicine Lake, Pumice Stone Well, Deep Ice Caves, Glass Mt. Glass Flow, Medicine Lake Glass Flow, Burnt Lava Flow
Modoc	Doorknob	Lava Beds National Monument, Medicine Lake, Pumice Stone Well, Deep Ice Caves, Glass Mt. Geological Area
Shasta-Trinity	Pilgrim Creek	Mount Shasta Wilderness, Medicine Lake, Pumice Stone Well, Deep Ice Caves, Glass Mt. Geological Area
Lassen	Ashpan	Thousand Lakes Wilderness, Latour Demonstration State Forest, Lassen Volcanic National Park
Lassen	Bogard	Caribou Wilderness, Lassen Volcanic National Park, Eagle Lake
Lassen	Fredonyer	Mountain Meadows Reservoir

<b>Table 3-2. Special Interest Areas in Project Area Vicinity</b>		
<b>National Forest</b>	<b>OSV Trail System</b>	<b>Wilderness, Geographic, and Cultural Special Interest Areas</b>
Lassen	Swain Mountain	Caribou Wilderness, Lassen Volcanic National Park, Lake Almanor, Swain Mountain Experimental Forest
Lassen	Morgan Summit	Lassen Volcanic National Park
Lassen	Jonesville	Coon Hollow Wildlife Area
Plumas	Bucks Lake	Bucks Lake, Bucks Lake Wilderness, Pacific Crest Trail
Plumas	La Porte	Pacific Crest Trail
Plumas	Gold Lake	Lakes Basin, Plumas Eureka State Park
Tahoe	Bassetts	Lakes Basin, Yuba River
Tahoe	Little Truckee Summit	Weber Lake, Independence Lake, Little Truckee River
Tahoe	China Wall	Granite Chief Wilderness, French Meadows Game Refuge, Placer Big Trees
Eldorado	Silver Bear	Mokelumne Wilderness
Stanislaus	Lake Alpine	Mokelumne Wilderness, Carson Iceberg Wilderness
Stanislaus	Spicer Reservoir	Carson Iceberg Wilderness
Stanislaus	Highway 108	Carson Iceberg Wilderness, Emigrant Wilderness
Inyo	Mammoth Lakes	Ansel Adams Wilderness, Summit Research Area, Crater Flats, Inyo Craters, Mono Craters Hot Springs Geological Area, Sentinel Meadow Research Natural Area, Devil's Postpile National Monument, June Mountain and Mammoth Mountain Ski Areas, Mono Basin National Forest Scenic Area
Sierra	Huntington Lake, Tamarack Ridge	Kaiser Wilderness, Dinkey Lakes Wilderness, Ansel Adams Wilderness, John Muir Wilderness
Sequoia	Big Meadow/Quail Flat	Jennie Lakes Wilderness, Monarch Wilderness, Kings Canyon National Park, Sequoia National Park, Giant Sequoia National Monument, General Grant Grove, Converse Basin Grove, Big Stump Grove
Sequoia	Quaking Aspen/Sugarloaf	Golden Trout Wilderness, Giant Sequoia National Monument, Tule River Indian Reservation
Sequoia	Kern Plateau	Kern River

Source: TRA Environmental Sciences, Inc. 2010

### 3.3 PROJECT IMPACTS

#### 3.3.1 Thresholds of Significance

According to the CEQA Guidelines (Appendix G), a project will have a significant effect on land use if the following conditions occur:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

The potential effects of OSV trespass into protected wilderness, other areas closed to OHV use, or private property are also evaluated in this EIR section. The following criteria were used to evaluate this impact:

- How frequently does the trespass occur?
- What was the nature of the trespass, purposeful or inadvertent?
- How deep into the wilderness area does trespass generally occur?
- What is the perceived magnitude of the problem by USFS staff?
- What is the current level of law enforcement?
- Would additional measures significantly reduce the impact?
- Has the trespass resulted in damage to private or public property, natural resources, or public safety impacts?

### **3.3.2 Project Baseline, Year 2010**

#### **3.3.2.1 Conformance with Land Use Plans and Policies**

Direct OSV Program activities of plowing, trail grooming, and facility maintenance and indirect subsequent activity of OSV use of the project sites were evaluated for consistency with USFS LRMP policies. There are no habitat conservation plans or natural community conservation plans relative to the Project Area. OSV Program activity and OSV use of the winter trail systems have been occurring in national forests for decades.

Project conformance with each of the eight forest-wide S&Gs and management prescription policy categories is addressed below.

#### **Air Quality**

**Snow Removal and Trail Grooming.** Direct emissions from project equipment operations are consistent with federal and state air quality requirements (see Air Quality, Section 4.3.2.1). Direct project emissions conform to national forest LRMP air quality S&Gs requiring compliance with federal, state, and local air quality standards.

**Passenger Vehicle Travel and OSV Use.** Indirect emissions from visitor travel to the Project Area and OSV use of the groomed project trails are consistent with federal and state air quality requirements (see Air Quality, Section 4.3.2.1). Direct project emissions thus conform to national forest LRMP air quality S&Gs (Appendix D, Table 1) requiring compliance with federal, state, and local air quality standards.

#### **Biology**

**Snow Removal and Trail Grooming.** Plants and wildlife are not adversely affected by project activities of snow removal, which occurs on paved surfaces or trail grooming, which occurs on a minimum snow depth of 12 inches. Snow removal and trail grooming activities do not conflict with national forest LRMP S&Gs and management prescriptions governing the protection of biological resources within the forests (Appendix D, Tables 1 and 2). See Biology, Section 5.3.2 for further discussion.

**Passenger Vehicle Travel.** Passenger vehicle travel to the Project Area occurs on established paved roads. No biological effects occur from this activity, which is thus consistent with LRMP biological S&Gs and management prescriptions.



**OSV Use.** OSV use in the national forests facilitated by the OSV Program groomed trails occurs in areas consistent with LRMP designations for motorized recreation. This OSV use does not conflict with LRMP S&Gs or management prescriptions governing protection of biodiversity or specific biological resources in management areas. OSV use does not modify habitat. The USFS manages OSV use in areas where federal, state, or forest sensitive species could be adversely affected by monitoring resource locations and implementing limited operating periods or route closures consistent with LRMP S&Gs. The impact of OSV use on specific biological resources is addressed in Biology, Section 5.3.2. Inventories of CRPR and FSS listed species in the national forests near the OSV Program trails are incomplete as discussed in Biology, Section 5.3.2.2. If OSV use facilitated by the OSV Program trails is shown to be significantly damaging CRPR or FSS populations, the OSV Program would not be in conformance with forest-wide LRMP biodiversity S&Gs in several national forests which require maintenance of viable populations of native plant species or sensitive plant species (Appendix D, Table 1). Implementation of Measure BIO-4 in Biology, Section 5.4 would ensure OSV Program compliance with LRMP biodiversity S&Gs regarding special-status plant species.

### **Cultural Resources**

**Snow Removal and Trail Grooming.** Project plowing and grooming activities occur on a network of established roads and trails that does not contain cultural resources. LRMP forest-wide and management area S&Gs governing cultural resources are not affected.

**Passenger Vehicle Travel.** Passenger vehicle travel to the Project Area occurs on established paved roads. No effects to cultural resources occur from this activity.

**OSV Use.** No ground disturbance occurs from OSV use where there is adequate snow cover. In low snow areas, OSV use could contact bare soil resulting in minor ground disturbance. Soil compaction associated with OSV use is minimal (Hydrology and Water Quality, Section 6.3.20). OSV use occurs on groomed trails where no cultural resources occur and in off-trail riding areas known to contain cultural resources such as Modoc National Forest; however, no cultural resources have been adversely affected by OSV use (see CEQA Issues, Section 10.0). Therefore, the Project is consistent with cultural resources LRMP S&Gs and management prescriptions governing the protection of cultural resources.

### **Recreation**

**Snow Removal, Trail Grooming, Passenger Vehicle Travel, and OSV Use.** All groomed trails and riding areas within the Project Area occur in areas of the national forests with suitably designated ROS classes allowing OSV use and vehicle travel. The designated trail system and OSV use is therefore consistent with LRMP S&Gs and management prescriptions governing recreation.

### **Resource Management**

**Snow Removal, Trail Grooming, and Passenger Vehicle Travel.** The use of snowplows and snowcats on established roads and trails and the travel of passenger vehicles on access roads do not affect soils, riparian resources, range management, or wild and scenic rivers which are addressed by LRMP S&Gs and management prescriptions governing resource management. These activities are therefore consistent with the LRMP.

**OSV Use.** Off-trail riding by OSVs could potentially affect soils under low snow conditions, although the potential effects of soil compaction and erosion are not considered significant (Hydrology and Water Quality, Section 6.3.2). Vegetation trampling and potential impacts to riparian resources from OSV use are also considered less than significant (Biology, Section 5.3.2). Wild and Scenic rivers cannot be accessed from the groomed trail system or adjoining riding area. Therefore, the Project is consistent with LRMP S&Gs and management prescriptions governing resource management.

### **Timber**

**Snow Removal, Trail Grooming, Passenger Vehicle Travel, and OSV Use.** None of the direct (snow removal and trail grooming) or indirect (vehicle travel and OSV use) OSV Program activities affect timber stands. LRMP forest-wide timber S&Gs allow motorized OHV use of timber roads where it does not conflict with use of or access to timber stands. Therefore, the Project is consistent with these LRMP timber S&Gs and management prescriptions.

### **Watershed Management**

**Snow Removal, Trail Grooming, and Passenger Vehicle Travel.** The direct project activities of snow removal and trail grooming and subsequent indirect activity of visitor travel to the Project Area occur over an existing road network and do not alter landforms or result in significant soil disturbance that would change water flow patterns or quantities of surface water runoff. Snow removal and passenger vehicle travel occur on paved surfaces. All trail grooming occurs over existing paved or dirt roads on minimum snow depth of 12 inches. Trail grooming does not cause substantial impacts to water quality, perennial, intermittent or ephemeral streams, wetlands or other bodies of water. Therefore, project activities of snow removal, trail grooming, and vehicle travel are consistent with LRMP watershed management S&Gs and management prescriptions.

**OSV Use.** The majority of OSV use occurs on groomed trails where there is adequate snow cover and low potential for contact with bare soil. OSV use on the groomed trail system does not cause substantial impacts to water quality, perennial, intermittent or ephemeral streams, wetlands or other bodies of water. In open riding areas, OSV use can contact bare soil under low conditions or encounter water resources. As described in Hydrology and Water Quality, Section 6.3.2 the Project does not result in significant soil erosion and therefore does not create water quality impacts to streams or water bodies by introducing sediment in water runoff. Exhaust emissions on the snow pack from grooming equipment or OSV are considered minor and do not impair water quality of snow melt (Hydrology and Water Quality, Section 6.3.3). Therefore, the indirect project activity of OSV use is consistent with LRMP watershed management S&Gs and management prescriptions.

### **Wilderness**

**Snow Removal and Passenger Vehicle Travel.** Snow removal occurs on existing paved roads and provides passenger vehicle access to trailheads and snow play areas. Providing plowed access on an existing road network does not impact protected wilderness areas.

**Trail Grooming and OSV Use.** LRMP ROS designations prohibit motorized use within wilderness areas in conformance with the Wilderness Act. Several of the winter trail systems in the Project Area are located adjacent to wilderness areas in national forests. As described below

in Section 3.3.2.2, the groomed trails indirectly facilitate OSV access to the wilderness boundaries and wilderness incursions in some locations. USFS relies on law enforcement patrols, citations, signage, and public outreach to enforce the wilderness boundaries within the national forests. With continuation of management levels currently employed by the USFS (Section 3.3.2.2), the 2010 OSV use levels facilitated by project activities of snow removal and trail grooming do not significantly affect wilderness areas and does not conflict with LRMP protection of wilderness areas.

### **3.3.2.2 OSV Intrusion into Closed Areas**

#### **Wilderness Areas**

The USFS patrols wilderness areas near OSV Program groomed trails to enforce the wilderness boundaries that are closed to OSV use. Wilderness boundaries near OSV areas are signed to identify the boundary and prohibit trespass. USFS uses law enforcement officers and forest protection officers to patrol project trail sites and known areas of concern on skis, snowmobiles, and by fixed-wing airplane. OSV trespass into closed areas can result in citation.

As shown in Table 3-2, sixteen wilderness areas in addition to national parks and monuments are located in the vicinity of the Project Area. USFS has identified nine wilderness areas as known hot spots or problem areas for OSV intrusion that require USFS monitoring as shown in Table 3-3. Two of the known trespass locations, Mount Shasta Wilderness (Shasta-Trinity National Forest) and Mokelumne Wilderness near the Blue Lakes area (Eldorado National Forest), are accessed from areas not associated with the OSV Program trails or trailheads. These trespasses are therefore not considered impacts caused by the OSV Program.

Intrusion by OSV users originating within the Project Area occurs in the following wilderness areas: Mount Shasta Wilderness (Klamath National Forest), Lassen Volcanic National Park and Caribou Wilderness (Lassen National Forest), Bucks Lake Wilderness (Plumas National Forest), Mokelumne Wilderness along Squaw Ridge (Eldorado National Forest), Kaiser Wilderness (Sierra National Forest) and John Muir Wilderness (Sierra National Forest), Carson-Iceberg Wilderness (Stanislaus National Forest), Mokelumne Wilderness between Hope Valley and Lake Alpine (Stanislaus National Forest), Golden Trout Wilderness (Sequoia National Forest), and South Sierra Wilderness (Sequoia National Forest) (see Table 3-3). The characteristics of these intrusions are described below.

Klamath National Forest. Intrusion into the Mount Shasta Wilderness area occurs near Brewer Creek on the East side of Shasta Mountain. OSV users entering this area likely originate from the Deer Creek trailhead. Although trespass in this area has historically been a problem, increased patrols and better signage have reduced the frequency of intrusion in recent years.

Lassen National Forest. Two trespass issues originate in the Lassen National Forest: Lassen Volcanic National Park near Eskimo Hill and Caribou Wilderness near Echo Lake and Cone Lake. Trespass into Lassen Volcanic National Park likely originates from Ashpan or Morgan Summit trailhead, while trespass into Caribou Wilderness likely begins at the Swain Mountain trailhead. Intrusion into Lassen Volcanic National Park is not known to be a chronic problem by USFS or National Park staff. Intrusion into Caribou Wilderness area is believed to occur due to poor signage and no distinct geographic feature that delineates the wilderness area boundary. However, this problem is not considered to be chronic by USFS staff.

Plumas National Forest. Trespass into Bucks Lake Wilderness area from Plumas National Forest Service groomed trails occurs near the trailhead of the Bucks Summit Staging area. The wilderness area boundary comes close to that of the trailhead in an area with an attractive slope for snowmobilers. Riders will ride up the slope, cross into wilderness territory, and then ride back down into national forest lands. More aggressive signage and patrols in recent years have reduced the frequency of occurrence.

Eldorado National Forest. Originating from the Eldorado National Forest, trespass into the Mokelumne Wilderness area occurs in the area of Squaw Ridge. Trespassers must leave the groomed trail system and then travel 0.25 miles to enter the wilderness area. Users trespassing into this area are likely entering the system at the Iron Mountain trailhead. Trespass in this area is not considered chronic.

Sierra National Forest. Trespass into the Kaiser and John Muir Wilderness areas originate from the Kaiser and Huntington Lake trailheads in Sierra National Forest. Although additional signage and law enforcement personnel would likely help alleviate trespass pressure, the situation was not deemed significant given the perceived low intensity of trespass.

Stanislaus National Forest. Trespass into Carson Iceberg Wilderness area near Highlands Lake at Folger Peak Bowl and Hiram Peak Bowl originates from the Alpine Lakes trailhead in Stanislaus National Forest. Trespass occurs because of the attractiveness and proximity of the bowls to the groomed trail system. Increased OSV patrol of wilderness boundaries and signage in recent years has reduced the frequency of trespass, although several citations are still given every year. In 2009, three wilderness trespass citations were issued at Hiram Peak Bowl during aerial patrol.

Trespass into the Mokelumne Wilderness area also originates at the Alpine Lakes trailhead in Stanislaus National Forest. Users use Mokelumne Wilderness lands to travel between Stanislaus and Eldorado National Forest. On the Eldorado National Forest side, users enter the Mokelumne Wilderness from the Hope Valley area, which is a groomed system under private operation. Despite frequent land and air patrols and the existence of an official corridor between these two national forests on Mokelumne Wilderness lands, trespass still occurs. Although the frequency of this trespass issue is somewhat high, the significance of this impact was determined to be less than significant as current law enforcement efforts are perceived by USFS staff to be commensurate with the level of impact.

Sequoia National Forest. Trespass into the Golden Trout Wilderness area near the north end of Monache Meadows and into the South Sierra Wilderness area near the south end of Monache Meadows originates from the Sequoia National Forest Kern Plateau-eastside trailhead. Trespass into these wilderness areas is purposeful, requiring users to travel several miles off of the groomed trail system, sometimes requiring fuel caches. This trespass issue was determined to be less than significant due to the infrequency of the offense and the relatively light use of the trail system in general.

Given the proximity of several groomed trail systems to wilderness boundaries, some OSV trespass from the Project Area into protected wilderness would occur from the Project at the current baseline conditions (Table 3-3). Unintentional intrusion would continue to be addressed by increased signage, public outreach, and law enforcement patrols. Wilful trespass could occur regardless of these measures. Fencing and increased patrols can be helpful in blocking access and deterring repeat offenses by catching violators and issuing citations. Those national forests

reporting trespass incidents indicate that wilderness intrusion is not a chronic condition and that they have implemented measures as needed to minimize the occurrence. Based on interviews with USFS staff about the nature, probable origin, frequency, magnitude, and perceived severity of the problem (significance criteria identified in Section 3.3.1), in conjunction with ongoing USFS patrols, enforcement, and education, none of the trespass issues are considered significant from a qualitative standpoint. Because addressing trespass is a high priority for the OHMVR Division, however, Mitigation Measure LU-1 would ensure the USFS and OHMVR Division continue to work cooperatively to ensure trespass into closed areas is immediately identified and addressed and remains less than significant. The likelihood of increased OSV intrusion over the 10-year program period is addressed below in Section 3.3.3.

<b>National Forest</b>	<b>OSV Intrusion Area</b>	<b>Origin of OSV</b>	<b>Patrol Type/ Frequency</b>
Klamath	Mount Shasta Wilderness near Brewer Creek on East side of Shasta Mountain	Deer Mountain trailhead and Pilgrim Creek trailhead	2 patrols/wk 30 person days
Klamath	Private properties	undetermined	
Modoc	Private property with cabins near Medicine Lake	Shared trail system with Shasta-Trinity, Klamath, and Modoc	Seldom patrolled
Shasta-Trinity	Mount Shasta Wilderness on south side of Mt. Shasta. Private subdivision near Pilgrim Creek trailhead off State Route 89	Bunny Flat trailhead (outside Project Area) Pilgrim Creek trailhead	n/a
Lassen	Lassen Volcanic National Park near Eskimo Hill	Ashpan or Morgan Summit	LEO weekends FPO weekdays
Lassen	Caribou Wilderness near Echo Lake and Cone Lake	Swain Mountain	
Plumas	Bucks Lake Wilderness near Bucks Summit Staging area	Bucks Summit trailhead	5 patrols/wk
Eldorado	Mokelumne Wilderness along Squaw Ridge	Iron Mountain trailhead	Weekend patrols 28 person days
Eldorado, Humboldt-Toiyabe	Mokelumne Wilderness near the Blue Lakes area	Groomed trails accessed from the Hope Valley Sno-Park (outside Project Area)	Aerial patrol, 97 person days patrol in the Hope Valley
Stanislaus	Carson Iceberg Wilderness near Highlands Lake at Folger Peak Bowl and Hiram Peak Bowl	Lake Alpine	Aerial patrols and weekend patrols
Eldorado, Stanislaus	Mokelumne Wilderness between Hope Valley and Lake Alpine trail	Lake Alpine	Aerial patrols and weekend patrols
Inyo	North Zone: Crater Flats, Minaret Vista, Mammoth Lakes Basin, Glass Flow Nordic area (administrative closure areas). South Zone: Bishop Creek, Ancient Bristlecone Pine Forest, Golden Trout Wilderness and South Sierra Wilderness near Monache Meadows.	North Zone: Mammoth Lake groomed trails South Zone (outside of Project Area)	LEO 5 patrols/wk FPO 2 patrols/wk

Sierra	Kaiser and John Muir Wildernesses where these areas border the trail system	Kaiser and Huntington Lake trailheads	Patrols on holiday and heavy-use weekends
Sequoia	Giant Sequoia National Monument near Sand Pit and Buck Rock Lookout	Big Meadow/Quail Flat trailheads	Weekend patrols
Sequoia	Giant Sequoia National Monument near Ponderosa	Private residential properties	Limited patrols
Sequoia	Golden Trout Wilderness near north end of Monache Meadows	Kern Plateau-Eastside trailhead	Limited patrols
Sequoia	South Sierra Wilderness near south end of Monache Meadows	Kern Plateau-Eastside trailhead	
Notes: LEO – Law Enforcement Officer FPO – Forest Protection Officer Tahoe National Forest did not report wilderness intrusion. Sequoia National Forest reports OSV intrusion as rare or not an issue.			

Source: USFS 2009

### Private Property and other Administrative Closure Areas

Private property trespass by OSV use has been reported by Modoc and Shasta-Trinity National Forests (Table 3-3). The trespass issue on Modoc National Forest was not deemed significant by USFS staff due to its infrequency. The trespass issue on subdivision property reported by Shasta-Trinity National Forest near Pilgrim Creek was unable to be confirmed or acted upon by USFS staff given that the incident was reported after the close of the riding season.

Administrative OSV Closure Areas include Nordic ski areas which occur in numerous locations throughout the national forests, high visitor use areas such as those in Inyo National Forest near Mammoth Lake, and the Giant Sequoia National Monument. Trespass into these areas is generally resolved by patrol and public outreach to educate OSV users on closed area boundaries. Occasional user conflicts between OSV and cross-country skiers have been reported in the Giant Sequoia National Monument near the community of Ponderosa as well as OSV use off designated routes. Sequoia National Forest has received state funding through the Grants Program for the 2010/2011 season to provide increased patrols to address these issues. Previous incidents mitigated by visitor education with the information boards, handouts, and initiating contact. For the 2009/2010 winter season, information boards, handouts, and regular patrols were conducted to educate and enforce Forest rules and regulations. Signage (Carsonite posts) were installed in the Sand Pit area to educate visitors on remaining on designated routes when in the Forest.

The Klamath National Forest reports that there is a considerable amount of private land that interfaces with National Forest lands along the snowmobile corridor trails. The “Becket & Becket Tree Farm Trail Agreement” and permission from Sierra Pacific Industries authorizes snowmobiles to cross the tree farm land on a designated trail to reach public land. The agreement does not authorize random riding on Tree Farm property. The “Hart & Louie Ranch Meadow Areas” strictly prohibits snowmobile use on their lands. The larger Timber Companies (Sierra Pacific Industries, Fruit Growers Supply Company, and TP) lands are aware of snowmobile use on their lands. Violators who ride on the private land closed to snowmobiles are warned and repeat violators referred to the private landowner for a trespass complaint.

Given the proximity of several groomed trail systems to private property and Administrative OSV Closure Areas, some OSV trespass into these areas would occur from the Project at current baseline conditions (Table 3-3). Unintentional intrusion would continue to be addressed by increased signage, public outreach, and law enforcement patrols. Wilful trespass could occur regardless of these measures. Fencing and increased patrols can be helpful in blocking access and deterring repeat offenses by catching violators and issuing citations. Those national forests reporting trespass incidents indicate that intrusion is not a chronic condition and that they have implemented focused enforcement actions as needed to minimize the occurrence. Based on interviews with USFS staff about the nature, probable origin, frequency, magnitude, and perceived severity of the problem (significance criteria identified in Section 3.3.1), in conjunction with ongoing USFS patrols, enforcement, and education, no significant impacts have been identified. In the absence of ongoing enforcement efforts, trespass incidents could increase and, if patrols and law enforcements were not implemented the trespass issues could result in a significant impact.

The OHMVR Division and USFS have successfully partnered in the past to implement focused enforcement actions such as aerial patrols and public education to successfully address specific trespass concerns that arise. Measure LU-1 requires that USFS continue monitoring wilderness boundaries, private property, and other closed areas near the OSV Program trails and that the OHMVR Division work with USFS and County Sheriff Offices to implement focused enforcement efforts to address increased OSV trespass incidents as warranted. Implementation of Measure LU-1 would reduce the potential for increased trespass into areas closed to OSV recreation to a less-than-significant level.

Because addressing trespass is a high priority for the OHMVR Division, however, and unchecked trespass could quickly rise to a level of significance, Mitigation Measure LU-1 would ensure the USFS and OHMVR Division continue to work cooperatively to ensure trespass onto private land and closed areas is immediately identified and addressed and remains less than significant. The likelihood of increased OSV intrusion over the 10-year program period is addressed below in Section 3.3.3.

### **3.3.3 10-Year Program Growth, Year 2020**

#### **3.3.3.1 Conformance with Land Use Plans and Policies**

##### **Air Quality**

**Expanded Trailhead Parking.** Expanded trailhead parking at Four Trees and China Wall would result in an additional 500 hours of new snow removal equipment operation per year and subsequent increase in use of the trailheads by 2,300 passenger vehicles or 4,600 OSV riders per season. The Four Trees trailhead already exists and the China Wall trailhead exists but would be enlarged for increased capacity. Use of these trailheads would support continued recreational use of established winter trails and does not conflict with LRMP S&Gs regarding compliance with federal, state, and local air quality regulations.

**Increased Grooming at Existing Trails.** Increased grooming operations at existing trails would add 1,100 hours of snowcat operations to the OSV Program by Year 2020 to accommodate growth in OSV recreation. Emissions from the increased grooming are described in Air Quality, Energy, and Greenhouse Gases, Sections 4.3.2 and 4.3.4. This increase conforms with LRMP S&Gs which require compliance with federal, state and local air quality standards.

**New Trail Systems.** New trail systems would add new direct project emissions from operation of snow removal and grooming equipment as indirect emissions from passenger vehicle travel to the new trail sites. The three new trails with the potential to be added to the OSV Program by 2020 (Project Description, Section 2.7.1) would require roughly 600 hours of grooming and 150 hours of plowing and would support 2,990 parked vehicles and 5,980 OSV riders. The air quality emissions from the new trail systems are included in the assessment of OSV Program growth operations for Year 2020 in Air Quality, Energy, and Greenhouse Gases, Sections 4.3.2 and 4.3.4. This increase conforms with LRMP S&Gs which require compliance with federal, state and local air quality standards.

**Growth in OSV Recreation.** As the demand for winter recreation grows, it is inevitable that fuel consumption from project equipment operation (snow removal and trail grooming), OSV use, and passenger vehicle travel would increase resulting in an increase in NO<sub>x</sub>, ROG, and GHG emissions. Project emissions are described in Air Quality, Energy, and Greenhouse Gases, Sections 4.3.2 and 4.3.4. This increase conforms with LRMP S&Gs which require compliance with federal, state and local air quality standards (see Appendix D, Table 1).

### **Biology**

**Expanded Trailhead Parking.** Snow removal on the Oroville Quincy Highway and Four Trees trailhead (Plumas National Forest) and on an expanded China Wall trailhead (Tahoe National Forest) which would occur under the OSV Program growth would occur on paved surfaces and would not adversely affect biological resources. Snow removal to expand trailhead parking would not conflict with LRMP S&Gs or management prescriptions governing biological resources. Development of the trailhead expansion at China Wall is subject to NEPA review and would be designed and constructed in conformance with applicable USFS S&Gs.

**Increased Grooming at Existing Trails.** Increased grooming operations at the 26 existing trail sites do not create new biological impacts or introduce new conflicts with USFS management of biological resources. Increased grooming under the 10-year program growth would be consistent with LRMP S&G and management prescriptions governing biological resources.

**New Trail Systems.** The biological effects of establishing a new trail system or new OSV use in national forests would be subject to new environmental review under NEPA and would be planned, constructed and implemented consistent with LRMP S&Gs governing biological resources.

**Growth in OSV Recreation.** Increased OSV use in off-trail riding areas along the groomed trail system could result in increased impact to CRPR and FSS plant species which are potentially present but have not been inventoried and are not monitored by the USFS. As described in Section 3.3.2.1 above, implementation of Measure BIO-3 would bring the OSV Program into to conformance with LRMP S&Gs and management prescriptions governing biological resources.

### **Cultural Resources**

**Expanded Trailhead Parking.** Snow removal on the Oroville Quincy Highway and Four Trees trailhead (Plumas National Forest) and on an expanded China Wall trailhead (Tahoe National Forest) which would occur under the OSV Program growth would occur on paved surfaces and not adversely affect cultural resources. Snow removal to expand trailhead parking would not conflict with LRMP S&Gs or management prescriptions governing cultural resources.



Development of the trailhead expansion at China Wall is subject to NEPA review and would be designed and constructed in conformance with applicable USFS S&Gs.

**Increased Grooming at Existing Trails.** OSV Program activities in the Project Area do not impact cultural resources and are consistent with LRMP S&Gs and management prescriptions governing cultural resources. See Section 3.3.2.1 above. Increased plowing or trail grooming operations at the existing OSV Program trail locations would not create new impacts to cultural resources and therefore would be consistent with LRMP S&G and management prescriptions governing cultural resources.

**New Trail Systems.** Cultural resources, if present at the potential new trail grooming sites identified in Project Description, Section 2.7.1, would not likely be impacted given the protective snow cover and the absence of ground disturbance activity associated with the Project. Site specific impacts of new trail development would be subject to new environmental review under CEQA.

**Growth in OSV Recreation.** OSV recreation does not impact cultural resources at existing trail locations. See Section 3.3.2.1 above. Increased OSV use at the existing OSV Program trail locations would not create new impacts to cultural resources and therefore would be consistent with LRMP S&G and management prescriptions governing cultural resources.

### **Recreation**

**Expanded Trailhead Parking.** Snow removal on the Oroville Quincy Highway and at Four Trees trailhead (Pumas National Forest) as well as at the expanded China Wall trailhead (Tahoe National Forest) would increase public access to the groomed trail system and facilitate winter recreation in areas of the national forest open to motorized use. Expansion of the OSV Program to include the Four Trees trailhead and add capacity to the China Wall trailhead is consistent with LRMP ROS designations governing recreational use on the Plumas and Tahoe National Forests.

**Increased Grooming at Existing Trails.** All plowed access roads, groomed trails and riding areas within the Project Area occur in areas of the national forests with suitably designated ROS classes allowing OSV use and vehicle travel. See Section 3.3.2.1 above. Increased plowing or trail grooming operations at the existing OSV Program trail locations would also be consistent with LRMP S&Gs and management prescriptions governing recreation.

**New Trail Systems.** Plowing, grooming, and OSV use at the three potential new groomed trail sites identified in Project Description, Section 2.7.1 would be evaluated by the USFS for consistency with LRMP ROS designations and S&Gs and management prescriptions governing recreational uses at the time these sites are actually proposed for development and incorporation into the OSV Program.

**Growth in OSV Recreation.** All groomed trails and riding areas within the Project Area occur in areas of national forests with suitably designated ROS classes allowing OSV use. Increased OSV use at existing OSV Program trail locations would also be consistent with LRMP S&Gs and management prescriptions governing recreation.

## Resource Management

**Expanded Trailhead Parking.** Snow removal on the Oroville Quincy Highway and at Four Trees trailhead as well as at the expanded China Wall trailhead would occur on established roads parking areas. The use of snowplows and subsequent passenger vehicles on these access and parking facilities would not affect soils, riparian resources, range management, or wild and scenic rivers which are addressed by LRMP S&Gs and management prescriptions governing resource management. These activities are therefore consistent with the LRMP.

**Increased Grooming at Existing Trails.** Snow plowing and grooming occurs on an established road network and does not affect soils, riparian resources, range management, or wild and scenic rivers which are addressed by LRMP S&Gs and management prescriptions governing resource management. Increased plowing or trail grooming operations at the existing OSV Program trail locations would also be consistent with LRMP S&Gs and management prescriptions governing resource management.

**New Trail Systems.** Plowing and grooming at the new trail sites identified in Project Description, Section 2.7.1 would occur on an existing road or trail network and would therefore not affect soils, riparian resources, range management, or wild and scenic rivers which are addressed by LRMP S&Gs and management prescriptions governing resource management. OSV use at these new trail systems would be evaluated for site specific impacts on natural resources governed by LRMP S&Gs and management prescriptions at the time these sites are actually proposed for development and incorporation into the OSV Program.

**Growth in OSV Recreation.** Off-trail riding by OSVs could potentially affect soils under low snow conditions although the potential effects of soil compaction and erosion are not considered significant (Hydrology and Water Quality, Section 6.3.2). Vegetation trampling and potential impacts to riparian resources from OSV use are also considered less than significant (Biology, Section 5.3.2). Wild and scenic rivers cannot be accessed from the groomed trail system or adjoining riding area. Therefore, the Project is consistent with LRMP S&Gs and management prescriptions governing resource management.

## Timber

**Expanded Trailhead Parking.** Snow removal on the Oroville Quincy Highway and at Four Trees trailhead as well as at the expanded China Wall trailhead does not affect timber resources and would not conflict with LRMP timber S&Gs and management prescriptions.

**Increased Grooming at Existing Trails.** Snow removal and trail grooming activities do not affect timber stands. LRMP forest-wide timber S&Gs allow motorized OHV use of timber roads where it does not conflict with use of or access to timber stands. Increased plowing or trail grooming operations at the existing OSV Program trail locations would also be consistent with LRMP S&Gs and management prescriptions governing timber.

**New Trail Systems.** Development of new trail systems as identified in Project Description, Section 2.7.1 would occur on an existing road network and would not require removal of timber stands. Subsequent OSV use of the new trails would also not affect timber resources. The new trail systems would be consistent with LRMP S&Gs and management prescriptions governing timber.

**Growth in OSV Recreation.** OSV use in the Project Area does not affect timber stands. LRMP forest-wide timber S&Gs allow motorized OHV use of timber roads where it does not conflict with use of or access to timber stands. Increased OSV use at the existing OSV Program trail locations would also be consistent with LRMP S&Gs and management prescriptions governing timber.

### **Watershed Management**

**Expanded Trailhead Parking.** Snow removal occurs on paved surfaces and does not change water flow patterns or quantities of surface water runoff, affect water quality, or otherwise affect bodies of water (see Watershed Management discussion in Section 4.3.2.1 above). Snow removal on the Oroville Quincy Highway and Four Trees trailhead as well as at the expanded China Wall trailhead would not introduce new watershed impacts and would also be consistent with LRMP watershed management S&Gs and management prescriptions.

**Increased Grooming at Existing Trails.** Trail grooming occurs over an existing road network and does not alter landform or cause soil disturbance that would change water flow patterns or quantities of surface water runoff, affect water quality, or otherwise affect bodies of water (see Watershed Management discussion in Section 4.3.2.1 above). Increased plowing and grooming would not introduce new watershed impacts and would also be consistent with LRMP watershed management S&Gs and management prescriptions.

**New Trail Systems.** New trail systems would be developed over an existing road or OHV trail network and snow removal, trail grooming, and subsequent OSV use would not change the landform or disturb soils or vegetation which could affect water flow patterns or quantities of surface water runoff. Higher levels of vehicle exhaust from project equipment and OSV use would occur on the watershed snowpack due to introduction of new or increase mobile emissions. However the impact would not be significant (see Hydrology and Water Quality, Section 6.3.3). The impact of new trail systems on local watersheds and the consistency of the these new trail systems with LRMP watershed S&Gs and management prescriptions would be evaluated at the time the sites are actually proposed for development and incorporation into the OSV Program.

**Growth in OSV Recreation.** The majority of OSV use occurs on groomed trails where there is adequate snow cover and low potential for contact with bare soil. Likewise, the majority of increased OSV use would also occur on the groomed trail system where contact with perennial, intermittent or ephemeral streams, wetlands or other bodies of water would not occur. Increased OSV use in open riding areas would increase the potential for OSV contact with bare soil under low conditions or encounter water resources and increase exhaust emissions on the snow pack. As described in Hydrology and Water Quality, Section 6.3.3.1 the effects are not significant and therefore, increased OSV recreation does not conflict with LRMP watershed management S&Gs and management prescriptions.

### **Wilderness**

**Expanded Trailhead Parking.** Plowing the Oroville Quincy Highway to open the Four Trees trailhead at Bucks Lake (Plumas National Forest) could alleviate overflow parking conditions at Bucks Summit (Table 8-3) and potentially reduce the number of wilderness intrusions occurring from that staging area (Table 3-3). The nearest wilderness to the China Wall trail system, Granite Chief Wilderness, has not been impacted by OSV use from China Wall. Expansion of the snow

removal operation at the China Wall trailhead would not introduce a new impact to this wilderness. Opening the Four Trees trailhead for winter use and plowing an expanded trailhead at China Wall would not conflict with LRMP S&Gs governing protection of wilderness.

**Increased Grooming at Existing Trails.** Increased grooming needed to serve OSV use at the existing groomed trail systems would not conflict with LRMP S&Gs governing wilderness or exacerbate OSV trespass issues described above in Section 3.3.3.

**New Trail Systems.** The new trail systems that may potentially be established by the OSV Program during the next 10 years as identified in Project Description, Section 2.7.1 would not occur in protected wilderness areas. Indirect impacts to wilderness areas could occur from OSV trespass as described below in Section 3.3.3.2.

**Growth in OSV Recreation.** Increased OSV use at existing OSV Program trail locations could increase OSV trespass into wilderness areas. This is further discussed below in Section 3.3.3.2.

### 3.3.3.2 OSV Intrusion into Closed Areas and Private Property

**Expanded Trailhead Parking.** Snow removal on Oroville Quincy Highway and the Four Trees trailhead parking lot would not result in new exposure of the Bucks Lake Wilderness (Plumas National Forest) to OSV use and would not expand the groomed trail system at Bucks Lake. The Four Trees trailhead could relieve parking demand pressure at the Bucks Summit and Big Creek trailheads by providing access to Bucks Lake from the west side of the lake. To the degree that opening Four Trees reduces the OSV staging out of Bucks Summit, it is possible that unintentional wilderness trespass occurring at the Bucks Summit trailhead could be reduced.

Expanding the China Wall trailhead parking lot by 30 spaces could double the OSV use of the trail system (Project Description 2.7.1). Tahoe National Forest reports that there are currently no known OSV trespass problems at its trailheads. An increased in use at China Wall by 2,940 OSVs is unlikely to result in new OSV trespass issues.

**Increased Grooming at Existing Trails.** Increased plowing and grooming needed to serve OSV use at the existing 26 groomed trail systems would not conflict with LRMP S&Gs governing wilderness or exacerbate OSV trespass issues described above in Section 3.3.3.

**New Trail Systems.** Three new locations have been identified as possible sites for establishing new groomed trail systems. OSV use already occurs in the Lake Davis and Bass Lake areas on ungroomed trails. County road departments currently provide plowed access to these areas. Establishing a groomed trail system could attract increased OSV use at these two locations. Plowed access is not available at the State Route 4 Monitor Pass area so OSV use at this third location would be new.

Lake Davis is not located near wilderness areas so there is no potential for wilderness trespass from a future trail system at this location. State Route 4 between Lake Alpine and Monitor Pass threads between Mokelumne Wilderness and Carson Iceberg Wilderness. Both of these wildernesses receive trespass from OSV use originating from Lake Alpine (Table 3-3). Extending the groomed path along 30 miles of State Route 4 (Humboldt-Toiyabe National Forest) could increase the number of wilderness incursions in this area. At Bass Lake (Sierra National Forest), Beasore Road (County Road 7) approaches Ansel Adams Wilderness to the east. A groomed trail system established on Beasore Road could increase the amount of OSV use

near the Ansel Adams Wilderness boundary and increase the potential for OSV incursion into this wilderness. New OSV incursion into wilderness would be a likely effect from establishing a Bass Lake and State Route 4 Monitor Pass trail system.

Based on the analysis presented in above, continued active monitoring, public education, and law enforcement efforts by USFS staff, as prescribed by Measure LU-1, would continue to be effective in preventing the occasional trespass from becoming a chronic condition.

Development and use of new groomed trail systems under the OSV Program would be subject to future environmental review and approval under NEPA for the USFS and CEQA for the OHMVR Division. Potential impacts to wilderness associated with the new trail systems would be evaluated at such time as the projects are actually proposed.

**Growth in OSV Recreation.** Based on historic trends, annual OSV use throughout the Project Area can be expected to increase from 159,000 to 235,000 by 2020 (Project Description, Section 2.7). As described in Section 3.3.3, OSV intrusion into closed areas including wilderness, private property, and Administrative OSV Closure Areas occurs on a limited basis. If a substantial increase in OSV use in the Project Area occurs over the next 10 years, it is reasonable to conclude that the incidents of OSV intrusion into closed areas may increase. Such increased trespass would be a significant impact. Improved signage, public outreach, and increased patrols of closed area boundaries may be necessary on trail systems where OSV incursion into wilderness becomes chronic. These USFS management actions have been effective in curbing wilderness intrusions, and more implementation of these same management tools would continue to prove effective in handling increased incursion incidents caused by growth in OSV use levels.

The OHMVR Division and USFS have successfully partnered in the past to implement focused enforcement actions such as aerial patrols and public education to successfully address specific trespass concerns that arise. Measure LU-1 requires that USFS continue monitoring wilderness boundaries, private property, and other closed areas near the OSV Program trails and that the OHMVR Division work with USFS and County Sheriff Offices to implement focused enforcement efforts to address increased OSV trespass incidents as warranted. Implementation of Measure LU-1 would reduce the potential for increased trespass into areas closed to OSV recreation to a less-than-significant level.

### 3.3.4 Cumulative Impacts

There are no known activities or projects occurring in the national forests which would overlap with the OSV Program activities resulting in a cumulative effect concerning land use issues. Incidents of OSV trespass into wilderness areas, administrative closure areas, and private property occur throughout the Project Area as described in Table 3-3 from non-OSV Program sites such as ungroomed trails and private residences. The USFS and County Sheriff's Office provide law enforcement efforts at these locations. There are no other activities in the national forests which would contribute to OSV intrusion of wilderness areas or other areas closed to OSV use.

### 3.4 MITIGATION MEASURES

Implementation of the following measure would ensure OSV Program compliance with applicable USFS LRMP S&Gs and management prescriptions regarding special-status plant species and wilderness protection.

**IMPACT:** *If inventories and subsequent monitoring show that OSV use is damaging CRPR or FSS populations, the OSV Program would conflict with forest-wide LRMP biodiversity S&Gs in several national forests which require maintenance of viable populations of native plant species or sensitive plant species (Appendix D, Table 1).*

**Measure BIO-4:** (see Biology, Section 5.4)

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Completion of inventories and implementation of protective measures would minimize significant impacts on special-status plant species from OSV operations.

**Feasibility:** Feasible

**Monitoring:** USFS shall submit completed inventories to OHMVR Division for review. USFS shall maintain a log of monitoring efforts and any management actions implemented to protect sensitive status plants. This log shall be submitted to OHMVR Division for agency review each summer prior to contract approval for OSV Program operations for the following winter season.

Implementation of the following measure would ensure the potential impacts of trespass into wilderness, private property, and other closed areas remain less than significant.

**IMPACT:** *OSV trespass into wilderness areas facilitated by project groomed trails could occur under baseline use levels and would likely increase beyond present levels due to growth in OSV recreation over the 10-year program period. Current areas of trespass which may receive a higher incidence of intrusion from increased OSV use during the 10-year program period include: Mount Shasta Wilderness (Klamath National Forest), Lassen Volcanic National Park and Caribou Wilderness (Lassen National Forest), Bucks Lake Wilderness (Plumas National Forest), Mokelumne Wilderness along Squaw Ridge (Eldorado National Forest), Kaiser and John Muir Wilderness (Sierra National Forest), Carson-Iceberg Wilderness (Stanislaus National Forest), Mokelumne Wilderness between Hope Valley and Lake Alpine (Eldorado and Stanislaus National Forests), Golden Trout Wilderness (Sequoia National Forest), and South Sierra Wilderness (Sequoia National Forest).*

**Measure LU-1:** All national forests participating in the OSV Program shall monitor wilderness boundaries, private property, and other closed areas near the groomed trail system for OSV incursions. National forests shall submit patrol logs to Division showing hours and days of patrol in known trespass locations, number of observed trespass incidents, and number of citations issued. National forests shall identify to the OHMVR Division what management actions have been taken and what, if any, additional actions are needed to further prevent trespass into wilderness areas, private property, or other closed areas. OHMVR Division shall work with law enforcement personnel from the USFS and County Sheriff Offices to implement focused enforcement actions as needed to address trespass incidents such as increased patrol frequency, aerial patrols, public education, signage, fencing, or trail closure.

**Implementation:** By USFS and OHMVR Division

**Effectiveness:** Existing management actions have been effective at preventing wilderness trespass from becoming an escalating chronic condition. With continued management and implementation of focused enforcement actions, wilderness incursions would not be eliminated but would be minimized to a less than significant level.

**Feasibility:** Feasible; the USFS and OHMVR Division have implemented focused enforcement actions previously to resolve trespass issues.

**Monitoring:** National forests shall submit patrol logs and statement of needed management actions to OHMVR Division at end of each snow season and prior to OHMVR Division release of OSV Program funds to the national forests for the following winter season.

## 4.0 AIR QUALITY, ENERGY, AND GREENHOUSE GASES

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The proposed continuation of the OSV Program would contribute funding to support maintenance of motorized winter recreation facilities. As described below, the program directly funds use of diesel-powered heavy equipment for plowing parking areas and grooming trails. Plowing and grooming equipment is a direct mobile air emissions source. This facility maintenance accommodates recreation use, so visitors' travel to and from the trailhead and OSV use on trails are indirect mobile air emissions sources. All of these mobile sources consume energy as petroleum based fuels and consequently emit carbon dioxide, which is a greenhouse gas associated with global climate change.

### 4.1 REGULATORY SETTING

#### 4.1.1 Ambient Air Quality Standards

The Clean Air Act (CAA) establishes federal standards known as National Ambient Air Quality Standards (NAAQS). The CAA requires states to submit a State Implementation Plan for areas not in attainment with NAAQS. The CAA also sets forth provisions regarding mobile sources such as gasoline reformulation and tailpipe emissions standards and establishes the regulatory process for evaluating emissions from stationary sources – New Source Review (NSR) for non-attainment pollutants and Prevention of Significant Deterioration (PSD) for attainment pollutants. The California Clean Air Act (California CAA) establishes state standards known as the California Ambient Air Quality Standards (CAAQS). In general, the CAAQS are more stringent than the corresponding NAAQS.

In California, air quality is governed by the CARB. The State is geographically divided into 15 air basins defined by geographic features such as valleys and mountains. Air quality within these basins is managed by 35 different air districts, which are called Air Quality Management Districts (AQMD) or APCDs. These agencies are county or regional governing authorities that have primary responsibility for monitoring and enforcing state and federal air quality standards. Each air district sets its own regulations for air pollutant emissions in order to achieve compliance with federal and state ambient air quality standards. These thresholds are used by the air districts as a screening level to see if proposed emissions from stationary sources should be subject to further review such as NSR or PSD. The off-highway mobile sources of the proposed Project are not subject to air district NSR or PSD.

#### 4.1.2 Air Pollutants

Particulate Matter. Particulate matter is small diameter solid particles or liquid droplets suspended in the air. Particulate matter may be produced by natural causes (e.g., pollen, ocean salt spray, soil erosion) and by human activity (e.g., road dust, agricultural operations, fuel combustion products, wood burning, rock crushing, cement production, and motor vehicles). Of greatest concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. These particles are less than 10 microns in diameter – about 1/7th the thickness of a human hair – and are known as PM<sub>10</sub>. Regulation is also now focusing on a class of smaller fine particulate matter known as PM<sub>2.5</sub> comprising particles less than 2.5 microns in diameter.



Exposure to particle pollution is linked to an increased frequency and severity of asthma attacks and bronchitis, and even premature death in people with existing cardiac or respiratory disease (NSVPA 2006). In addition to health impacts, these particles can reside in the atmosphere for long periods of time and are the main contributors to reduced visibility.

Diesel Particulate Matter (DPM). DPM is a carcinogen regulated as a Toxic Air Contaminant (TAC) separately from its contribution to PM<sub>10</sub> and PM<sub>2.5</sub> pollution. Diesel exhaust contains carcinogenic polycyclic aromatic hydrocarbons, arsenic, benzene, and formaldehyde. The threshold of significance for TAC, including DPMs, is an elevation of lifetime cancer risk greater than 10 in one million (E+10-5).

Nitrogen Oxides (NOx). Nitrogen dioxide (NO<sub>2</sub>), a toxic reddish-brown gas, and nitric oxide (NO), a colorless gas, comprise NOx. Because NOx is an ingredient in the formation of ozone, it is referred to as an ozone precursor. Both NO<sub>2</sub> and NO are produced as a result of fuel combustion. NO<sub>2</sub> is associated with adverse health effects such as breathing difficulties at high concentrations and is formed in the atmosphere when NO is oxidized to NO<sub>2</sub>. NO<sub>2</sub> further oxidizes to form nitric acid when dissolved in atmospheric moisture, forming a component of acid rain and by further reaction to nitrate ion, which contributes to fine particulate (PM<sub>10</sub>). NO<sub>2</sub> itself is a weak GHG but when returned to earth in the form of nitric acid, it is then reduced to nitrous oxide (N<sub>2</sub>O) by soil bacteria. Nitrous oxide absorbs about 310 times as much energy (heat) than an equal weight of carbon dioxide (CO<sub>2</sub>).

Carbon Monoxide (CO). CO is a colorless, odorless gas resulting from incomplete combustion of carbon-containing fuel. CO interferes with oxygen uptake by hemoglobin in the blood, and exposure even at low levels leads to headache, nausea, chest pain, and confusion. Prolonged exposure and exposure to higher levels can cause death.

Reactive Organic Gases (ROG). ROG are also termed hydrocarbons (HC) or volatile organic compounds (VOC). A broad class of organic gases can react with NOx in the presence of sunlight to create ozone, the principal chemical in smog. Except for a few toxic air contaminants like benzene, ROG are rarely of direct concern as air pollutants. They are regulated primarily for their potential to contribute to ozone formation.

Ozone. Ozone is a gas composed of three oxygen atoms. It is not usually emitted directly into the air, but at ground level is created by a chemical reaction between NOx and ROG in the presence of sunlight. Ozone is typically a seasonal problem, occurring from May through October when warm weather and more intense sunlight accelerate ozone formation. Sources for the pollutants that react to form ozone include motor vehicles, power plants, factories, chemical solvents, combustion products from various fuels, and consumer products. Health effects associated with ozone are related to the body's respiratory system. When ozone levels are high, people with lung disease (e.g., chronic bronchitis, emphysema, and asthma) are particularly susceptible to adverse health impacts.

#### **4.1.3 Mobile Source Regulation**

Emissions from the diesel powered heavy equipment, used for project plowing and grooming activities, and recreational-related emissions from visitor travel and OSV use are subject to a combination of federal and state emissions regulations.

#### 4.1.3.1 Off-Road Heavy-Duty Diesel Vehicles

The principal air pollutant emissions for diesel-fueled heavy equipment are NO<sub>x</sub> and PM; unlike gasoline engines, diesel produces low CO and ROG. CARB and the U.S. Environmental Protection Agency (EPA) have identified on- and off-road diesel as important contributors to regional NO<sub>x</sub> and particulate emissions with attendant ozone and health impacts, so a series of emissions reduction programs have been put in place involving engine redesign and use of low sulfur fuel. The EPA has established progressive emission standards for these sources to be implemented in a series of “tiers.” For non-road diesel engines, Tier 2 standards apply for equipment manufactured between 2001 and 2006. Tier 3 standards apply for equipment manufactured between 2006 and 2008. The most stringent standards, Tier 4 standards, consist of an interim and final set of standards. The standards for engines less than 75 horsepower (hp) start in 2008, the standards for engines between 76 and 174 hp begin in 2012, and the standards for engines 175 hp and greater begin in 2011. California has adopted and accelerated the EPA emissions reduction program.

CARB’s In-Use Off-Road Diesel Vehicles Regulation, adopted in 2007, aims to reduce emissions of NO<sub>x</sub> and PM from in-use off-road (i.e, non-road) diesel vehicles. The regulation imposes limits on engine idling and adding older (typically pre-1996) off-road diesel vehicles to fleets beginning in 2009, requires all vehicles to be reported to CARB and labeled in 2009; and then in 2010 begins gradual requirements for fleet clean up including getting rid of older engines, using newer engines, and installing exhaust retrofits. The regulation does not apply to recreational off-highway vehicles.

The following requirements are in effect and being enforced by CARB to regulate off-road heavy duty diesel vehicles:

- **Buying Tier 0 Vehicles Prohibited** – No fleet subject to the regulation may purchase a Tier 0 off-road diesel vehicle; Tier 0 vehicles are vehicles produced without an emission standard, generally before 1996.
- **Idling Limited to 5 Minutes** – Exceptions for vehicles that need to idle to perform work (such as a crane providing hydraulic power to the boom), or vehicles being serviced, or in a queue waiting for work. Medium and large fleets (those with over 2,500 horsepower of off-road diesel vehicles) must have a written idling policy.
- **Selling Any Off-road Diesel Vehicle** – The seller (whether a dealer or a contractor with just one vehicle) must provide disclosure of the regulation on the bill of sale or invoice, with the exact language provided in the regulation, and keep records for three years.
- **Emissions and Performance Requirements** –The regulation establishes a requirement that off-road fleets be progressively upgraded to meet overall fleet emissions limits. The rate of progress is based on fleet size, with state- and federally-owned fleets being automatically considered “large” and hence subject to the most rapid change. OHMVR Division maintains an electronic database of all its off-road equipment, which tracks the installation of newer or lower emissions equipment. All equipment upgrades to the vehicle fleet are logged into the database which is then submitted to CARB for regulatory oversight. CARB reviews the vehicle data submitted by OHMVR Division to ensure compliance with the fleet requirements.

In California, both on-road and off-road diesel fuel is required to have low sulfur content.

#### **4.1.3.2 On-Road Heavy-Duty Diesel Vehicles**

Snow removal equipment comprises plow blades and snow blowers mounted on heavy-duty on-road diesel trucks. As with off-road grooming equipment described above, the principal air pollutant emissions from snow removal equipment are NO<sub>x</sub> and PM. Air quality management of on-road heavy-duty diesel vehicles in California involves emissions reduction through engine redesign, use of low sulfur fuel, and retrofitting older vehicles to trap particulates. The reductions are to be implemented by fleet managers who can use various methods of meeting progressive fleet-wide emissions limitations. These upgrades are monitored by CARB to ensure compliance with vehicle fleet requirements.

The OHMVR Division does not directly own or operate the snow removal equipment used to clear project access roads and trailheads (Project Description, Section 2.4.2 and Table 2-6). The OSV Program supports snow removal operations by funding labor and fuel needed to operate the equipment. Snow removal equipment is owned and operated by the USFS, county agencies, or private contractors. The owner-operators of these vehicles report to CARB directly for compliance with fleet vehicle regulations; OHMVR Division is not responsible for the regulatory compliance of these vehicles. State-owned plow equipment used by Caltrans is not funded by the OSV Program but is funded by the Sno-Park Program.

#### **4.1.3.3 Over-Snow Vehicles**

OSVs are gasoline powered. Small gasoline engines are available in either a two-stroke or four-stroke design. In a four-stroke engine, as used in automobiles, a complete power cycle in each cylinder requires two complete revolutions of the crankshaft to complete four strokes: one to draw in air or an air-fuel mixture, one to compress it, one to ignite it and do work, and one to exhaust the cylinder. In a two-stroke engine a complete power cycle requires only one revolution of the crankshaft and only two movements of the piston with the beginning of the compression stroke and the end of the combustion stroke performing simultaneously the intake and exhaust functions. Two-stroke engines usually have oil added to fuel for lubrication whereas four-stroke engines have lubricant added separately to the crankcase.

Historically, two-stroke engines were favored for OSVs because of the high power for the engine weight, lighter engines, lower initial cost, unique features such as electronic reverse, and characteristic performance. Concern over air emissions and noise has led to introduction of four-stroke versions of major OSV designs, and four-stroke OSV sales have increased slowly. Based on user surveys, the OHMVR Division estimates that current users at OSV Program trail sites are approximately 4% four-stroke equipment and the remaining 96% are two-stroke designs (Project Description, Table 2-9).

The principal air pollutants of concern for OSVs are HC and NO<sub>x</sub>. Because of their manner of operation, pre-regulated (i.e., pre-2006 model year) two-stroke engines produce significantly more HC than four-stroke engines. Lela and White (2002) documented emissions differences, concluding “Commercially-available four-stroke snowmobiles are significantly cleaner than two-stroke sleds. Compared to previously tested two-strokes, these four-stroke sleds emit 98 to 95 percent less HC, 85 percent less CO, and 90 to 96 percent less PM. Four-stroke snowmobile NO<sub>x</sub>, however, is considerably higher than from a two-stroke, being increased by a factor of seven to twelve.” While this information is not current for newly manufactured vehicles, it remains relevant to pre-2006 vehicles which are part of the 2010 baseline fleet.

The EPA and CARB have begun to set emissions goals for recreational vehicles, including OSVs. The CARB approved the OHV regulations in 1994. That rulemaking established emission standards and test procedures for OHVs including off-highway motorcycles (dirt bikes) and all-terrain vehicles (ATVs). CARB is currently conducting further testing of recreational vehicles, including OSVs, in order to evaluate efficacy of further controls.

The EPA adopted new emissions standards in 2002 for snowmobiles and other recreational vehicles to reduce air pollution from hydrocarbon and carbon monoxide. Manufacturers were required to begin meeting these regulations in 2006, with the EPA emissions requirements becoming increasingly more stringent by 2012. The EPA's phased restrictions apply to a manufacturer's fleet and reduce HC and CO emissions by as much as 50% and 30%, respectively, plus an additional 15 percent HC/CO reduction combination. Court challenges have delayed publication of a final requirement for OSVs manufactured after 2012. In principle, the reduced emissions can be met by a combination of four-stroke engines and two-stroke engines with advanced features such as fuel injection.

With the uncertain future emissions restrictions, fleet mix, user acceptance, and rate of phase out of older equipment, it is difficult to predict what in-use OSV emissions will be over the next 10 years. As emissions controls take effect, the OSV user fleet at trail sites in the Project Area will show increased use of four-stroke engines or advanced two-stroke engines; it is likely that emissions will be reduced by roughly half of current rates by 2020.

#### **4.1.3.4 On-Highway Motor Vehicles**

On-highway motor vehicles, including automobiles and light trucks, are a major source of air emissions statewide and have been subject to a broad range of emissions reduction strategies at state and federal levels. Engine controls, exhaust treatment, and clean fuel requirements have significantly reduced emissions as measured in grams per mile, offsetting the increase in total miles traveled resulting from population increase.

On December 21, 2005, CARB requested a waiver on federal preemption of California's GHG emissions standards to allow California to enact emissions standards to reduce CO<sub>2</sub> and other GHG from automobiles. On June 30, 2009 the EPA granted this waiver. The California "Clean Car" standards require increased fuel efficiency, reducing GHG emissions from light and medium duty vehicles by an average of 30% (CARB 2005). By 2016, the fleet fuel efficiency standard for all passenger cars will be 39 mpg, and it will be 30 mpg for light trucks and sport utility vehicles. Current light-truck fuel economy standards are 23.1 mpg for all SUVs, pickups, vans, and crossovers.

The new regulations do not cover heavy-duty pickup trucks that fall in the 8,500-10,000 pound range, however, in May 2010 the EPA and the National Highway Traffic Safety Administration took the first steps to reduce GHG emissions from heavy-duty trucks ranging in size from large pickup trucks to combination tractor-trailers, or "18 wheelers" (EPA 2010).

#### **4.1.4 Greenhouse Gas Regulation**

The state has begun a series of legislative and regulatory approaches to dealing with global climate change in recognition of the fact that California is vulnerable to the effects of global climate change, and, that despite its global nature, action to curb GHG emissions is needed on a statewide level.

#### **4.1.4.1 California Global Warming Solutions Act – AB32**

The California Global Warming Solutions Act of 2006 (AB32) requires CARB to reduce GHG emissions to 1990 levels by 2020. CARB identified 427 million metric tons of carbon dioxide equivalent (MMTCO<sub>2</sub>e) as the total statewide GHG 1990 emissions level and adopted this level as the 2020 GHG emissions limit (CARB 2007a). CARB estimates 2020 GHG emission levels will reach approximately 600 MMTCO<sub>2</sub>e if no actions are taken under a “business-as-usual” scenario.

The 1990 California GHG inventory includes the following gases: CO<sub>2</sub>, methane (CH<sub>4</sub>), N<sub>2</sub>O, sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons (HFC), and perfluorocarbons (PFC). Each GHG has a different capacity to trap heat in the atmosphere by absorbing infrared radiation. Almost 90% of the total GHG identified in the inventory is CO<sub>2</sub> (CARB 2007a). The majority of 1990 emissions are tied to fuel use activities such as electrical generation, transportation, and industrial operations (CARB 2007a).

CARB approved the AB32 Climate Change Scoping Plan on December 11, 2008. Key elements of the plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State’s long term commitment to AB 32 implementation.

#### **4.1.4.2 SB375**

In SB375, California enacted several measures to reduce vehicular emissions through land-use planning. CARB will develop GHG emission reduction targets for the automobile and light truck sector for each metropolitan planning organization.

#### **4.1.4.3 California Climate Adaptation Strategy**

The California Climate Adaptation Strategy (Adaptation Strategy), developed pursuant to Executive Order S-13-2008, is a policy statement that contains recommendations on how the State can plan for the effects of climate change. This non-regulatory document encourages advanced planning to anticipate changes in conditions such as sea level rise or changing water availability due to climate change. It is relevant to project consideration under CEQA because climate change may result in changes in the environmental setting that would have a potentially significant effect on a proposed project.

#### 4.1.4.4 CEQA and SB97

In its “Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97,” December 2009, the California Natural Resources Agency adopted amendments and additions to certain guidelines implementing CEQA. Specifically, these amendments implement the Legislature’s directive to certify and adopt guidelines prepared and developed by the Office of Planning and Research for the mitigation of GHG emissions or the effects of GHG emissions (Pub. Resources Code, § 21083.05(a)-(b)).

The amendments:

focus on a project’s potential incremental contribution of GHGs rather than on the potential effect itself (i.e., climate change). Notably, however, the Proposed Amendments expressly incorporate the fair argument standard. (See, e.g., proposed Section 15064.4(b)(3).) Thus, if there is any substantial evidence supporting a fair argument that a project’s GHG emissions may result in any adverse impacts, including climate change, the lead agency must resolve that concern in an EIR.

Section 15064.4 is designed to assist lead agencies in performing that required investigation. In particular, it provides lead agencies should quantify GHG emissions where quantification is possible and will assist in the determination of significance, or perform a qualitative analysis, or both as appropriate in the context of the particular project, in order to determine the amount, types and sources of GHG emissions resulting from the project. Regardless of the type of analysis performed, the analysis must be based “to the extent possible on scientific and factual data.

Section 15064 also states:

(b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project’s incremental contribution of greenhouse gas emissions.

Currently no GHG plans apply to recreational travel and fuel use outside of metropolitan areas.

#### 4.1.5 Energy – Alternative Fuels

AB 1007 directs the California Energy Commission, in partnership with CARB, to develop and adopt the State Alternative Fuels Plan to:

- Recommend policies, such as standards, financial incentives, research, and development programs, to stimulate the development of alternative fuel supply, new vehicles and technologies, and fueling stations.
- Evaluate alternative fuels using a full fuel cycle analysis of emissions of criteria air pollutants, air toxics, greenhouse gases, water pollutants, and other substances that are known to damage human health.
- Set goals to increase alternative fuels in 2012, 2017, and 2022 designed to ensure there are reductions in air pollution, water pollution, or any other substances that are known to damage human health (CEC 2007).

The Plan addresses a broad range of alternative vehicle/fuel systems and alternative ways to produce traditional fuels, such as biodiesel.

## **4.2 ENVIRONMENTAL SETTING**

### **4.2.1 Existing Ambient Air Quality**

The Project Area is scattered throughout the mountainous regions of California (Figure 1). The project sites are located in high elevation areas, generally from 4,100 to 10,000 feet above mean sea level, within five air basins comprising 10 air district jurisdictions. The primary sources of air pollution in the northern mountainous regions is transport from upwind urban areas such as the broader Sacramento Area and San Francisco Bay Area Air Basin (NSAQMD 2005) and local particulate matter from roads and wood burning. As shown in Table 4-1, all project air districts except Siskiyou County are designated non-attainment areas for the state PM<sub>10</sub> standard. Most of the air districts are also non-attainment for state or state and federal ozone standards; Lassen, Plumas, Sierra, and Alpine Counties have unclassified state ozone designations (CARB 2010a). Butte, Plumas, Fresno, and Tulare Counties are also in non-attainment of state PM<sub>2.5</sub> standards.

### **4.2.2 Sensitive Receptors**

Sensitive receptors to air quality impacts are generally defined by air districts as facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors. The project trail systems and trailheads are located in national forests surrounded by undeveloped public land. Many of the trail routes traverse remote locations several miles from the nearest access road (see Figures 2 through 12D). There are no sensitive receptor facilities that directly abut the trailheads or the trail routes maintained by the project OSV Program.

Recreational visitors to the trailheads and trail systems are receptors to potential air quality impacts of the Project and are considered in this EIR analysis.

### **4.2.3 Energy Use and Greenhouse Gases**

California is a major consumer of energy due to its large population, industry, and commerce. Because California is physically large and has developed sprawling metropolitan areas, the state has a historical dependence on transportation using petroleum-based fuel. Fuel use rises and falls slightly with economic conditions, but annual consumption of gasoline and diesel motor fuels is roughly 20 billion gallons per year (CEC 2007).

Table 4-1. CSA Snow Program Project Site Air Basins and Air District Non-Attainment Status				
Air Basin	Air District	Non-Attainment Status	National Forest	Project Trail Site
Northeast Plateau	Siskiyou County APCD	State ozone standards	Klamath	Deer Mountain and Four Corners Medicine Lake
			Modoc	Doorknob
			Shasta-Trinity	Pilgrim Creek
Sacramento Valley	Lassen County APCD	State PM <sub>10</sub> standards	Lassen	Bogard, Fredonyer, and Swain Mountain
	Shasta County AQMD	State ozone and PM <sub>10</sub> standards	Lassen	Ashpan
	Tehama County AQMD	State ozone and PM <sub>10</sub> standards	Lassen	Morgan Summit
	Butte County APCD	Federal and state ozone and state PM <sub>10</sub> and state PM <sub>2.5</sub> standards	Lassen	Jonesville
Mountain Counties	Northern Sierra AQMD (Plumas, Sierra, Nevada Counties)	Plumas County: State PM <sub>10</sub> standards and State PM <sub>2.5</sub> (Portola Valley) Sierra County: State PM <sub>10</sub> standards Nevada County: Federal and state ozone and state PM <sub>10</sub> standards	Plumas	Bucks Lake, La Porte, and Gold Lake
			Tahoe	Little Truckee Summit and Bassetts
Great Basin Valley	Placer County APCD	Federal and state ozone and state PM <sub>10</sub>	Tahoe	China Wall
	El Dorado County APCD	Federal and state ozone and state PM <sub>10</sub>	Eldorado	Silver Bear
San Joaquin Valley	Great Basin Unified APCD (Alpine, Mono, Inyo Counties)	Alpine County: state PM <sub>10</sub> standards Mono and Inyo Counties: State ozone, federal and state PM <sub>10</sub> standards	Inyo	Mammoth Lakes
			Stanislaus	Lake Alpine, Spicer Reservoir, and Highway 108
Lassen, Plumas, Sierra, and Alpine Counties have unclassified state ozone designations	San Joaquin Valley Unified APCD (Fresno, Tulare Counties)	Federal and state ozone, federal and state PM <sub>2.5</sub> , and state PM <sub>10</sub> standards	Sierra	Huntington Lake, Kaiser Pass, and Tamarack Ridge
			Sequoia	Big Meadow/Quail Flat, Quaking Aspen/Sugarloaf, and Kern Plateau

Source: CARB 2010a



Transportation fuel use is a large component of GHG emissions. The statewide 2008 GHG inventory was 4778 MMT (million metric tons), of which 36.6% is attributed to transportation (CARB 2010b).

## **4.3 PROJECT IMPACTS**

### **4.3.1 Thresholds of Significance**

#### **4.3.1.1 Air Quality**

CEQA Guidelines Appendix G identifies the following thresholds, which are used in the EIR analysis, for assessing air quality impacts:

“Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?”

#### **4.3.1.2 Energy Use**

CEQA Guidelines Appendix F states that a discussion of a project’s energy impacts should be included “with particular emphasis on avoiding or reducing inefficient, wasteful and unnecessary consumption of energy.” CEQA Guidelines do not specify quantitative thresholds for assessing the significance of energy consumption impacts. In the absence of specific thresholds, the following significance criterion used to assess the Project’s energy impact:

- Is project energy consumption inefficient, wasteful, or unnecessary?

#### **4.3.1.3 Greenhouse Gases**

CEQA Guidelines Appendix G identifies the following thresholds for assessing greenhouse gas emission impacts:

“Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?”

The OHMVR Division has not adopted its own quantitative standards of significance for GHG emissions and potential global climate change impacts. There are currently no locally adopted quantitative thresholds which apply to this statewide activity, and there are no statewide quantitative thresholds that apply to this project.

The CEQA guidelines as amended do not specify a methodology for analysis of GHG. In fall 2008, CARB staff began developing a decision process leading to qualitative and quantitative determination of significance. Most of the CARB staff process pointed to performance standards that are not transferable to the OSV Program, such as efficiency, reduction of waste, and minimizing transportation needs. One example of a draft performance standard was no more than 14,000 vehicle miles traveled per household per year. That standard was meant to apply to analysis of employment commute and access to services. It does not take into account long distance recreational travel such as the destination trips considered in this EIR.

Several metropolitan air districts have begun to set quantitative thresholds for GHG. Except for the passenger vehicle trips transporting the recreation traveler to and from the Project Area, none of the OSV Program project activities would take place in those urban districts, but the thresholds used by those districts are indicative of the scale of GHG emissions that rise to significance in California land planning. The South Coast Air Quality Management District (SCAQMD) interim CEQA GHG significance thresholds of 10,000 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per year for stationary/industrial projects and 3,000 MTCO<sub>2e</sub> per year for commercial or residential projects. The San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted a performance-based approach that emphasizes land use planning and equipment efficiency to achieve AB32 GHG reduction goals. The Bay Area Air Quality Management District (BAAQMD) CEQA guidelines set a threshold of 10,000 MTCO<sub>2e</sub> per year for industrial stationary sources. For residential, commercial, and public land use projects, the BAAQMD has set a mass threshold of 1,100 MTCO<sub>2e</sub> per year and an efficiency-based threshold of 4.6 MTCO<sub>2e</sub> per service population per year. The 4.6 MTCO<sub>2e</sub> per service population per year significance threshold was derived from AB32-related GHG inventory estimates, and is an efficiency metric that allows efficient projects with higher mass emissions to meet the overall GHG reduction goals of AB32. The service population for a particular area or project is calculated by adding the number of residents to the number of jobs estimated for a given time period. The total GHG emissions estimated to occur at that time is then divided by the service population estimate to arrive at the average GHG emissions per service population per year. The derivation of the BAAQMD's project level efficiency threshold may be found in Appendix D to the BAAQMD's June 2010 CEQA Air Quality Guidelines (BAAQMD 2010).

### 4.3.2 Air Quality

The proposed Project comprises contracts to support maintenance of OSV recreation facilities in 11 national forests within the Project Area. The project funding would continue an established program meeting an existing demand for OSV recreation. The historical and ongoing OSV Program activity constitutes a baseline for assessing environmental impacts, including air quality. As described in Project Description, Section 2.7 OSV Program Growth Levels, future growth in snowmobile use similar to the past 12 years would result in a roughly 4% annual increase in program activity.

The direct emissions from project snow removal and trail grooming equipment and indirect emissions from recreational use and visitor travel begin at current 2010 baseline levels and may rise over the 10-year project term, reflecting continued historical trends in snowmobile registrations (see Project Description, Section 2.7 OSV Program Growth Levels). The calculation series and source data are shown in Appendix E, Air Quality, Energy, and Greenhouse Gases Assessment – Supporting Calculations as Tables AQ-1 through AQ-32. The discussion here focuses on summary results and conclusions; the reader is referred to Appendix E for detail.

#### 4.3.2.1 Project Baseline – Existing Program Activity in Years 2010 and 2020

This section estimates the direct and indirect emissions that would occur in Years 2010 and 2020 under the existing Snow Program level condition. Under this condition, there would be no increase in direct plowing or grooming activities or indirect recreational OSV and vehicle miles travelled over the 10-year period from 2010 to 2020. The impacts that would occur under the program growth scenario outlined in Section 2.7 of the Project Description are analyzed beginning in Section 4.3.2.2.

The Project Baseline condition assumes that the existing OSV Program facilitates all of the indirect OSV and non-motorized recreational activities described in Section 2.6 of the Project Description. This assumption is conservative (i.e., an over-estimate of OSV Program share) since Winter Trailhead Survey data indicates that almost one-third (27 to 30%) of recreational users would continue to use trailheads regardless of the OSV Program's direct grooming and plowing activities (see Section 2.6.1.2 of Project Description).

#### Project Emissions

**Direct Emissions: Snow Removal and Trail Grooming.** The Project involves the operation of on-road diesel equipment for snowplowing, non-road diesel equipment for trail grooming, and a light duty service vehicle for cleaning restrooms and warming huts. All vehicles would be operated on minimum snow depths of 12 inches (snowcats) or on paved roads (snowplows and service vehicle). Because no ground disturbance activity is proposed, there would be essentially no fugitive dust or PM<sub>10</sub> emissions from vehicle travel on dirt roads. The main air pollutant emissions are from internal combustion engines.

The grooming equipment listed in the Project Description (Table 2-4) and Appendix E (Table AQ-18) is typically 240 to 400 horsepower. Emissions factors for diesel are given in grams per brake horsepower-hour (or a metric equivalent for work). Because snow grooming power levels vary with conditions and because actual fuel use information is available from most of the national forests (Appendix E, Table AQ-17), it is practical to base emissions estimates on fuel consumption. Because the analysis is based on overall fuel use, it takes into account emissions from travel to the work site from the grooming shed as well as work at the site.

The potential air quality impact of the project equipment is assessed by looking at the maximum day emissions and the annual (seasonal) total emissions. National forests typically operate one grooming machine and one snowplow and/or blower at each trail site location. Some national forests share grooming equipment; Klamath National Forest grooms on Modoc National Forest at the Doorknob and Tahoe National Forest grooms on Plumas National Forest at Gold Lake. The one exception is Jonesville in Lassen National Forest, which is groomed by a volunteer group through agreement with Butte County. The volunteers operate two snowcats, one owned by the volunteers and one owned by the county (see Project Description, Table 2-7 and Appendix E, Table AQ-14). Snow removal at project trailhead locations, which is conducted separately from the OSV Program funding (see Project Description, Table 2-6), is not included in this assessment. Emissions estimated at each location reflect the number of snow removal and grooming machines used and the composition of the equipment fleet and applicable emissions standards.

The 11 national forests in the Project Area have trailheads and trail systems located in ten different air districts. Table 4-2 lists the air districts, their respective trailheads, and typical equipment used at each.

<b>Table 4-2. Maximum-Day Equipment Operations Per Air District</b>			
<b>Air District</b>	<b>National Forest</b>	<b>Project Trail Sites</b>	<b>Max Daily Equipment Operations</b>
Siskiyou County APCD	Klamath	Deer Mountain and Four Corners Medicine Lake	1 snowcat – 16 hrs 1 plow or blower – 7hrs
	Modoc	Doorknob	1 plow or blower – 8 hrs
	Shasta-Trinity	Pilgrim Creek	1 snowcat – 13 hrs 1 plow or blower – 16 hrs
Lassen County APCD	Lassen	Bogard and Fredonyer	1 snowcat – 12 hrs
	Lassen	Swain Mountain	1 snowcat – 12 hrs 1 plow or blower – 6 hrs
Shasta County APCD	Lassen	Ashpan	1 snowcat – 12 hrs
Tehama County APCD	Lassen	Morgan Summit	1 snowcat – 12 hrs
Butte County AQMD	Lassen	Jonesville	2 snowcat – 25 hrs total 1 plow and blower – 18 hrs
Northern Sierra AQMD	Plumas	Bucks Lake	1 snowcat – 12 hrs 1 plow or blower – 8 hrs
	Plumas	La Porte	1 snowcat – 12 hrs 1 plow or blower – 2 hrs
	Plumas	Gold Lake	1 plow or blower – 6 hrs
	Tahoe	Bassetts	1 snowcat – 12 hrs
	Tahoe	Little Truckee Summit	1 snowcat – 15 hrs 1 plow or blower – 8 hrs
Placer County APCD	Tahoe	China Wall	1 snowcat – 10 hrs 1 plow or blower – 2 hrs
El Dorado County APCD	Eldorado	Silver Bear	1 snowcat – 10 hrs
Great Basin Unified APCD	Stanislaus	Lake Alpine	1 snowcat – 12 hrs
	Stanislaus	Spicer Reservoir	1 snowcat – 12 hrs
	Stanislaus	Highway 108	1 snowcat – 12 hrs
	Inyo	Mammoth Lakes	1 snowcat – 9 hrs
San Joaquin Valley Unified APCD	Sierra	Huntington Lake/Kaiser Pass	1 snowcat – 12 hrs
	Sierra	Tamarack Ridge	1 snowcat – 12 hrs
	Sequoia	Big Meadow/Quail Flat, Quaking Aspen/Sugarloaf	1 snowcat – 12 hrs
	Sequoia	Kern Plateau	1 snowcat – 12 hrs 1 plow or blower – 11hrs
<b>Notes:</b> Total equipment hours operated in one day based on maximum daily snowcat and plow use in Table 2-2. Assumes plowing and grooming occurs on same day. Snow removal on roads and parking areas done by either plow or blower dependent upon snow accumulation. Snow removal on roads and parking area are listed only for areas plowed using CSA funds per Table 2-6. Emissions within each air basin do not occur on same day and therefore cannot be combined to create a daily project total. Doorknob is groomed by Klamath NF. Grooming hours are included with Deer Mountain and Four Corners Medicine Lake. Gold Lake is groomed by contractors for Tahoe NF. Grooming hours are included with Bassetts.			

Source: USFS 2009

PM and NO<sub>x</sub> are the principal pollutants of concern for heavy duty diesel engines. Snowcat emissions are based on off-road heavy diesel factors (Appendix E, Table AQ-19); snowplow emissions are based on on-road heavy diesel factors (Appendix E, Table AQ-20). Appendix E tables show how composite fleet emissions factors are calculated for heavy duty diesel and how fleet emissions factors are expected to change over the ten-year program term (Appendix E, Table AQ-21 and Table AQ-22). Although OHMVR Division grooming fleet equipment is listed by national forest, assignments will change due to equipment maintenance, replacement, and need. For this reason, a fleet average emission factor is used for all individual trail systems rather than calculations based on specific equipment currently assigned there.

The change in both on-road and off-road emissions factors will come about as heavy duty diesel fleets keep up with federal and state mandates. As explained in Project Description, Section 2.4.1 and listed in Project Description, Table 2-5, the OHMVR Division Snowcat Vehicle Fleet Replacement Plan is already underway and will contribute to newer, lower emissions equipment phased in over the 10-year program period. Specific emissions rates will decline significantly over the next ten years as shown in Table 4-3. PM<sub>10</sub> emissions factors will fall to 29% and 19% of current levels for grooming and snow removal equipment, respectively. NO<sub>x</sub> emissions factors are predicted to fall to 36% and 11% of current levels for grooming and snow removal equipment.

	Model Fleet Year			2020 Fleet as % of 2010
	2010	2015	2020	
<b>PM<sub>10</sub> Emissions Factor</b>				
Grooming	8.50	4.72	2.49	29%
Snow-removal	1.44	0.35	0.27	19%
<b>NO<sub>x</sub> Emissions Factor</b>				
Grooming	147.9	89.2	53.0	36%
Snow-removal	75.1	32.0	8.2	11%

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-23

Table 4-4 and Table 4-5 show pollutant emissions estimates for each trail site location, aggregated by air district. Emissions are shown for the “maximum day” as inferred from operating procedures, and for the season, based on overall fuel use data. Emissions are shown for program starting year 2010, for mid-point year 2015, and end year 2020. Table 4-4 and Table 4-5 are based on a constant activity scenario with heavy equipment use staying at 2008/2009 winter season levels, and the OSV Program growth identified in Project Description, Section 2.7 does not occur. The impacts of OSV Program growth over the next ten years is addressed in Section 4.3.2.6 below.

Project emissions estimates are based on a fleet average emissions factor applied to activity levels reported for 2009 at individual trailheads. The snow grooming fleet has equipment varying in age and emissions profile. Actual emissions at a specific trail site would vary from estimates and would depend on what equipment is assigned there and on actual work done, which depends mainly on weather and snow fall.

**Table 4-4. Grooming and Plowing PM<sub>10</sub> Emissions by National Forest and Air District, Constant Project Activity at Baseline Level**

Air District	National Forest	Max Day (pounds)			Season (pounds)		
		2010	2015	2020	2010	2015	2020
Siskiyou APCD	Klamath	2.7	1.4	0.8	44	24	13
	Modoc	0.2	0.1	0.0	2	1	0
	Shasta-Trinity	2.5	1.2	0.7	44	22	12
	Subtotal	5.4	2.7	1.5	90	47	25
Shasta County AQMD	Lassen	1.9	1.0	0.6	39	22	11
Lassen County APCD	Lassen	3.9	2.1	1.1	122	67	36
Tehama County AQMD	Lassen	1.9	1.0	0.6	47	26	14
Butte County APCD	Lassen	4.4	2.3	1.2	71	38	20
Northern Sierra AQMD	Plumas	4.2	2.2	1.2	126	61	34
	Tahoe	4.4	2.4	1.3	125	68	36
	Subtotal	8.6	4.6	2.5	251	129	70
Placer County APCD	Tahoe	1.6	0.9	0.5	22	12	6
El Dorado County APCD	Eldorado	1.6	0.9	0.5	24	13	7
Great Basin Unified APCD	Inyo	1.4	0.8	0.4	31	17	9
	Stanislaus	5.6	3.1	1.7	37	20	11
	Subtotal	7.1	3.9	2.1	67	37	20
San Joaquin Valley Unified APCD	Sierra	3.8	2.1	1.1	56	31	16
	Sequoia	4.1	2.2	1.2	41	21	11
	Subtotal	7.8	4.2	2.3	98	52	28
	<b>Total</b>	<b>44.1</b>	<b>23.7</b>	<b>12.7</b>	<b>831</b>	<b>444</b>	<b>237</b>
					0.42 tons	0.22 tons	0.12 tons

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-24

<b>Table 4-5. Grooming and Plowing NOx Emissions by National Forest and Air District, Constant Project Activity at Baseline Level</b>							
<b>Air District</b>	<b>National Forest</b>	<b>Max Day (pounds)</b>			<b>Season (pounds)</b>		
		<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
Siskiyou APCD	Klamath	53.3	30.4	16.7	826	483	275
	Modoc	11.1	4.7	1.2	116	50	13
	Shasta-Trinity	57.6	30.8	15.1	979	533	270
	Subtotal	122.0	66.0	33.0	1921	1066	558
Shasta County AQMD	Lassen	32.7	19.7	11.7	679	409	243
Lassen County APCD	Lassen	73.8	43.0	24.4	2140	1285	759
Tehama County AQMD	Lassen	32.7	19.7	11.7	818	493	293
Butte County APCD	Lassen	93.1	51.7	27.2	1395	797	438
Northern Sierra AQMD	Plumas	87.6	48.9	25.9	3238	1677	772
	Tahoe	84.7	49.1	27.6	2285	1347	776
	Subtotal	172.3	98.0	53.5	5523	3025	1548
Placer County APCD	Tahoe	30.0	17.6	10.1	418	244	139
El Dorado County APCD	Eldorado	27.3	16.4	9.8	409	247	147
Great Basin Unified APCD	Inyo	24.5	14.8	8.8	532	321	191
	Stanislaus	98.2	59.2	35.2	638	385	229
	Subtotal	122.7	74.0	44.0	1170	705	419
San Joaquin Valley Unified APCD	Sierra	65.5	39.5	23.4	979	590	351
	Sequoia	80.7	46.0	25.1	917	500	254
	Subtotal	146.1	85.4	48.6	1896	1090	605
<b>Total</b>		<b>853</b>	<b>492</b>	<b>274</b>	<b>16,370</b>	<b>9,361</b>	<b>5,149</b>
					8.19 tons	4.68 tons	2.57 tons

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-25

Maximum day emissions at locations where there is only one trail site per air district are typically 1.6 to 1.9 pounds per day for PM<sub>10</sub> (Table 4-4) and 27 to 33 pounds per day for NO<sub>x</sub> (Table 4-5) and. Emissions in any air district depend on how many trail sites are located there, and maximum day emissions depend on how many trail sites are actually groomed on the same

day. The state-wide maximum day totals shown in Table 4-4 and Table 4-5 are an over estimate because they sum the predicted individual maximum day emissions, but it is unlikely that all plowed access and trailheads and groomed trail systems would receive maximum effort on the same day, state-wide.

Seasonal emissions are a broad range reflecting the range of snow conditions and user demand. Seasonal emissions in air basins with only one groomed trail site can range from 22 to 47 pounds PM<sub>10</sub> (Table 4-4) and 409 to 818 pounds NO<sub>x</sub> (Table 4-5). Aggregated air district-wide totals vary depending on the number of trail sites and weather conditions. Statewide season totals are a reasonable estimate of direct air pollutant generation.

**Indirect Emissions: OSV Use.** OSV use of the project trails facilitated by the project activities would generate vehicle emissions. These are an indirect effect of the Project, although some level of OSV use would continue with or without grooming and plowing.

At the beginning of the Project in 2010, OSV use would not be changed compared to past use facilitated by the OSV Program, and indirect emissions from OSV use would remain similar to the historical baseline. Possible growth in OSV use over the 10-year program period is discussed in Section 4.3.2.2. National forests do not keep visitation records for all locations. Annual OSV use of the project sites are estimated in Project Description, Table 2-8. The maximum day is a weekend day or holiday; it is based on vehicle parking observed by the national forests. The seasonal use is based on 14 weeks from mid-December through March, which includes 33 weekend/holidays at maximum day use level and 65 weekdays at 20% parking capacity use. Both maximum day and seasonal use totals assume an average of two OSVs per vehicle parked at project trailheads and other non-program parking areas (Table 2-9).

OSV fleet estimates for the 2010 baseline year are 96% two-stroke and 4% four-stroke based on visitor survey data (refer to Project Description, Table 2-9). Existing CARB model OFFROAD 2007, a software package used to generate emissions inventory data for off-road mobile sources, does not take into account four-stroke OSV (CARB 2007b). A composite emissions factor relating emissions measurements to fuel use was developed based on Lela and White (2002); see Appendix E, Table AQ-1. A typical two-stroke OSV would use 8 gallons during a recreation day. Fuel use, visitor levels, and emissions factors research allow derivation of an emissions estimate for OSV use in the Project Area supported by the OSV Program.

Table 4-6 presents maximum day emissions for the affected air districts at current levels of OSV use at trail sites and current emissions factors. The difference in technology between OSV two-stroke gasoline engines and grooming and plowing heavy-duty diesel engines produces a very different emissions profile. The main air pollutants from OSVs are hydrocarbons and carbon monoxide: HC levels are typically from 300 to 900 pounds per day at a trail site, depending on use level, and CO levels are typically from 750 to 2,400 pounds per day. Conversely, baseline 2010 PM and NO<sub>x</sub> levels are lower than direct emissions from project equipment: PM levels are typically from 3.6 to 12 pounds per day at a trailhead, depending on use level; NO<sub>x</sub> levels are typically from 1.6 to 5 pounds per day. The total emissions identified for the air district reflect the number and use levels of trail sites located there.



Air District	National Forest	Trailheads	Max Day OSV	Fuel Use (gal)	Max Day Use Emissions (lb)			
					HC	CO	NOx	PM
Siskiyou APCD	Klamath	2	92	724	1,253	3,449	7.2	16.4
	Modoc	1	30	236	409	1,125	2.4	5.3
	Shasta-Trinity	1	50	394	681	1,874	3.9	8.9
<b>Subtotal</b>			<b>172</b>	<b>1,354</b>	<b>2,343</b>	<b>6,448</b>	<b>14</b>	<b>31</b>
Shasta County AQMD	Lassen	1	28	220	381	1,050	2.2	5.0
Lassen County APCD	Lassen	4	136	1,071	1,853	5,098	10.7	24.2
Tehama County AQMD	Lassen	1	28	220	381	1,050	2.2	5.0
Butte County APCD	Lassen	1	20	157	272	750	1.6	3.6
Northern Sierra AQMD	Plumas	4	560	4,408	7,629	20,992	44.1	99.8
	Tahoe	2	340	2,676	4,632	12,745	26.8	60.6
	Tahoe	--	86	677	1,172	3,224	6.8	15.3
<b>Subtotal</b>			<b>986</b>	<b>7,762</b>	<b>13,432</b>	<b>36,961</b>	<b>78</b>	<b>176</b>
Placer County APCD	Tahoe	1	64	504	872	2,399	5.0	11.4
El Dorado County APCD	Eldorado	1	30	236	409	1,125	2.4	5.3
Great Basin Unified APCD	Inyo	--	904	7,116	12,315	33,887	71.2	161.2
	Stanislaus	3	960	7,557	13,078	35,987	75.6	171.1
<b>Subtotal</b>			<b>1,864</b>	<b>14,673</b>	<b>25,393</b>	<b>69,874</b>	<b>147</b>	<b>332</b>
San Joaquin Valley Unified APCD	Sierra	3	460	3,621	6,266	17,244	36.2	82.0
	Sierra	--	150	1,181	2,043	5,623	11.8	26.7
	Sequoia	9	152	1,197	2,071	5,698	12.0	27.1
	Sequoia	--	44	346	599	1,649	3.5	7.8
<b>Subtotal</b>			<b>806</b>	<b>6,345</b>	<b>10,980</b>	<b>30,214</b>	<b>63</b>	<b>144</b>
	<b>Total</b>	<b>34</b>	<b>4,134</b>	<b>32,543</b>	<b>56,316</b>	<b>154,967</b>	<b>325</b>	<b>737</b>

Notes:  
Tahoe, Inyo, Sierra, and Sequoia National Forests have non-OSV Program funded parking areas which contribute OSV use to the groomed trail system. OSV use from these non-program trailheads are included in calculations.

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-6

Table 4-7 presents season emissions estimates for the affected air districts at current (Baseline 2010) levels of OSV use at trail sites and current emissions factors. The two-stroke OSV fleet produces high hydrocarbon (ROG) emissions – an estimated 1,081 tons per year spread over ten air districts. On an annualized basis this is 3.0 tons per day as ROG and 0.017 tons per day NOx.

<b>Table 4-7. OSV Season Use Emissions by Air District – Baseline 2010</b>								
Air District	National Forest	Trailheads	Season OSV-days	Fuel Use (gal)	Seasonal Emissions (tons)			
					HC	CO	NOx	PM
Siskiyou APCD	Klamath	2	5,506	43,343	38	103	0.2	0.5
	Modoc	1	1,510	11,887	10	28	0.1	0.1
	Shasta-Trinity	1	2,300	18,106	16	43	0.1	0.2
<b>Subtotal</b>			<b>9,316</b>	<b>73,336</b>	<b>63</b>	<b>175</b>	<b>0.4</b>	<b>0.8</b>
Shasta County AQMD	Lassen	1	<b>1,340</b>	<b>10,548</b>	<b>9</b>	<b>25</b>	<b>0.1</b>	<b>0.1</b>
Lassen County APCD	Lassen	4	<b>7,296</b>	<b>57,434</b>	<b>50</b>	<b>137</b>	<b>0.3</b>	<b>0.7</b>
Tehama County AQMD	Lassen	1	<b>1,340</b>	<b>10,548</b>	<b>9</b>	<b>25</b>	<b>0.1</b>	<b>0.1</b>
Butte County APCD	Lassen	1	<b>972</b>	<b>7,652</b>	<b>7</b>	<b>18</b>	<b>0.0</b>	<b>0.1</b>
Northern Sierra AQMD	Plumas	4	22,250	175,152	152	417	0.9	2.0
	Tahoe	2	12,910	101,628	88	242	0.5	1.2
	Tahoe	--	4,086	32,165	28	77	0.2	0.4
<b>Subtotal</b>			<b>39,246</b>	<b>308,945</b>	<b>267</b>	<b>736</b>	<b>1.5</b>	<b>3.5</b>
Placer County APCD	Tahoe	1	<b>2,944</b>	<b>23,175</b>	<b>20</b>	<b>55</b>	<b>0.1</b>	<b>0.3</b>
El Dorado County APCD	Eldorado	1	<b>1,770</b>	<b>13,933</b>	<b>12</b>	<b>33</b>	<b>0.1</b>	<b>0.2</b>
Great Basin Unified APCD	Inyo	--	17,152	135,021	117	321	0.7	1.5
	Stanislaus	3	40,260	316,927	274	755	1.6	3.6
<b>Subtotal</b>			<b>57,412</b>	<b>451,947</b>	<b>391</b>	<b>1,076</b>	<b>2.3</b>	<b>5.1</b>
San Joaquin Valley Unified APCD	Sierra	3	21,160	166,572	144	397	0.8	1.9
	Sierra	--	6,900	54,317	47	129	0.3	0.6
	Sequoia	9	7,174	56,474	49	134	0.3	0.6
	Sequoia	--	1,868	14,705	13	35	0.1	0.2
<b>Subtotal</b>			<b>37,102</b>	<b>292,067</b>	<b>253</b>	<b>695</b>	<b>1.5</b>	<b>3.3</b>
	<b>Total</b>	<b>34</b>	<b>158,738</b>	<b>1,249,586</b>	<b>1,081</b>	<b>2,975</b>	<b>6.2</b>	<b>14.1</b>

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-7

Emissions factors of the OSV vehicle fleet using the Project Area may change over time affecting emission totals generated by the 2010 baseline level. Future OSV emissions factors over the 10-year program period are not easily predicted. Federal regulations are in place, but have been partially suspended by court action, and will apply to a fleet as sold by a manufacturer. New OSVs will undoubtedly have lower emissions, either through improved two-stroke technology or through use of four-stroke engines. Either approach would reduce emissions and improve fuel efficiency. This EIR uses a mix of older and newer OSVs to develop project 2020 emissions factors shown in Table 4-8. Improved emissions factors would cause OSV emissions in the Project Area at 2010 use levels to drop in HC, CO, and PM emissions. However, increased reliance on four-stroke engines would increase fleet NOx emissions as shown in Table 4-8.

	Fuel Use gallons	lb pollutant/OSV/day			
		HC	CO	NOx	PM
<b>Baseline 2010</b>	7.87	13.62	37.49	0.08	0.18
<b>Project 2020</b>	6.72	9.14	26.03	0.17	0.12
<b>2020 as % of 2010</b>	85%	67%	69%	212%	67%

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-11

**Indirect Emissions: Passenger Vehicle Travel.** Indirect vehicle emissions are generated by recreational user travel to and from project maintained trailheads. Trailheads are located in areas relatively remote from population centers, and trailhead travel results in substantial vehicle miles traveled. According to the Winter Trailhead Survey (Appendix A, Table 5), the average round-trip distance is typically about 205 miles, reflecting the location of the trailheads (majority are 5,000 feet to 6,000 feet elevation in the Sierra Nevada) and the population centers they serve (e.g., Stockton, Sacramento, Chico, Oroville, Reno, Live Oaks). Users traveling farther include out-of-state visitors; some 20,000 non-resident visitor passes are sold system wide, but that statistic includes non-winter permits for other OHVs as well as snowmobiles and other OHVs. Because point of origin and destination details are not tracked, the vehicle miles travelled within each air district and the resulting emissions produced are unknown. The average statewide emissions generated by user vehicle miles traveled (VMT), however, is a reasonable estimate of the air pollution generated by this indirect source.

OSV haul vehicles are typically pick-up trucks or sport utility vehicles (SUVs) with high fuel consumption when towing (estimated as 12 mi/gal). Transportation is estimated to be some 79,000 visitor vehicle-days in baseline year 2010 rising to a possible 117,000 vehicle-days in 2020. Taking into account multiple day use per trip and travel to overnight accommodation, the program supported recreation entails highway travel of roughly 20 million miles per year in 2010, rising to as much as 29 million miles in 2020 (Appendix E, Table AQ-13). Fuel use is addressed under energy and greenhouse gases below.

The 2010 baseline average statewide emissions are presented in Table 4-9 below. The emissions estimates were calculated using CARB's Emission Factors (EMFAC) model-derived weighted average emission factors for engine exhaust and other trip emissions sources (e.g., start-up, idling, etc.) developed from the model's 2010 statewide Burden mode planning emission inventory data. The estimate assumes user vehicles would consist of light-, medium-, and light-heavy-duty pick-up trucks.

	Seasonal VMT (Million Miles)	Seasonal Emissions (tons)			
		HC	CO	NOx	PM
<b>User Vehicles</b>	<b>19.5</b>	7.3	76.8	12.5	0.94

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-31

The baseline emissions generated per unit of travel in terms of grams/mile and grams/trip would decrease over time due to stricter passenger vehicle emissions standards and fleet turnover rates

for all pollutants except PM. Table 4-10 compares the 2010 and 2020 EMFAC-derived composite weighted average emission factors for light-, medium-, and light-heavy-duty trucks.

	Emission Factors							
	HC		CO		NOx		PM	
	g/mi	g/trip	g/mi	g/trip	g/mi	g/trip	g/mi	g/trip
<b>Baseline 2010</b>	0.33	1.05	3.53	7.91	0.58	0.68	0.04	0.01
<b>Project 2020</b>	0.20	0.61	1.63	4.04	0.25	0.35	0.05	0.01
<b>2020 as % of 2010</b>	59%	58%	46%	51%	43%	52%	107%	117%

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Tables AQ-29 and AQ-30

### **Air Quality Impact**

This section analyzes the impacts of Year 2010 and Year 2020 emissions levels under the Project Baseline condition. Table 4-11 summarizes the emissions that would occur under this condition.

Emission Source	2010 Baseline Pollutant Emissions (tons)			
	HC	CO	NOx	PM
<b>Direct</b>				
Plowing and Grooming	--	--	8.2	0.4
<b>Indirect</b>				
OSV Use	1,081	2,975	6.2	14.1
Visitor Travel	7.3	76.8	12.5	0.94
Subtotal	1,088	3,052	18.7	15.0
<b>Year 2010 Total</b>	1,088	3,052	26.9	15.4
Emissions Source	2020 Baseline Pollutant Emissions (tons)			
	HC	CO	NOx	PM
<b>Direct</b>				
Plowing and Grooming	--	--	2.6	0.1
<b>Indirect</b>				
OSV Use	726	2,066	13.3	9.5
Visitor Travel	4.3	35.4	5.4	1.0
Subtotal	730	2,101	18.7	10.5
<b>Year 2020 Total</b>	730	2,101	21.3	10.6

Source: TRA Environmental Sciences, Inc. 2010; Compiled from Tables 4-4, 4-5, 4-7 through 4-10, and Appendix E Tables AQ-12 and AQ-32.

### **Air Quality Plans**

**Direct Emissions: Snow Removal and Trail Grooming.** Direct project emissions would not conflict with or obstruct implementation of the applicable air quality plan. There are no air quality plans in place that directly govern statewide mobile source emissions from the project snow removal and trail grooming equipment. Project equipment emissions are regulated by CARB through vehicle fleet requirements. OHMVR Division snowcat equipment is required to

comply with CARB standards and regulations. Other agencies and contractors who own and operate the snow removal equipment are likewise responsible for compliance with CARB requirements for on-road heavy-duty vehicles. Therefore, the Project has no effect on air quality plans.

The Project would not conflict with state or local Air Quality Management Plans. Direct and indirect air pollutant emissions from an ongoing program are already incorporated in emissions inventories and are taken into account in air quality planning. All program emissions are from internal combustion engines, which are regulated at the federal or state level. Recreational OSV use levels are not restricted by state regulation or by local air districts.

The project-supported activities are mainly operation of snow grooming and plowing equipment (see Project Description, Table 2-1) and a light duty service vehicle used to service restrooms and warming huts. The Project does not involve new land uses, contribute to urban growth, or introduce new stationary sources of air pollutants into the air basins. As such, the Project would not result in the violation of Air Quality Management Plans implemented by the various air districts associated with the project site locations within the Project Area.

The Project would facilitate winter use of USFS-approved recreational trails by OSVs. Project activities and subsequent visitor use of project trails and facilities for OSV recreation are consistent with the purposes of the Land Resource Management Plans or Forest Plans governing the national forests.

**Indirect Emissions: OSV Use.** Indirect emissions from OSV use would not conflict with or obstruct implementation of an applicable air quality plan because there are no plans in place that govern OSV user emissions. The individual emissions generated by each OSV would be required to meet applicable emissions standards set by the EPA and CARB. The project effect is less than significant.

**Indirect Emissions: Passenger Vehicle Travel.** Emissions from passenger vehicles traveling to the Project Area are part of on-highway vehicle travel accounted for in the statewide transportation inventory and in basin attainment plans maintained by individual air districts. The emissions from passenger trips to the Project Area are included in baseline conditions and do not represent new emissions. The emissions do not conflict with air quality plans.

### **Air Quality Standards and Nonattainment Regions**

**Direct Emissions: Snow Removal and Trail Grooming.** Direct project emissions at current levels represent a continuation of baseline conditions. All direct project emissions are presently occurring and have been occurring for many years. Possible growth in the OSV Program and offsetting declines in equipment emission factors over the 10-year program period is discussed in Section 4.3.2.2.

Off-road and on-road heavy-duty vehicle emissions associated with the Project are generically included in the state's inventory of air pollutants and are therefore part of baseline conditions. By the nature of the operation, grooming equipment operates at night and moves continually over many miles of trail such that there are no localized concentrations of exhaust emissions. Likewise, plowing also occurs over several miles of access road and at multiple trailhead parking locations. Local concentrations of air pollutants from equipment exhaust would be low and very short duration only occurring intermittently over the 4-month winter season (December to

March). Concentrations would not approach significance thresholds for diesel particulate matter or ambient air quality standards for other pollutants.

With the exception of Lassen County APCD and parts of Northern Sierra AQMD and Great Basin Unified APCD, air districts within the Project Area are in non-attainment for state ozone standards. The regional impact of NO<sub>x</sub> emissions is minimal during the cold winter season when conditions do not favor formation of ozone. Therefore, the impact of the project equipment emissions on contribution of ozone to a non-attainment air basin in the Project Area is less than significant.

With the exception of Siskiyou County APCD all of the 10 air districts within the Project Area are in non-attainment with state PM<sub>10</sub> standards. Project PM<sub>10</sub> emissions occur in areas remote from other existing sources. Elevated PM<sub>10</sub> levels in the non-attainment air districts in the Project Area are largely associated with fugitive dust from unpaved surfaces, which are covered by snow during the winter season, or from wood burning in settled areas away from the trail sites. Therefore, project PM<sub>10</sub> emissions occur when high background PM<sub>10</sub> levels are not present. For these reasons, the Project is not likely to violate air quality standards or contribute significantly to PM<sub>10</sub> or levels in non-attainment regions. The Lake Tahoe air basin is known to have elevated PM<sub>10</sub> levels during the winter season; however, the OSV Program supported trail systems and trailheads are located outside of this sensitive air basin.

**Indirect Emissions: OSV Use.** OSVs are classified as OHVs which are included in the emission inventories prepared by each air district. As an example, in 2005, off-highway recreation vehicles accounted for three percent (1.775 tons/day) of ROG emissions and one-tenth of one percent (0.106 tons/day) of NO<sub>x</sub> emissions from mobile sources throughout the Northern Sacramento Planning Area (NSVPA 2006). OSV use on OSV Program supported trails is a component of those inventories and part of baseline conditions.

OSVs contribute NO<sub>x</sub> and ROG emissions to air basins, most of which are in non-attainment for ozone. OSV ROG and NO<sub>x</sub> emissions, however, occur during the winter when low temperatures and low sunlight conditions do not favor formation of ozone. OSV use is also spread out over a network of trails served by the trailhead. Although there would be higher localized emissions at the staging areas, for the most part, the maximum day emissions shown in Table 4-6 are dissipated over upwards of 30 miles of trail over a period of 6 hours or more. There are no localized concentrations of exhaust emissions approaching ambient air quality standards. The project effect would be less than significant.

**Indirect Emissions: Passenger Vehicle Travel.** Emissions from passenger vehicles traveling to the Project Area are part of on-highway vehicle travel accounted for in the statewide transportation inventory and in basin attainment plans maintained by individual air districts. The emissions from passenger trips to the Project Area are included in baseline conditions and do not represent new emissions. The indirect visitor travel emissions impact is less than significant.

### **Sensitive Receptors and Odors**

**Direct Emissions: Snow Removal and Trail Grooming.** There are no sensitive receptors near emissions sites. Generally, grooming and plowing takes place when no recreational users are present, so there is no overlap of direct and visitor emissions. Direct emissions would not expose

sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. The project effect is less than significant.

**Indirect Emissions: OSV Use.** The Project would not expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. Odor impact depends on the intensity of the odor, its frequency and duration, and the offensiveness of the odor. The ROG and PM emissions from two-stroke engines include unburned fuel and lubricating oil mixed with fuel. Two-stroke exhaust has a characteristic odor and can be recognized along the trail or for several hundred feet off trail, depending on traffic level and wind. The exhaust odor is concentrated on trails where OSVs are in use and exposes OSV and non-OSV recreation users. The main measure of impact depends on the perceived offensiveness of the odor. The OSV user community is used to the odor and associates it with voluntary outdoor recreation. For some the odor is considered tolerable in association with the recreation. Others associate it with a form of recreation often perceived as incompatible with non-motorized recreation and is thus more likely to find the odor offensive. To the non-motorized recreationist, the exhaust simply “smells bad” and is discordant with the expectation of a clean outdoor atmosphere.

The OSV Program services groomed trails and trailheads used by OSV and non-OSV recreation. The visitor survey reported in Project Description, Section 2.6 and Table 2-9 indicates that roughly 89% of trailhead visitors were there for motorized recreation and 14% engaged in either snowshoeing or cross-country skiing. The OSV trail system is multi-use and both non-motorized users and OSVs can overlap on the groomed trail as well as off-trail. The non-motorized user is aware of the motorized activity at the trailhead and presumably takes into account the presence of motorized use and associated traffic, noise, and odor may affect his own enjoyment. Because non-motorized use areas are available in nearly all national forest service areas, it is reasonable to conclude that non-motorized users judge odor and other impacts to be tolerable or they would go elsewhere. Because exposure is voluntary, short term (a few hours), and intermittent, it is concluded that the Project would not create objectionable odors affecting a substantial number of people. The project effect is less than significant.

**Indirect Emissions: Passenger Vehicle Travel.** Emissions from passenger vehicles traveling to the Project Area do not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people. The project effect is less than significant.

#### **4.3.2.2 10-Year Program Growth, Year 2020**

This section estimates and compares the direct and indirect emissions that would occur in Year 2020 with OSV Program Growth. Under this condition, there would be an increase in direct plowing or grooming activities or indirect recreational OSV and vehicle miles travelled over the 10-year period from 2010 to 2020. Like the Project Baseline condition, the Program Growth condition also assumes that the existing OSV Program is responsible for all of the indirect OSV and non-motorized recreational activities described in Section 2.6 of the Project Description. This assumption is conservative (i.e., an over-estimate of OSV Program share) since Winter Trailhead Survey data indicates that almost one-third (27 to 30%) of recreational users would continue to use trailheads regardless of the OSV Program’s direct grooming and plowing activities (see Section 2.6.1.2 of Project Description).

## Project Emissions

**Direct Emissions: Snow Removal and Trail Grooming.** Program growth would increase grooming and snow removal equipment use. The growth scenario defined in Project Description, Section 2.7.1 allows for up to 1,100 hours increase in annual grooming and 700 hours increase in annual snow removal program-wide by the year 2020. Actual levels of activity would depend on weather and user demand, and the projected growth may not occur. The location of the increase is not predicted, and the effect is evaluated for the OSV Program as a whole in Table 4-12.

		Season (tons)		% Change
		2020 Baseline	2020 Program Growth	
Grooming	Hours	4,948	6,048	122%
	PM <sub>10</sub>	0.39	0.14	36%
	NOx	6.7	3.0	44%
Plowing	Hours	2,076	2,776	134%
	PM <sub>10</sub>	0.028	0.007	35%
	NOx	1.4	0.2	15%
Program Total	Hours	7,024	8,824	126%
	PM <sub>10</sub>	0.42	0.15	35%
	NOx	8.2	3.2	39%

10-year growth scenario:  
Increase grooming by 1100 hours; increase plowing by 700 hours.

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-26

**Indirect Emissions: OSV Use.** Growth in OSV registrations is predicted to continue and is predicted to result in an approximately 4% annual growth in usage. Actual usage may be affected by economic conditions and would depend mainly on weather and length of the snow season. Table 4-13 summarizes indirect OSV Use emissions under Project Baseline and Program Growth Year 2020 conditions.

	Season OSV-days	Fuel Use (gal)	Annual Emissions (tons)			
			HC	CO	NOx	PM
<b>Baseline 2020</b>	158,738	1,062,148	726	2,066	13.3	9.5
<b>Program Growth 2020</b>	234,932	1,578,745	1,074	3,057	19.6	14.1

Project 2020 is a 48% increase over Baseline 2010

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-12

**Indirect Emissions: Passenger Vehicle Travel.** The statewide emissions from vehicle travel to the Project Area under the 10-year program growth scenario are presented in Table 4-14. User vehicles and VMT are estimated to increase by 48%. Despite the growth in vehicles and VMT



expected to occur the emissions from this source decrease below baseline levels for all pollutants except PM due to stricter emissions standards and fleet turnover.

	Seasonal Trips	Seasonal VMT (Million Miles)	Annual Emissions (tons)			
			HC	CO	NOx	PM
<b>Baseline 2020</b>	95,243	19.5	4.27	35.38	5.36	1.0
<b>Project 2020</b>	140,959	28.9	6.34	52.38	7.98	1.49
Project 2020 is a 48% increase over Baseline 2010						

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Tables AQ-32 and AQ-33.

### **Air Quality Impact**

This section analyzes the impacts of Year 2020 emissions levels under the Program Growth condition. Table 4-15 summarizes the emissions that would occur under this condition.

Emission Source	2020 Baseline Pollutant Emissions (tons)			
	HC	CO	NOx	PM
<b>Direct</b>				
Plowing and Grooming	--	--	2.6	0.1
<b>Indirect</b>				
OSV Use	726	2,066	13.3	9.5
Visitor Travel	4.3	35.4	5.4	1.0
Subtotal	730	2,101	18.7	10.5
<b>Year 2020 Total</b>	730	2,101	21.3	10.6
Emissions Source	2020 Program Growth Pollutant Emissions (tons)			
	HC	CO	NOx	PM
<b>Direct</b>				
Plowing and Grooming	--	--	3.2	0.15
<b>Indirect</b>				
OSV Use	1,074	3,057	19.6	14.1
Visitor Travel	6.34	52.38	7.98	1.49
Subtotal	1,080	3,109	27.6	15.6
<b>Year 2020 Total</b>	1,080	3,109	30.8	15.8

Source: TRA Environmental Sciences, Inc. 2010; Compiled from Tables 4-11 thru 4-14.

### **Air Quality Plans**

#### **Expanded Trailhead Parking, Increased Grooming at Existing Trails, New Trail Systems.**

The direct emissions that would occur under the 2020 Program Growth condition (increase of 1,100 grooming hours and 700 snow removal hours) would not conflict with or obstruct an applicable air quality plan since there are no plans in place that directly govern mobile source

emissions from the project's snow removal and trail grooming equipment. As described in the Air Quality Plan discussion in Section 4.3.2.1, the snow removal and trail grooming equipment is required to comply with federal and state emissions standards. The project does not involve new land uses, contribute to urban growth, or introduce new stationary sources of air pollutants and would therefore not conflict with an applicable air quality management plan. The direct emissions of the 2020 Program Growth condition are considered to have a less than significant effect on air quality plans.

**Growth in OSV Recreation.** The indirect OSV use emissions that would occur under the 2020 Program Growth condition would not conflict with or obstruct an applicable air quality plan for the same reasons discussed above under the Direct Emissions analysis. There are no plans that govern OSV user emissions, and the individual emissions produced by each OSV would be required to meet applicable federal and state emissions standards. The indirect OSV use emissions of the 2020 Program Growth condition would have a less than significant effect on air quality plans.

The indirect visitor travel emissions of the 2020 Program Growth condition are part of on-highway vehicle travel growth accounted for in the statewide transportation inventory and in basin attainment plans maintained by the individual air districts. The emissions from passenger trips to the Project Area would have a less than significant effect on air quality plans. .

### **Air Quality Standards and Nonattainment Regions**

**Expanded Trailhead Parking, Increased Grooming at Existing Trails, New Trail Systems.** As described in the Air Quality Standards and Nonattainment Regions analysis in Section 4.3.2.1, the direct emissions under the 2020 Program Growth condition would operate at night and move continually over many miles of trails and roads such that there are no localized concentrations of exhaust emissions. Concentrations of air pollutants from equipment exhaust would be low and intermittent during the 14-week winter season (mid-December through March) and would not approach significance levels for diesel particulate matter or ambient air quality standards for other pollutants.

With the exception of Lassen County APCD and parts of Northern Sierra AQMD and Great Basin Unified APCD, air districts within the Project Area are in non-attainment for state ozone standards. The regional impact of ozone precursor emissions is minimal during the cold winter season when conditions do not favor formation of ozone. Therefore, the project's direct emissions would have a less than significant effect on ozone contribution in non-attainment air basins in the Project Area.

With the exception of Siskiyou County APCD all of the 10 air districts within the Project Area are in non-attainment with state PM<sub>10</sub> standards. Project PM<sub>10</sub> emissions occur in areas remote from other existing sources. Elevated PM<sub>10</sub> levels in the non-attainment air districts in the Project Area are largely associated with fugitive dust from unpaved surfaces, which are covered by snow during the winter season, or from wood burning in settled areas away from the trail sites. Therefore, project PM<sub>10</sub> emissions occur when high background PM<sub>10</sub> levels are not present. For these reasons, the Project is not likely to violate air quality standards or contribute significantly to PM<sub>10</sub> or levels in non-attainment regions. The Lake Tahoe air basin is known to have elevated PM<sub>10</sub> levels during the winter season; however, the OSV Program supported trail systems and trailheads are located outside of this sensitive air basin.

**Growth in OSV Recreation.** The 2020 Program Growth conditions would increase OSV ozone precursor emissions throughout the Project Area. As described in the Air Quality Standards and Nonattainment Regions analysis in Section 4.3.2.1, OSVs are classified as OHVs and are included in the emission inventories prepared by each air district. For example, the Northern Sacramento Valley Planning Area 2009 Triennial Air Quality Attainment Plan emission inventory lists baseline 2008 OHV recreation vehicle emissions as approximately 2.9 tons per day and expects growth in Year 2020 to reach 3.3 tons per day, a 16% increase (SVAQEEP 2009).

With the exception of Lassen County APCD and parts of Northern Sierra AQMD and Great Basin Unified APCD, air districts within the Project Area are in non-attainment for state ozone standards. The indirect OSV use Program Growth condition ROG and NO<sub>x</sub> emissions would be spread out over many miles of trails. These emissions would occur intermittently from December to March, when low temperatures, low sunlight conditions, and short duration days reduce the potential for ozone formation. Therefore, the project's indirect OSV emissions would have a less than significant effect on ozone contribution in non-attainment air basins in the Project Area.

Similarly, the project's indirect PM<sub>10</sub> emissions would occur when high background PM<sub>10</sub> levels are not present. For this reason, the Project's indirect OSV emissions are not likely to violate air quality standards or contribute significantly to PM<sub>10</sub> or levels in non-attainment regions. The Lake Tahoe air basin is known to have elevated PM<sub>10</sub> levels during the winter season; however, the OSV Program supported trail systems and trailheads are located outside of this sensitive air basin.

As described under the Air Quality Standards and Nonattainment Regions analysis in section 4.3.2.1, indirect emissions from passenger vehicles traveling to and from the Project Area associated with OSV recreation are part of the on-road motor vehicle emissions planned for by the individual air districts. The air quality effects of these indirect project emissions are determined to be less than significant.

### **Sensitive Receptors and Odors**

#### **Expanded Trailhead Parking, Increased Grooming at Existing Trails, New Trail Systems.**

As described under the Sensitive Receptors and Odors analysis in Section 4.3.2.1, there are no sensitive receptor locations adjacent to the trailheads or groomed trail systems. The exposure of sensitive receptors to substantial pollutants and odors from direct project emissions is considered less than significant.

**Growth in OSV Recreation.** As described under the Project Baseline condition analysis, the Project would not expose sensitive receptors to substantial concentrations, or create objectionable odors affecting a substantial number of people. Potential odors associated with OSV use would be voluntary, short term (a few hours), and intermittent; passenger vehicles travelling to the Project Area would not expose sensitive receptors to substantial pollutant concentrations or odors from indirect project emissions. The project effect is less than significant.

### **4.3.2.3 Cumulative Impacts**

Air quality is a regional and statewide issue. The Project would generate air pollutant emissions of PM<sub>10</sub> and NO<sub>x</sub> in air basins which exceed state standards for these pollutants. The project

emissions would occur at a time of year when background PM<sub>10</sub> levels are low and NO<sub>x</sub> is less likely to form ozone. Thus, the project's contribution to air quality issues within local air basins is considered minimal and would not contribute to cumulative significant effects. No new land use activities within the national forests are proposed that would add PM<sub>10</sub> and NO<sub>x</sub> emissions to pollutant concentrations in the Project Area when project emissions are occurring. There are no other stationary source projects proposed in the Project Area identified by the national forests (Appendix G) that would contribute new sources of emissions in addition to the continuation of the OSV Program. One special event, the Turning Point Snowmobile Rally fundraiser, is proposed for February 2011 at the Little Truckee Summit and Jackson Meadows area (Tahoe National Forest; Appendix G). The event would attract up to 160 participants over one 8-hour day. Although this event would contribute additional PM<sub>10</sub> and NO<sub>x</sub> emissions, given the very short-term nature of the event, its location, and the timing (winter), it would not combine with the Project to produce significant cumulative air quality impacts. Other mobile sources of emissions occurring in the Project Area such as vehicle travel along project access roads or Caltrans plowing along highways near project trailheads are part of existing baseline conditions and their growth is planned and accounted for in the emission inventories maintained by each air district. Therefore, there are no cumulative air quality impacts associated with this Project.

### 4.3.3 Energy Use

#### 4.3.3.1 Project Baseline, Year 2010

##### Project Energy Use

**Direct Energy Use: Snow Removal and Trail Grooming.** Direct project energy use is roughly 59,000 gallons per year of diesel in baseline year 2010 (Appendix E, Table AQ-17). Diesel used in large internal combustion engines is extremely efficient. The current program serves some 79,000 visitor vehicle-days (Appendix E, Table AQ-5a), which includes both motorized and non-motorized recreation. With two or three persons per vehicle, the fuel use contributes to support upwards of 200,000 visitor-days of recreation on national forest land.

**Indirect Energy Use: OSV Use.** Fuel use from on-snow motorized recreation is considerable. The 26 trail systems groomed by the OSV Program comprise a significant proportion of statewide winter OHV recreation (see Recreation, Table 8-2). Supported use is estimated to be approximately 159,000 OSV-days per year (Project Description, Table 2-8). With typical fuel consumption of 8 gallons per OSV-day, annual OSV fuel use is on the order of 1.2 million gallons of gasoline per year (Appendix E, Table AQ-27).

**Indirect Energy Use: Passenger Vehicle Travel.** User travel to and from the Project Area is estimated to be some 79,000 visitor vehicles traveling a total of 19.5 million miles per year. Currently, light duty trucks and SUV have relatively low fuel economy, assuming 12 miles per gallon, the user travel consumes some 1.6 million gallons of petroleum based motor vehicle fuel per year (Appendix E, Table AQ-13).

##### Energy Use Impact

##### Efficiency of Energy Consumption

**Direct Impact: Snow Removal and Trail Grooming.** The project direct energy use from snow removal and trail grooming operations is 59,000 gallons per year at current baseline levels rising

to 74,000 gallons of diesel per year over the 10-year program period (Appendix E, Table AQ-27).

As stated above in Section 4.3.1.2, CEQA Guidelines focus the evaluation of energy impacts on whether a Project causes inefficient, wasteful, or unnecessary consumption of energy resources. Fuel consumption associated with the OSV Program is not wasteful or excessive considering the recreational objective achieved (Project Description, Section 2.2). The total fuel consumed by direct project activities of the OSV Program cannot be further reduced beyond the fuel efficiencies gained by the state's off-road vehicle replacement program described in Project Description, Section 2.4.1 unless the scope of the OSV Program is reduced. The demand for winter trail recreation increases annually, making the energy use expended to provide the recreation opportunity a worthwhile public service. Based on the recreation demand and the state's management of its off-road vehicle fleet to maximize fuel efficiencies, the direct project activity would not result in inefficient, wasteful, or unnecessary energy consumption. Therefore, the project effect is less than significant.

**Indirect Impact: OSV Use and Passenger Vehicle Travel.** Indirect energy use is substantial, with OSV use and visitor travel together consuming an estimated 3 million gallons of gasoline and diesel at baseline 2010 levels, possibly 3.4 million gallons per year by 2020 (Appendix E, Tables AQ-12 and AQ-13). However, in the context of state-wide energy use, the indirect fuel use is small: annual consumption of gasoline and diesel motor fuels is roughly 20 billion gallons per year (CEC 2007) and project related use is 0.015 % of that total.

The energy use is part of the energy budget of state residents using OSV Program trail facilities and associated trailheads. Use is upwards of 200,000 visitor-days per year. Statewide resident and non-resident OSV registrations were 22,900 in 2009 (Project Description, Section 2.7.2.1); a 1997 survey found 8,000 families owning the 14,000 OSVs registered that year (1.75 OSV/household), with 72% traveling with four or more people in their typical snowmobile group. This suggests that the current OSV user community in California is roughly 52,000<sup>1</sup> persons, with non-owner guests additional. The OSV Program is a major part of legal, supported OSV recreation in California; it is reasonable to expect that a majority of the OSV community uses OSV Program facilities during some part of the season. Assuming that on average, two-thirds of the community (approximately 35,000) use the facilities yearly, the estimated annual 200,000 user-days means an average of 5.7 use-days per person per year.

Considering the population served, the 2.9 million gallons of indirect fuel use at baseline 2010 levels is 15 gallons per user-day, approximately 85 gallons per person served per year. Indirect fuel use in 2020 could grow to 3.4 million gallons per year if the user population were to grow by 48% to around 300,000 user-days – roughly 12 gallons per user-day.

This fuel use is a result of individuals seeking mountain recreation opportunities remote from the urban population centers. The level of energy use indirectly caused by the Project through OSV use and vehicle travel to the Project Area is not considered inefficient, wasteful, or unnecessary. For this reason, the indirect energy impact of the Project is considered less than significant.

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<sup>1</sup> 22,900 registered OSV / 1.75 OSV/household = approximately 13,000 OSV owning households; multiplied times 4 persons per household = 52,000 persons

### 4.3.3.2 10-Year Program Growth, Year 2020

#### Project Energy Use

**Direct Energy Use: Snow Removal and Trail Grooming.** Program growth as described in Project Description, Section 2.7.1, may result in diesel use rising possibly to 74,000 gallons as equipment operation at project locations may increase due to increased demand for winter trail recreation. Future replacement of older equipment would produce improved work efficiency and would somewhat reduce fuel use as well as reduce air pollutant emissions.

**Indirect Energy Use: OSV Use.** Over the 10-year program period, future OSV use may increase (Project Description, Section 2.7.2). As discussed in Section 4.3.2.2, OSV emissions standards would come into effect resulting in an increased efficiency for two-stroke designs and a greater proportion of four-stroke engines in the vehicle fleet in use. Design improvements to reduce emissions would also improve fuel efficiency. The average four-stroke OSV uses 0.648 pounds of gasoline to generate one brake horsepower-hour (bhp-hr) of work, compared with 1.08 pounds used by a two-stroke engine. Note that two-stroke air pollutant HC and CO emissions are unburned or incompletely burned fuel with concomitant loss of energy value. Two-stroke HC emissions are 140 grams per bhp-hr (Lela and White 2002, Appendix E, Table AQ-1), which means that nearly 30% of a gallon of gasoline is wasted in the exhaust of a conventional two-stroke snowmobile. The estimated improvement in OSV emissions would also serve to improve fuel consumption. Project year 2020 estimates have a 48% increase in OSV recreation use with only a 28% increase in fuel use to roughly 1.6 million gallons per year as compared to Project Baseline 2010 conditions (Appendix E, Table AQ-27).

**Indirect Energy Use: Passenger Vehicle Travel.** Possible increased demand for OSV recreation would result in increased travel by passenger vehicles. Anticipated federal fuel efficiency standards may produce a general 25% reduction in fuel consumption for pick-up trucks and SUVs, which would offset some of the effect of increased travel. Social trends over the past decade due to higher fuel costs and energy awareness have produce a small reduction in voluntary fuel use for recreation and holiday travel; this is not factored into the estimate. Project-year 2020 indirect transportation fuel use would be on the order of 1.8 million gallons (Appendix E, Table AQ-13).

#### Energy Use Impact

##### Efficiency of Energy Consumption

**Expanded Trailhead Parking, Increased Grooming at Existing Trails, New Trail Systems.** See Energy Use Impact discussion in Section 4.3.3.1 above. Given the increased demand for OSV recreation in conjunction with the increased energy efficiency of the motorized equipment (grooming/plowing), the level of energy use from project equipment is not considered inefficient, wasteful, or unnecessary. For this reason, the energy use impact of the Project is considered less than significant.

**Growth in OSV Recreation.** See Energy Use Impact discussion in Section 4.3.3.1 above. Given the increased demand for OSV recreation in conjunction with the increased energy efficiency of the motorized equipment associated with OSV recreation (OSVs and transport vehicles), the level of energy use from these indirect project sources is not considered inefficient, wasteful, or

unnecessary. For this reason, the energy use impact of the Project is considered less than significant.

#### 4.3.3.3 Cumulative Impacts

California's population is forecast to grow from almost 39 million people in 2010 to 44 million in 2020 (Dept. of Finance 2007, 2010). As noted in Section 10.2.3, the Project would contribute to California's consumption of non-renewable fossil fuels. Fossil fuels would be required for grooming and plowing equipment, OSVs, and for the vehicles transporting OSV recreationists to the trailheads. The OSV recreation described in this EIR, however, will be just one small part of the energy demands of California's large and growing population (see, e.g., Sections 4.2.3 and 4.3.3.1), and the equipment involved is subject to state and federal emissions and fuel economy standards. Section 10.2.3 further notes that the Legislature has recognized the popularity of OHV recreation and charged the OHMVR Division with supporting both motorized recreation and motorized off-highway access to nonmotorized recreation. Considering this statutory mandate to support OHV recreation, the Project's contribution to cumulative energy consumption in California would not be inefficient, wasteful, or unnecessary.

#### 4.3.4 Greenhouse Gases

##### 4.3.4.1 Project Baseline, Year 2010

##### Project Emissions

**Direct Emissions: Snow Removal and Trail Grooming.** The State of California is now undertaking planning for implementing the objectives of the California Global Warming Solutions Act of 2006 (AB32), which requires a statewide reduction of GHG emissions to year 1990 levels by year 2020. Such statewide measures would apply to the direct and indirect emissions from the OSV Program.

Diesel combustion from direct project fuel use generates NO<sub>x</sub>, as discussed above in Section 4.3.2.1, and essentially all of the carbon in the fuel is converted to CO<sub>2</sub>. Because combustion adds the mass of combined oxygen to the carbon, one pound of hydrocarbon fuel produces 3.14 pounds of CO<sub>2</sub>; diesel has a fuel density of 7.1 pounds per gallon, resulting in approximately 22.3 lbs of CO<sub>2</sub> per gallon of diesel fuel. NO<sub>x</sub> has the potential to be converted to N<sub>2</sub>O which has a greenhouse warming potential greater than CO<sub>2</sub> alone. The NO<sub>x</sub> component of transportation emissions contribute an additional 4.7% CO<sub>2</sub> equivalent as N<sub>2</sub>O (based on similar calculation from Staff Report California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit 11/16/2007).

Direct GHG emissions are estimated as 626 MTCO<sub>2</sub>e per year in baseline year 2010 (Table 4-16), rising to 822 MTCO<sub>2</sub>e in 2020 (Table 4-17; see Section 4.3.4.3 below). These levels are below all preliminary quantitative thresholds of significance in GHG plans now under consideration around the state described in Section 4.3.1.

**Indirect Emissions: OSV Use and Passenger Vehicle Travel.** Indirect OSV and transportation fuel use are described above in Energy Use, Section 4.3.3. Fuel use from on-snow motorized recreation and from user vehicle travel to and from trailheads is considerable. Cumulatively, they contribute nearly 50 times more GHG than do direct project emissions. Table 4-16 shows baseline 2010 GHG emission from direct and indirect sources.

The OSV Program trail systems provided in the Project Area comprise a significant proportion of the statewide winter OHV recreation opportunity (see Recreation, Table 8-2). Supported OSV use is estimated to be approximately 159,000 OSV-days (Project Description, Table 2-8) and the project trailheads and additional parking areas serve upwards of 200,000 visitor-days per year for motorized and non-motorized recreation (Project Description, Section 2.6.1.2). Transportation to trailheads from home or local accommodation and return is estimated to be 19.4 million vehicle miles per year. OSV fuel use and vehicle travel consume petroleum based fuel and generate GHG emissions, mainly as CO<sub>2</sub>.

In the baseline year 2010, total project direct and indirect GHG emissions are estimated at 27,118 MTCO<sub>2</sub>e. In context, the baseline emissions contribute 0.0056% of the latest state-wide inventory (2006) and 0.163 MTCO<sub>2</sub>e per OSV use-day.

Source	Fuel Use (gallons)	MTCO <sub>2</sub>	MTN <sub>2</sub> O	ALL GHG MTCO <sub>2</sub> e
Grooming and Plowing	58,802	598	28	626
OSV Use	1,249,586	10,996	512	11,508
User Transportation	1,627,065	14,318	666	14,984
Total	2,935,452	25,913	1,206	27,118
Total as % of current statewide GHG inventory				0.0057%

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-27

## **Greenhouse Gases Impact**

### **Greenhouse Gas Emissions Levels and Greenhouse Gas Reduction Plans**

**Direct Emissions: Snow Removal and Trail Grooming.** Air pollutant emissions reductions would have a small, but meaningful benefit to GHG emissions because the NO<sub>x</sub> component and N<sub>2</sub>O contribution would be cut sharply. Overall, there may some increased efficiency in future equipment use as well which could reduce hours of equipment operation and fuel consumption thereby further reducing pollutant and GHG emissions. Those factors have not been quantified and are not included in GHG estimates for 2020.

Although there is no specific GHG plan that applies to OSV Program direct emissions, the relatively small level of emissions compared to the GHG thresholds being considered elsewhere (see section 4.3.1) lead to a conclusion that the direct GHG impact is less than significant.

**Indirect Emissions: OSV Use and Passenger Vehicle Travel.** Baseline emissions from OSV use and visitor travel to and from the Project Area are not new emissions but rather a continuation of current conditions. Although these current conditions are contributing toward the statewide exceedance of the GHG emissions levels in excess of the 1990 rollback goal specified for the state, the impact is not considered significant as it is not a net increase above the current baseline and is not a net increase in GHG.



#### 4.3.4.2 10-Year Program Growth, Year 2020

##### Project Emissions

**Direct Emissions: Snow Removal and Trail Grooming.** Future GHG levels associated with direct project emissions under the 10-year program growth scenario are projected to rise to from 626 MT to 786 MT in 2020 (Table 4-17). Actual future levels may be less as recreational use demand may increase less than predicted and as climate change may shorten the snow season reducing the need for grooming or snow removal services. The predicted near-term effect of climate change would be a 25% reduction in Sierra snowpack by 2050 (DWR 2007). This estimate is mainly aimed at predicting future water availability, but also suggests that snow-based recreation would be curtailed as well and the trend may be experienced over the 10-year program period. Reduced snowpack would mean a shorter season and less snow at lower elevation trails, which would also reduce demand for grooming equipment operations.

Source	Fuel Use (gallons)	MT CO <sub>2</sub>	MT N <sub>2</sub> O	ALL GHG MT CO <sub>2</sub> e	As % of Baseline 2010
Grooming and Plowing	73,871	751	35	786	126%
OSV Use	1,578,745	13,893	646	14,539	126%
User Transportation	1,818,082	15,999	744	16,744	112%
Total	3,470,698	30,643	1,426	32,069	118%
Total as % of statewide GHG target 1990 inventory				0.0064%	

Source: TRA Environmental Sciences, Inc. 2010; Appendix E Table AQ-27

**Indirect Emissions: OSV Use and Passenger Vehicle Travel.** The project anticipates possible program growth to accommodate increased demand for winter trail recreation. As described in Project Description, Section 2.7, there could be a 48% increase in OSV use over the next ten years with a proportionate increase in visitor transportation. Table 4-17 shows projections for GHG emissions in 2020. Some improvements in both OSV and transport fuel efficiency would reduce overall GHG increase to an estimated 20%, so that GHG emissions per OSV use-day fall from 0.163 to 0.130 MTCO<sub>2</sub>e (Appendix E, Table AQ-27).

##### Greenhouse Gases Impact

The Year 2020 Program Growth condition results in an increase of 4,951 MTCO<sub>2</sub>e above baseline conditions (Table 4-16 and Table 4-17). This section analyzes the significance of this GHG emissions increase.

##### Greenhouse Gas Emissions Levels and Greenhouse Gas Reduction Plans

**Expanded Trailhead Parking, Increased Grooming at Existing Trails, New Trail Systems.** The increase of 160 MTCO<sub>2</sub>e from direct project emissions under the 10-year growth scenario (increase of 1,100 grooming hours and 700 plowing hours) is a 26% increase over 2010 baseline conditions (Table 4-16 and Table 4-17). This level remains below all preliminary quantitative thresholds of significance in GHG plans now under consideration around the state described in Section 4.3.1. Therefore, the direct GHG impact under the program growth scenario is less than significant.

**Growth in OSV Recreation.** The increase of 4,791 MTCO<sub>2e</sub> from indirect project emissions from OSV use and passenger vehicle travel (Table 4-16 and Table 4-17) could conflict with the state goal to roll back GHG emissions to 1990 GHG levels of 427 MMTCO<sub>2e</sub>. With a “business-as-usual” approach, CARB forecasts the statewide GHG emissions will rise to 596.4 MMT. Although the OHMVR Division has not adopted its own quantitative standards of significance for GHG emissions and potential global climate change impacts, the state goal of a roll-back to 1990 GHG emissions levels is a quantitative target.

As identified in Section 4.3.1.3 above, several air districts have developed numerical GHG emission thresholds of significance. While these thresholds do not apply to this statewide activity, they can be used to provide an indication of a consequential GHG contribution and serve as a benchmark for determining significance of GHG emissions.

Overall projected growth of the OSV Program by 2020 would increase GHG emissions from 27,118 MTCO<sub>2e</sub> (2010) to 32,069 MTCO<sub>2e</sub> (2020) resulting in a net increase of 4,951 MTCO<sub>2e</sub>. This increase is more than the BAAQMD land use project threshold of 1,100 MTCO<sub>2e</sub> and the SCAQMD residential/commercial project threshold of 3,000 MTCO<sub>2e</sub>, but less than 10,000 MTCO<sub>2e</sub> stationary source level that both the SCAQMD and BAAQMD have established for stationary source projects. These thresholds, however, are not applicable to a state-wide recreational project such as the OSV Program.

The BAAQMD has also developed an efficiency-based threshold of 4.6 MTCO<sub>2e</sub> per service population per year that is meant to allow efficient projects with higher mass emissions to meet the overall GHG reduction goals of AB32. The 4.6 MTCO<sub>2e</sub> per service population per year was derived from CARB’s AB32 GHG inventory and estimates of California’s Year 2020 service population (population + employment) and is an estimate of the amount of land-use related GHG emissions that each state resident and employee could emit in Year 2020 without impeding the GHG reduction goals of AB32. The OSV Program is a state-wide recreational project that produces GHG from mobile sources that are not under the permitting control of any one air district and therefore an efficiency based threshold, which normalizes GHG emissions for project size, provides the most appropriate benchmark for considering the significance of the project’s GHG emissions. Under the Year 2020 Program Growth condition, the Project would accommodate approximately 300,000 visitors and produce approximately 32,069 MTCO<sub>2e</sub>, or 0.11 MTCO<sub>2e</sub> per visitor which is considerably small in comparison to the 4.6 MTCO<sub>2e</sub> per capita threshold.

There are currently no plans which specifically address recreational fuel use. Several statewide plans address transportation fuel use and GHG emissions generally. The OSV Program is not specifically in conflict with these plans as it does not impede their implementation.

The Year 2020 Program Growth condition would result in direct and indirect GHG emissions that would not exceed the efficiency metric threshold established by the BAAQMD nor impede the GHG reduction goals of AB32. The individual on and off-road equipment that produces these emissions would be subject to voluntary and regulatory actions developed under AB32 and would not conflict with any GHG reduction plan. The project’s effect on GHG emissions is considered less than significant.

#### **4.3.4.3 Cumulative Impacts**

The Project, by nature of location and purpose, supports consumption of fossil fuel resulting in GHG emissions. Growth in the OSV Program operation and in OSV use of the trail systems above existing levels would create new GHG emissions statewide. General population growth and development throughout the state will add to GHG emissions in the state above existing inventory levels. Increases in the state GHG inventory conflict with the state goal of reducing the GHG inventory back to the 1990 level. Analysis of a project's GHG emission contribution is an assessment of a project's cumulative impact on state-wide emission levels. There are no GHG standards that apply to statewide motorized recreation. Based on comparison to standards that are most closely relevant, the project's cumulative GHG emission level is less than significant.

#### **4.4 MITIGATION MEASURES**

The above analysis identifies that direct and indirect emissions associated with the Project Baseline and Program Growth conditions would not result in any individual or cumulatively significant impacts. The on- and off-road equipment that generates project emissions would be subject to federal and state emission standards and regulations that control and reduce project emissions. No additional mitigation measures are necessary for the project.

GHG emissions can be further reduced only by reducing the level of service and hence fuel use. Alternate fuels for grooming and plowing equipment are not likely to be available in the ten year time frame of the Project. There are no commercially available substitutes for diesel in heavy duty, mobile applications. Biodiesel has a slightly smaller net GHG emission per gallon than petroleum-based diesel. At present, biodiesel is not a viable substitute for petroleum diesel as the slightly different chemical composition makes biodiesel more likely to gel at lower temperatures. Winter operations in remote, rural locations are not a prime candidate for biodiesel and its use is not recommended by this EIR. Several state and federal programs, mainly improved fuel efficiency, would reduce the unit GHG emissions from OSV recreation measured in pounds per person served by an estimated 23%. California's Low Carbon Fuel Standard will also serve to reduce the carbon content in transportation fuels by 10% by Year 2020, further reducing GHG emissions. No additional mitigation measures are necessary for the Project.

## 5.0 BIOLOGICAL RESOURCES

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This chapter describes the potential effects of OSV Program activities on biological resources, including vegetation communities, wildlife, and special-status species. The assessment is based on USFS monitoring information, CDFG resources such as the California Natural Diversity Database (CNDDDB), and review of the scientific literature on species' life histories, distribution, habitat requirements for breeding and forage, response to human disturbance, and current threats. It addresses the impacts of maintaining trailheads, trails, and access roads as well as OSV use in the surrounding areas both on and off-trail.

### 5.1 REGULATORY SETTING

#### 5.1.1 Federal

##### 5.1.1.1 Federal Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC §§ 1531 et seq.) protects fish and wildlife species that are listed as threatened or endangered, and their habitats. "Endangered" refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. "Threatened" refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future.

Federal ESA Section 9 protects federally listed endangered and threatened wildlife species from unlawful take (16 U.S.C. § 1538 (a)(1)). "Take" is defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. § 1532 (19)). "Harm" is defined as an act that "actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering" (50 CFR 17.3). The ESA also prohibits removing, digging up, cutting, or maliciously damaging or destroying federally listed plants on federal land.

Section 7 of the ESA requires federal agencies, in consultation with and with the assistance of, the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modifications of critical habitat for these species. Critical habitat is defined as specific geographic areas, whether occupied by listed species or not, that are determined to be essential for the conservation and management of listed species, and that have been formally described in the Federal Register. Section 10 of the ESA provides a means whereby a nonfederal action with a potential to result in the take of a listed species could be allowed under an incidental take permit. An incidental take permit is required when non-federal activities would potentially result in the take of a threatened or endangered species.

Under the ESA, the Secretary of the Interior and the Secretary of Commerce have the authority to list species as threatened or endangered. The ESA is enforced by the USFWS and National Marine Fisheries Service (NMFS). NMFS's jurisdiction under ESA is limited to the protection of marine mammals, marine fishes, and anadromous fishes; all other species are subject to USFWS jurisdiction. The USFWS also publishes a list of candidate species. Species on this list receive "special attention" from federal agencies during environmental review, although they are not

protected otherwise under the ESA. The candidate species are those for which the USFWS has sufficient biological information to support a proposal to list as endangered or threatened.

The USFWS no longer maintains a species of concern list; however, in compliance with the Fish and Wildlife Conservation Act (1980, as amended), the USFWS has identified “species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973.” Birds of Conservation Concern 2002 is a compilation of information about bird species of concern that identifies which species are of concern in each region of the country. The OSV Program Project Area is within Bird Conservation Regions 15 (Sierra Nevada) and 9 (Great Basin). NMFS does maintain a species of concern list. For NMFS, species of concern are those species that it has some concerns about, but for which insufficient information is available to indicate a need to list the species under the ESA. Thus, “species of concern” are not regulated by the ESA, and take of a species of concern is not prohibited by the ESA and does not require a take permit.

#### **5.1.1.2 Migratory Bird Treaty Act**

The federal Migratory Bird Treaty Act (MBTA) (16 USC §§ 703 et seq.) enacted the provisions of treaties between the United States, United Kingdom, Mexico, Japan, and the Soviet Union, and authorizes the Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by the USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except when authorized by a federal permit. Take is defined more narrowly under the MBTA than under the ESA and includes only the death or injury of individuals of a migratory bird species or their eggs. As such, take under the MBTA does not include the concepts of harm and harassment as defined under the ESA.

More than 800 species of birds are protected under the MBTA. Specific definitions of migratory bird are addressed in the international treaties. In general, birds that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons are “migratory birds” subject to the MBTA.

#### **5.1.1.3 Bald and Golden Eagle Protection Act**

The federal Bald and Golden Eagle Protection Act (16 USC §§668 et seq.) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. “Take” includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing. Exceptions may be granted by the USFWS for scientific or exhibition use, and for cultural use by Native Americans; however, no permits may be issued for import, export, or commercial activities involving eagles.

#### **5.1.1.4 Federal Code of Regulations: Forest Service Management Plans, Forest Service Sensitive Species**

Each national forest has a LRMP (see Land Use Plans and Policies, Section 4.0) that provides S&Gs for managing each national forest’s resources. The purpose of these LRMPs is to guide efficient use and protection of forest resources, fulfill legislative requirements, and balance local, regional, and national needs. The LRMPs emphasize the maintenance or improvement of endangered, threatened, and sensitive species habitat, and game species habitat. The S&Gs provide direction for managing sensitive species and their habitats.

Forest Service Sensitive (FSS) species are species identified by the Regional Forester for which population viability is a concern as defined in the Forest Service Manual Chapter 2670. The USFS develops and implements management practices to ensure that plants and animals do not become threatened or endangered and to ensure their continued viability on national forests. It is USFS policy to analyze impacts to FSS species to ensure forest management does not cause a significant trend toward federal listing or loss of viability.

The SNFPA of January 2004 (see Land Use Plans and Policies, section 3.1.2) provides S&Gs for species protection where OSV recreation disturbance was identified as a risk factor affecting species viability. By adhering to the SNFPA and implementing the protection measures identified in the S&Gs, the national forests maintain population viability by minimizing resource conflict as discussed in the SNFPA.

Each of the 11 national forests within the Project Area has a forest plan (LRMP) designating areas as open, restricted, or closed to OSV use. OHV travel is managed in accordance with Executive Order (EO) 11644, as amended by EO 11989, and the Code of Federal Regulations 212, 219, 261 and 295 (CFR). The land management planning process is used to allow, restrict, or prohibit use by specific vehicle types off-highway. During the planning process, OSV effects on soil, water, vegetation, fish, wildlife, forest visitors, as well as cultural and historic resources must be analyzed (36 CFR 219.21(g) and 295.2(a)). OSV use is prohibited in areas classified as wilderness, primitive, or semi-primitive non-motorized. Under EO 11644, as amended by EO 11989, seasonal closures and designated trails may be used to mitigate impacts from OSV use. The USFS Management Actions protecting special-status species in the national forests within the Project Area are summarized in Table 5-3 and Table 5-5.

## 5.1.2 State

### 5.1.2.1 California Endangered Species Act

The California Endangered Species Act (CESA), which is administered by CDFG, protects wildlife and plants listed as “threatened” or “endangered” by the California Fish and Game Commission, as well as species identified as candidates for listing. The CESA restricts all persons from taking listed species except under certain circumstances. The state definition of take is similar to the federal definition, except that the CESA does not prohibit indirect harm to listed species by way of habitat modification. Under the CESA, an action must have a direct, demonstrable detrimental effect on individuals of the species. Under Sections 2080 and 2081 of the California Fish and Game Code, the CDFG may authorize take of listed species, except for species that are designated as fully protected. Fully protected species may not be taken except for scientific research. Various Fish and Game Code sections identify fully protected species.

CDFG maintains lists of animal species of special concern (CSSC) that serve as “watch lists.” A CSSC is not subject to the take prohibitions of the CESA. The CSSC are species that are declining at a rate that could result in listing under the ESA or CESA and/or have historically occurred in low numbers, and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals and is intended to focus attention on the species to help avert the need for costly listing under federal and state endangered species laws. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them (CDFG 2003).

State agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy (Fish and Game Code § 2053). Incidental take of species listed under CESA may be permitted under Sections 2080.1 or 2081(b) of the California Fish and Game Code.

#### **5.1.2.2 California Fish and Game Code**

The California Fish and Game Code protects a variety of species, separate from the protection afforded under the CESA. The following specific statutes afford some limits on take of named species: Section 3503 (nests or eggs), 3503.5 (raptors and their nests and eggs), 3505 (egrets, osprey, and other specified birds), 3508 (game birds), 3511 (fully protected birds), 4700 (fully protected mammals), 4800 et seq. (mountain lions), 5050 (fully protected reptiles and amphibians), and 5515 (fully protected fish).

Section 3503 simply states, “it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” The exceptions generally apply to species that are causing economic hardship to an industry. Section 3503.5 states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted.” Section 3505 prohibits taking, selling, or purchasing egrets, osprey, and other named species or any part of such birds.

The mountain lion is a “specially protected” species under Sections 4800 et seq. of the Fish and Game Code. It is unlawful to take mountain lion except in instances and methods allowed in the Fish and Game Code.

Certain species are also fully protected. This classification was the state's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research or for habitat restoration that will promote their survival.

#### **5.1.2.3 California Native Plant Protection Act**

The California Native Plant Protection Act (CNPPA) of 1977 preserves, protects, and enhances endangered and rare plants in California by specifically prohibiting the importation, take, possession, or sale of any native plant designated by the California Fish and Game Commission as rare or endangered, except under specific circumstances identified in the Act. Various activities are exempt from the CNPPA, although take as a result of these activities may require other authorization from CDFG under the California Fish and Game Code.

#### **5.1.2.4 CDFG and the California Environmental Quality Act**

As a trustee agency, CDFG comments on the biological impacts of development projects reviewed under CEQA. CEQA gives CDFG jurisdiction to comment on the protection of habitats



deemed necessary for any species to survive in self-sustaining numbers, but does not allow CDFG to govern land use. It stipulates that the state lead agency shall consult with, and obtain written findings from, CDFG in preparing an environmental impact report on a project, as to the impact of the project on the continued existence of any endangered species or threatened species (Public Resources Code § 21104.2). A CEQA analysis must consider species presumed to be endangered, rare, or threatened (special-status species). The special-status species considered by this EIR are discussed in Section 5.2.7. CDFG does not have permit authority over a project unless the project would cause take of a state listed species.

## **5.2 ENVIRONMENTAL SETTING**

### **5.2.1 Regional Setting**

The OSV Program is located in 11 of the 18 national forests in the USFS Pacific Southwest Region (Region 5). The Klamath, Shasta-Trinity, Lassen, and Modoc National Forests are located in the southern end of the Cascade Range (Cascades), formed primarily by volcanic action. The Plumas, Tahoe, Eldorado, Stanislaus, Sierra, Inyo, and Sequoia National Forests are in the Sierra Nevada Range (Sierra Nevada), formed primarily by earth and glacial movements. The geologic formation of these ranges affects their biology. The biotic zones in these national forests include lower montane forest, upper montane forest, subalpine forest, and alpine forest.

Weather and altitude influence the biotic zones. During the fall, winter, and spring, precipitation in the Sierra Nevada ranges from 20 to 80 inches where it occurs mostly as snow above 6,000 feet. Summers are dry with low humidity; however, afternoon thunderstorms are common. The growing season ranges from 20 to 230 days, depending on elevation. The Cascades have a similar weather pattern, and receive 20 to 80 inches of precipitation per year with the growing season lasting 30 to 200 days, depending on elevation.

Due to the extremes in topography, large elevation gradient (3,000 to 12,500 feet), and varied climate of the Sierra Nevada and Cascades, the region supports a diverse assemblage of plant species. Fifty percent of California's 7,000 vascular plants are found in the region and more than 400 plant species are endemic (U.C. Davis 2006). The various climatic conditions and diverse plant communities provide for a large array of habitats.

About 40 percent of the state's surface water runoff flows to the Central Valley from the Cascades and Sierra Nevada. In the Sierra Nevada, the rivers flow west from the crest in deeply incised canyons to the Central Valley and Pacific Ocean. Rivers flowing east from the Sierra crest end in the Mojave Desert, Mono Basin, or northwestern ranges. Numerous lakes and wet meadows are associated with glaciated areas above 5,000 feet. Project Area streams in the southern Cascades flow west to the Klamath and Sacramento Rivers or east to basins in the Modoc Plateau. The Modoc Plateau region lies to the east in the rain shadow of the Cascades. Modoc National Forest covers part of the Cascades as well as part of the Modoc Plateau; only the Cascades portion of the Modoc National Forest is within the Project Area.

### **5.2.2 Biological Study Area**

The area of biological resources (Biological Study Area [BSA]) evaluated in the OSV Program impact analysis, encompasses a broader area than just the immediate vicinity of trailheads, groomed trails, and open riding areas. The reasons are twofold. Biological resources are



dynamic, and it is important to know if sensitive resources occur near the Project Area in surrounding habitat areas and therefore could potentially occur within the Project Area or could be indirectly affected by project activities (e.g., downstream effects). Additionally, OSV use is allowed off trail and extends into the surrounding habitat. It is assumed that most off-trail impact from snow recreation activities would occur within a five-mile radius of the groomed trails due to the presence of physical barriers such as highways, river canyons, excessively steep terrain, thick vegetation, and restricted areas; therefore, this five-mile radius beyond the groomed trail system comprises the Biological Study Area assessed in the biological impact analysis. The biological setting in this EIR provides the regional context for the analysis to cover this broader area.

### 5.2.3 Vegetation Communities

Vegetation communities (Figure 36) are defined by species composition and relative abundance. Project activities could occur between 4,000 and 10,000 feet above sea level, within the lower montane, upper montane, and the lower elevations of subalpine forest biotic zones. The biotic zones within the Project Area are listed in Table 5-1.

<b>National Forest</b>	<b>Trail Elevations (feet above sea level)</b>	<b>Biotic Zone(s)</b>
Klamath	5,400-7,400	Lower and upper montane
Modoc	5,500-7,100	Lower and upper montane
Shasta-Trinity	4,100-6,600	Lower montane
Lassen	4,600-7,700	Lower and upper montane
Plumas	4,900-7,300	Lower and upper montane
Tahoe	5,000-7,800	Lower and upper montane
Eldorado	5,700-8,000	Lower and upper montane
Stanislaus	5,900-8,700	Lower and upper montane
Inyo	7,300-9,100	Upper montane and subalpine
Sierra	4,900-9,100	Lower and upper montane, subalpine
Sequoia	5,400-10,000	Lower and upper montane, subalpine

Source: TRA Environmental Sciences, Inc. 2010

The dominant vegetation types in the lower and upper montane are mixed conifer forests of pine, pine-fir, or fir, with total vegetative cover averaging 70 to 100 percent (Fites-Kaufman et al. 2007). Other common vegetation types include sagebrush scrub, pinyon-juniper, and riparian. Less common vegetation types include vernal pools and serpentine soil-based grassland, chaparral, woodland, and forest.

In the lower montane, dominant tree species up to 6000 feet include ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), white fir (*Abies concolor* var. *lowiana*), incense-cedar (*Calocedrus decurrens*), Jeffrey pine (*Pinus jeffreyi*), sugar pine (*Pinus lambertiana*) (Fites-Kaufman et al. 2007) and broadleaf upland forest species such as black oak (*Quercus kelloggii*) and bigleaf maple (*Acer macrophyllum*). In ponderosa pine forests, common shrubs include serviceberry (*Amelanchier alnifolia*), wedgeleaf ceanothus (*Ceanothus cuneatus*),

mountain misery (*Chamaebatia foliolosa*), and greenleaf manzanita (*Arctostaphylos patula*) (Sawyer et al. 2009). The herbaceous layer is often sparse. In Douglas fir-mixed conifer forests, shrubs may include Oregon grape (*Berberis nervosa*), creeping snowberry (*Symphoricarpos mollis*), and hazel (*Corylus cornuta*) (Sawyer et al. 2009). The giant sequoia (*Sequoiadendron giganteum*) groves in the southern end of the Sierra Nevada are found within the lower montane zone. Non-forested land in the lower montane is typically restricted to rock outcrops or sites where timber has been harvested. Meadows and other herbaceous-dominated sites, including riparian, are limited in distribution.

The upper montane (typically above 6,000 feet) contains a mosaic of conifer forest, montane meadows, and California montane chaparral. Red fir (*Abies magnifica*), Jeffrey pine, and lodgepole pine (*Pinus contorta* subsp. *murrayana*) are the dominant forest species. Red fir, Jeffrey pine, and lodgepole pine may be the sole species in a canopy or the dominant tree with various other species present. White fir often broadly overlaps with these species and can become dominant between 6,000 and 7,200 feet; often including associations with sugar pine and incense cedar. Shrub cover in white fir forests varies considerably but typically includes mountain pink currant (*Ribes nevadense*), Sierra gooseberry (*Ribes roezlii*), thimbleberry (*Rubus parviflorus*), Sitka willow (*Salix sitchensis*), and blue elderberry (*Sambucus caerulea*) (Sawyer et al. 2009). Co-occurring species include mountain hemlock (*Tsuga mertensiana*), sugar pine, western white pine (*Pinus monticola*), foxtail pine (*Pinus balfouriana*), huckleberry oak (*Quercus vaccinifolia*), pinemat manzanita (*Arctostaphylos nevadensis*), thinleaf huckleberry (*Vaccinium membranaceum*), and bush chinquapin (*Chrysolepis sempervirens*) (Sawyer et al. 2009). Species found within montane meadows are numerous and varied, and may include grasses and forbs as well as woody vegetation. The meadows may be dry or wet. Wet meadows are located in areas where the water table is shallow, creating wet soil conditions year round that exclude conifers and support a high diversity of herbaceous vegetation. Dry meadows generally contain no standing water and are composed of dryland sedges (*Carex* spp.), grasses, and forbs. Dry meadows are more common in Lassen, Inyo, and Modoc National Forests. California montane chaparral is a mosaic of sage scrub, chaparral, pinyon-juniper woodland, oak woodlands, and diverse forest types such as ponderosa pine, sugar pine, western white pine, and lodgepole pine. California montane chaparral occurs on all national forests in the project area (Risser and Fry 1988).

The subalpine forest biotic zone starts near 9,000 feet, where the climate is cooler and the growing season is shorter due to long cold winters. Accumulations of three to nine feet of snow are typical. The subalpine landscape contains a mosaic of subalpine forests/woodlands, meadows, rock outcrops, and scrub vegetation. Subalpine forests are open stands of conifers occurring on generally sandy soils or rocky slopes. The dominant trees are western white pine, mountain hemlock, and lodgepole pine. Stand densities are low and trees rarely exceed 80 feet in height. Meadows, rock outcrops, and shrub vegetation dominate the subalpine zone. The meadows are the same as described for the upper montane zone; they are characterized by grasses and a variety of wildflowers that flower in July and August.

The broadleaf upland forest is interspersed throughout the region, generally within the lower and upper montane biotic zones. A typical broadleaf upland habitat is composed of a dominant hardwood tree layer, with infrequent conifers and sparse shrub and herbaceous layers. In the southern Cascades and Sierra Nevada, steep, rocky south slopes of major river canyons often are covered by canyon live oak (*Quercus chrysolepis*) and scattered old growth Douglas fir. Elsewhere, higher elevation overstory associates are typically mixed conifer and California black

oak; lower elevation associates are gray pine (*Pinus sabiniana*), knobcone pine (*Pinus attenuata*), tanoak (*Lithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), and scrubby California laurel (*Umbellularia californica*). Associated understory vegetation includes Oregon grape, currant (*Ribes* spp.), wood rose (*Rosa gymnocarpa*), snowberry, manzanita (*Arctostaphylos* spp.), poison oak (*Toxicodendron diversilobum*), and a few forbs and grasses (McDonald 1988).

Sagebrush scrub is a treeless community of low shrubs stretching across much of the high desert (4,000 to 9,000 feet) and within the montane forest. It is widely distributed near the eastern base of the Cascade-Sierra Nevada crest within the counties of Modoc, Lassen, Mono, and Inyo. Characteristic species include big sagebrush (*Artemisia tridentata* ssp. *tridentata*), rubber rabbitbrush (*Chrysothamnus nauseosus*), antelope bitterbrush (*Purshia tridentata*), native perennial bunch grasses, such as ricegrass (*Achnatherum hymenoides*), needle-and-thread grass (*Hesperostipa comata*), and one-sided bluegrass (*Poa secunda*), and introduced annual grasses.

Pinyon-juniper habitat generally occurs in the southeastern portions of the Sierra Nevada at middle elevations adjoining a number of other wildlife habitats. At higher elevations, ponderosa and Jeffrey pine may be found in this habitat with dense stands of pinyon (*Pinus edulis*). At lower elevations, pinyon-juniper may interface with habitats such as Joshua tree and desert scrub. At higher elevations, habitats such as eastside pine, perennial grasses, ponderosa pine, and Jeffrey pine border on pinyon-juniper. Shrub-size plants in the subcanopy include small individuals of the overstory species, especially California juniper (*Juniperus californica*), as well as big sagebrush, blackbrush, antelope bitterbrush, and mountain mahogany (*Cercocarpus ledifolius*).

Riparian vegetation occurs in the lower montane, upper montane, and subalpine biotic zones, but is more common along low- to mid-elevation perennial and intermittent streams within the lower and upper montane biotic zones. Riparian vegetation occurs along all types of waterways, including meadows, flood plains, peatlands, marshes, springs, and lakeshores. Vegetation includes broadleaved, winter deciduous trees that form open or closed canopies, such as aspen (*Populus tremuloides*), white alder (*Alnus rhombifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), willows (*Salix* spp.), western dogwood (*Cornus sericea* ssp. *occidentalis*), sedges, and rushes (*Juncus* spp.).

Vernal pools are seasonally flooded depressions found on ancient soils with an impermeable layer such as a hardpan, claypan, or volcanic basalt. The impermeable layer allows the pools to retain water much longer than the surrounding uplands; nonetheless, the pools are shallow enough to dry up each season. Vernal pools often fill and empty several times during the rainy season. Only plants and animals that are adapted to this cycle of wetting and drying can survive in vernal pools over time. In California, the greatest concentration of vernal pools is found within the Central Valley, but they do occur elsewhere, such as Lassen and Modoc National Forests in the Project Area.

Due to their unusual chemical composition, serpentine soils often support numerous rare plants that have adapted to grow there. Serpentine soils occur in the foothills of the Sierra Nevada and Cascades up to approximately 6,400 feet in elevation. Vegetation types occurring in serpentine soil habitats include grasslands, chaparral, woodlands, forest, and “serpentine barrens,” which are sparsely vegetated by annual and perennial herbaceous plant species. Forests on serpentine soils are extremely uncommon due to the low nutrient levels in the soil; however, some areas do

have denser vegetation, particularly montane areas with higher rainfall such as the Cascades. In those areas, Jeffery pine and gray pine form patchy forested areas. These forests are often interrupted by open areas of serpentine barrens, and the steeper areas may support chaparral or woodlands.

#### 5.2.4 Aquatic Communities

Wetlands (bogs, marshes, swamps, seeps, etc.), lakes, and streams support rich communities of native organisms both in the water and in adjoining riparian areas. Native fishes and their invertebrate food supply are affected by water availability and quality, habitat alteration, and introduction of exotic species. Riparian vegetation (described above) occurs next to streams, lakes, and wetlands, and is rich in species diversity. Riparian areas are important natural biofilters, protecting aquatic environments from excessive sedimentation, polluted surface runoff and erosion and can be sources for plant recolonization of surrounding areas after disturbance. Riparian areas supply shelter, food, and migration corridors for many aquatic and terrestrial animals. These areas also provide shade – an important part of stream temperature regulation

Because of the ecological value of aquatic communities, several Critical Aquatic Refuges (CARs) have been designated in the Sierra Nevada by the USFS. CARs are small subwatersheds that contain either known locations of threatened or endangered species, highly vulnerable populations of native plant or animal species, or localized populations of rare native aquatic or riparian dependent plant or animal species. The primary role of CARs is to preserve, enhance, restore, or connect habitats for rare, native, aquatic, or riparian dependent plant or animal species at the local level. In many cases, CARs support the best remaining populations of native fish, amphibian, and plant species whose distributions have been substantially reduced elsewhere in the Sierra Nevada. CARs primarily protect occupied habitat of threatened, endangered, or sensitive animal species. There are two CARs adjacent to the Jonesville trail system on Lassen National Forest (Figure 18) designated for the preservation of the Cascade frog (*Rana cascadae*) habitat, a USFS sensitive species and CDFG species of special concern.

#### 5.2.5 Wildlife

Wildlife habitat values depend on the availability of water, food, and cover. While some wildlife species are restricted to specific vegetation communities, others range across communities and biotic zones. Many species are active in a higher zone in the summer and hibernate or migrate away from these zones in the winter. The lower montane, upper montane, and subalpine biotic zones support a large variety of mammals, birds, reptiles, amphibians, fish and insects. To give a sense of the variety, common species found in these biotic zones include yellow-bellied marmot (*Marmota flaviventris*), mule deer (*Odocoileus hemionus*), black bear (*Ursus americanus*), coyote (*Canis latrans*), mountain lion (*Puma concolor*), western gray squirrel (*Sciurus griseus*), golden-mantled ground squirrel (*Spermophilus lateralis*), chipmunks (*Neotamias spp.*), Steller's jay (*Cyanocitta stelleri*), Clark's nutcracker (*Nucifraga columbiana*), mountain chickadee (*Poecile gambeli*), white-headed woodpecker (*Picoides albolarvatus*), brown creeper (*Certhia americana*), western fence lizard (*Sceloporus occidentalis*), rubber boa (*Charina bottae*), Pacific chorus frog (*Pseudacris regilla*), big brown bat (*Eptesicus fuscus*), fringed myotis (*Myotis thysanodes*), and rainbow trout (*Oncorhynchus mykiss*). Rare species are described below under "Special-status Species."

While pre-season trail maintenance activities (removing downed limbs and debris) occur before snow falls in the winter (see Project Description, Section 2.4.3), trail grooming and subsequent OSV use in the Project Area obviously occurs only when there is snow. Wildlife that is active in the winter and may be affected by OSV Program activities includes mule deer, marmots, squirrels, chipmunks, rabbits, and resident birds such as the Steller's jay, Clark's nutcracker, and mountain chickadee, and subnivean (under the snow) species such as mice, moles, and shrews. Species excluded from this impact analysis are: 1) those that are not present during the OSV use period such as migratory animals; 2) those that hibernate and are not at risk for impacts related to OSV use (such as bears and bats); and 3) those whose habitat requirements are outside of the OSV use area. Migratory birds, including bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus*), and various waterfowl may return as early as February and overlap with the end of the OSV Program season, so they are addressed by the impact analysis.

### 5.2.6 Wildlife Movement Corridors

Habitat corridors facilitate wildlife migration and movement within landscapes, and are essential to the viability and persistence of many wildlife populations. Wildlife movement includes migration (i.e., usually one-way per season), inter-population movement (i.e., long-term genetic flow), and small travel pathways (i.e., daily movement corridors within an animal's territory). While small travel pathways usually facilitate movement for daily home range activities, such as foraging or escape from predators, they also provide connection between outlying populations and the main corridor, permitting an increase in gene flow among populations. These linkages among habitats can extend for miles and occur on a large scale throughout California. The Cascades and Sierra Nevada are understudied in regards to habitat connectivity patterns (Davis and Cohen 2009); however, the importance of wildlife corridors should not be under-estimated. Wildlife corridors are undoubtedly important to the long-term health of wildlife populations and the ecology of the Cascades and the Sierra Nevada.

### 5.2.7 Special-Status Species

Special-status species are those plants and animals that are legally protected or otherwise recognized as vulnerable to habitat loss or population decline by federal, state, or local resource conservation agencies and organizations. In this analysis, special-status species include:

- species that are state and/or federally listed threatened or endangered;
- species considered as candidates for listing as threatened or endangered;
- CDFG Species of Special Concern;
- fully protected species per California Fish and Game Code;
- USFS Sensitive Species; and
- plants considered by the California Native Plant Society (CNPS) and the CDFG to be rare, threatened, or endangered [California rare plant ranked, (CRPR); e.g. CRPR 1B).

The special-status species with potential for occurrence in the project area are listed in Appendix F and shown in Figures 16 through 36. Consistent with the CEQA Guidelines, Appendix F includes state and federally listed species as well as plants identified as rare by CNPS and CDFG and was prepared using information from the USFS (2009), the California Natural Diversity Database (CNDDDB 2010), and the CNPS Rare Plant Inventory (2010). It contains information on regulatory status, habitat, and flowering period derived from the CNDDDB (2010) and CNPS Rare Plant Inventory (2010). It also lists all of the special-status species that were covered by the Wildlife Habitat Protection Plans/Habitat Management Plans (USFS 2003b-k, 2007b-d) of the



various national forests. Species listed in Appendix F but excluded from this analysis, are: 1) those that are not present during the OSV use period (such as migratory birds like the willow flycatcher); 2) those that hibernate (such as bears and bats) and are not at risk for impacts related to OSV use; 3) those whose habitat requirements are outside of the plowing, grooming, and OSV travel area; and, 4) those that, although potentially present in a national forest, are limited in distribution and are not expected to occur within the Project Area (such as several special-status plant species, sage grouse, and Sierra Nevada bighorn sheep). Plant species with no potential to be impacted by the Project or that are not known to occur within the Project Area as identified in Appendix F are not further addressed in this analysis; however, due to their mobility, wildlife species with a low potential for occurring within the Project Area are included and discussed in Section 5.2.7.2.

#### 5.2.7.1 Special-Status Plant Species

The 160 special-status plant species listed in Appendix F occur in a variety of habitats present in the Sierra Nevada and Cascades, including riparian, montane chaparral, grasslands, serpentine areas, broadleaf upland forest, and closed-cone and coniferous forest (CNDDDB 2010). Of these 160 plant species, 47 species are not known to occur within or adjacent to the Project Area and are therefore not further analyzed in this chapter. Considered in this analysis are the remaining 113 sensitive plant species from Appendix F that could potentially be impacted by OSVs and are known to occur within or adjacent to the Project Area. Of the 113 species considered, Sequoia National Forest has studied Kern Plateau milk-vetch, Hall's daisy, Kern River daisy, and Kern Plateau horkelia and reviewed them for impacts from OSV activity. Sequoia National Forest monitored those four species and concluded that they have not been impacted by OSV activity (Sequoia National Forest WHPP, 2003); consequently, those four species are dismissed from further analysis. A total of 109 special-status plant species are included in Table 5-2 and analyzed for impacts in general in Section 5.3.6.1.

Of the 109 listed plant species analyzed, five have been or are currently managed by national forests for OSV impacts and are described below. These plants are subject to USFS Management Actions as identified in Table 5-3. All the national forests involved with the OSV Program manage and conserve federal special-status plant species and their habitats to ensure viable populations are maintained. Monitoring of federal special-status species occurs every season. Several special-status species are considered sensitive by CNPS and CDFG but are not considered sensitive by the USFS, and therefore, they have not been actively monitored by the USFS. These California rare plant ranked species and the currently monitored federal special-status species are further described below and in Appendix F.

#### Barron's Buckwheat

Barron's buckwheat (*Eriogonum spectabile*; proposed FSS species, CRPR 1B.2), an evergreen, perennial shrub, was first discovered in 1997, and is currently only known from two occurrences in Plumas County on the Lassen National Forest. This species occurs only on minor ridge tops with light-colored sandy loam soils at a narrow elevation range of 6,600 to 6,725 feet. The occurrences are separated from each other by less than one-half mile, and contain approximately 250 plants total. Despite extensive surveys on the Lassen National Forest, no additional occurrences have been found. The occurrence with the largest number of individuals is adjacent to the Swain Mountain OSV route (Figure 19). Since its discovery, the USFS, using the CNPS's Botanical Survey Guidelines, has consistently monitored the Swain Mountain population every year.

Management Actions by Lassen National Forest involve monitoring after snowmelt and inspecting for damage. If damage occurs, corrective action includes re-routing trails, signage, physical barriers, and/or site restoration (Table 5-3).

**Table 5-2. Special-status Plant Species Within or Adjacent to Project Area Analyzed for Potential OSV Impacts**

National Forest	Special-status Plant Species
Klamath	Mt. Eddy draba, Columbia yellow cress, Newberry's cinquefoil, grass alisma
Modoc	Hall's sedge, little hulsea, pyrola-leaved buckwheat, talus collomia, Boggs Lake hedge-hyssop, snow fleabane daisy
Shasta-Trinity	Mt. Eddy draba, Northwestern moonwort, pyrola-leaved buckwheat, Columbia yellow cress, Wilkins' harebell, Cascade alpine campion, Aleppo avens
Lassen	Ephemeral monkey flower, slender Orcutt grass, Barron's buckwheat, Columbia yellow cress, Newberry's cinquefoil, snow fleabane daisy, mud sedge, flat-leaved bladderwort, Lewis Rose's ragwort, rayless mountain ragwort, western goblin, long-stiped campion, Follett's monardella, water bulrush, scalloped moonwort, dwarf resin birch, Susanville beardtongue, Suksdorf milk-vetch, upswept moonwort, mingan moonwort, wooly-fruited sedge, northern spleenwort, English sundew, long-leaved starwort, broad-nerved hump moss, wooly stenotus, nodding vanilla-grass, squarestem phlox, Janish's beardtongue, little ricegrass, Egg Lake monkeyflower, obtuse starwort, three-ranked hump moss, Tracy's sanicle, Quincy lupine
Plumas	Close-throated beardtongue, Quincy lupine, Constance's rock cress, Cantelow's lewisia, caribou coffeeberry, Mildred's clarkia, Clifton's eremogone, Follett's monardella, wooly-fruited sedge, obtuse starwort, water bulrush, mingan moonwort, buttercup-leaf suksdorfia, yellow willowherb, northern coralroot, Mosquin's clarkia, Norris' beard moss, hairy marsh hedge-nettle, felt-leaved violet
Tahoe	Subalpine fireweed, close-throated beardtongue, Cantelow's lewisia, Stebbin's phacelia, Davy's's sedge, Donner Pass buckwheat, Plumas ivesia, Webber's ivesia, saw-toothed lewisia, white-stemmed pondweed, broad-nerved hump moss, slender-leaved pondweed, English sundew, three-ranked hump moss, Quincy lupine, felt-leaved violet, common moonwort, alder buckthorn, tall alpine-aster
Eldorado	Alpine dusty maidens, Kellogg's lewisia, Pleasant Valley mariposa lily
Stanislaus	Jack's wild buckwheat, subalpine fireweed, subalpine cryptantha, Masonic Mountain jewel-flower, alpine dusty maidens, cut-leaf checkerbloom, mountain bent grass
Inyo	Mono milk-vetch, field ivesia, Mono Lake lupine, Inyo phacelia, smooth saltbush, slender-leaved pondweed, Pinzl's rock cress
Sierra	Bolander's bruchia, Mono hot springs evening primrose, flat-leaved bladderwort, mud sedge, prairie wedge grass, short-leaved hulsea, Yosemite ivesia, subalpine fireweed
Sequoia	Field ivesia, short-leaved hulsea, Shirley Meadow star-tulip, copper-flowered bird's-foot trefoil, purple mountain-parsley, pygmy pussypaws, unexpected larkspur, Kaweah fawn lily, flax-like monardella, Twisslemann's buckwheat, Needles' buckwheat, Sierra bleeding heart, DeDecker's clover, Kern Plateau bird's beak, Nine Mile Canyon phacelia, Bolander's bruchia, prairie wedge grass, Kern River Daisy, Kern Plateau horkelia, Kern Plateau milk-vetch, delicate bluecup, Muir's tarplant, Greenhorn fritillary, Piute cypress, Mineral King draba, Tulare cryptantha, broad-nerved hump moss, Norris' beard moss, Madera leptisiphon, flat-leaved bladderwort, Berry's morning glory

Source: TRA Environmental Sciences, Inc. 2010

<b>Table 5-3. USFS Management Actions for Special-Status Plant Species, OSV Program</b>		
<b>Special-Status Species<sup>1</sup></b>	<b>Location and Habitat</b>	<b>USFS Management Action</b>
Barron's buckwheat (PFSS, CRPR 1B.2), Columbia yellow cress (FSS, CRPR 1B.2)	Barron's buckwheat occurs on open, glaciated ridges in red fir and lodgepole pine forests in the Lassen National Forest. Columbia yellow cress occurs in meadows and seeps in pinyon and juniper woodlands in the Klamath, Shasta-Trinity, and Lassen National Forests.	Klamath, Shasta-Trinity, and Lassen National Forests: Monitor Barron's buckwheat and Columbia yellow cress after snowmelt inspecting for damage. If damage occurs, corrective action includes re-routing trails, signage, physical barriers, and/or site restoration. Columbia yellow cress occurs within the Lava Beds National Monument where OSVs are not allowed; consequently, no management actions are required in the Monument.
Slender Orcutt grass (FT, SE, CRPR 1B.1)	Slender Orcutt grass occurs in vernal pools in the Lassen National Forest.	Lassen National Forest: Spring monitoring for slender Orcutt grass was discontinued after 2007. The Swain Mountain kiosk provides educational materials.
Mono milk-vetch (FSS, CRPR 1B.2) Mono Lake lupine (FSS, CRPR 1B.2)	Gravelly or sandy pumice flat openings in Jeffrey pine and lodgepole pine forest in the Inyo National Forest.	Inyo National Forest: Monitor snow depth in pumice flats where both of these plant species occur, particularly Smokey Bear Flat in the Lookout Loop use area. Permit OSV use only when there is sufficient snow cover to protect soil and vegetative resources. OSV outfitters and USFS educate users regarding snow conditions and appropriate use areas.
<sup>1</sup> Listing Status Key: FT – Federal Threatened FSS – USFS Sensitive Species PFSS – Proposed USFS Sensitive Species SE – State Endangered		CRPR 1B: Plants rare, threatened, or endangered in California and elsewhere. CRPR Threat Code extensions and their meanings: .1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat) .2 – Fairly endangered in California (20-80% occurrences threatened)

Source: USFS 2009

### **Columbia Yellow Cress**

Columbia yellow cress (*Rorippa columbiae*; FSS, CRPR 1B.2), a perennial rhizomatous herb, is found in very diverse habitats that are inundated with water for at least part of the year. Specifically, this species can be found in moist areas ranging from clay to cobble rock, along rivers, playas, intermittent snow-fed streams, lakes, wet meadows, and drying lakebeds. In California, Columbia yellow cress is known from fewer than 15 occurrences, and is found in Modoc, Siskiyou, and Lassen Counties. Two occurrences are found on Lassen National Forest (Figure 19), both on large, flat playas (shallow lake bottoms). OSV riding is prohibited within the Lava Beds National Monument where an occurrence dates from 1936 (Figure 17). Columbia yellow cress also occurs on playas on the Klamath and Shasta-Trinity National Forests (Figure 17). These two occurrences are each about 4.5 miles from the nearest groomed trail. There are also five occurrences in Oregon within three counties, and two occurrences in Washington within two counties. Threats include livestock grazing, alteration of the hydrologic regimes, competition with introduced plant species, logging activities, road maintenance, and herbivory by wildlife



and insects. The occurrence on the Lassen National Forest at Bogard is within an OSV open riding site. This occurrence was discovered in 1994 and was monitored annually by the USFS from 1995 to 2005. This monitoring was discontinued after it was determined that there were no adverse effects stemming from OSV activities (Lassen National Forest WHPP, 2007).

### **Slender Orcutt Grass**

Slender Orcutt grass (*Orcuttia tenuis*, federal threatened, state endangered, CRPR 1B.1) is found in the northern portion of the Central Valley and the western edge of the Modoc Plateau. It is currently known from 79 occurrences, 73 of which are presumed extant (USFS 2003a). Lassen National Forest supports 18 known occurrences. Slender Orcutt grass and its critical habitat primarily occur north of Lassen National Park near State Route 44 (Figure 19). Another small population and its critical habitat occur adjacent to the Jonesville trailhead. Slender Orcutt grass occurs in valley grassland and blue oak woodland where it grows in vernal pools on remnant alluvial fans and high stream terraces and recent basalt flows (USFWS 2010a). Slender Orcutt grass has very specific vernal pool depth and sensitive hydrologic requirements. This is a low-growing annual grass that is dormant in winter.

Within Lassen NF, approximately 19,000 acres of critical habitat have been identified for slender Orcutt grass. The Swain Mountain kiosk contains educational materials, and fencing was installed around the Swain Mountain slender Orcutt grass population due to documented evidence of OHV impacts during summer activities. No OSVs have been documented affecting slender Orcutt grass, and the USFS monitoring after the OSV season was discontinued in 2007 (USFS 2007a) (Table 5-3).

### **Mono Milk-Vetch and Mono Lake Lupine**

Both Mono milk-vetch (*Astragalus monoensis*; FSS, CRPR 1B.2) and Mono Lake lupine (*Lupinus duranii*; FSS, CRPR 1B.2) require special management because they have very restricted distributions. They are endemic to Mono County, from the Mono Basin area south to the Mammoth Lakes region in the Inyo National Forest. Mono milk-vetch occurs between 7,000 and 11,000 feet in elevation, and Mono Lake lupine occurs between 6,500 and 9,800 feet in elevation. Associated with sagebrush habitats, both are typically found on open pumice flats, and occasionally in coarse soils in openings in the understory of open lodgepole or Jeffrey pine forests. The open flats in particular are popular OSV play areas. Much of the primary habitat within the OSV use areas on Inyo National Forest has been surveyed and mapped for both of these species. OSV trails cross known populations, as shown on Figure 29. These plants are both low growing perennials that are dormant in the winter.

These two species are currently managed by the Inyo National Forest. Management Actions involve monitoring snow depth in pumice flats where both of these plant species occur, particularly Smokey Bear Flat in the Lookout Loop use area (Table 5-3). OSVs are permitted to use these trails only when there is sufficient snow cover to protect soil and vegetation. The USFS works with OSV outfitters to educate users regarding snow conditions and appropriate use areas.

### **Additional Special-status Plant Species**

Threatened, endangered, and California rare plant ranked species that do not receive formal Management Actions by national forests, but that could be affected by the OSV Program, are included in Table 5-2. Please see Appendix F for habitat information.

Several California rare plant ranked species are also FSS plant species. Only one plant species that may be impacted by OSV activity is a FSS plant species and not a California rare plant ranked species, Kellogg's lewisia (*Lewisia kelloggii* ssp. *kelloggii*; Eldorado National Forest).

### 5.2.7.2 Special-Status Wildlife Species

A list of special-status animals potentially occurring within the Project Area is provided in Appendix F. Of the 37 listed species, 30 are either resident or commonly occurring in the Project Area during the winter season and could be potentially affected by trail maintenance, grooming, or OSV use under the OSV Program (Table 5-4). Only those species are addressed here and in the impact analysis. Special-status wildlife species occurring within the Project Area and the surrounding project vicinity are shown on maps for each trail site area (see Figures 16 through 34). Management Actions taken to protect these species are summarized in Table 5-5 and are described below for each species.

<b>National Forest</b>	<b>Special-status Wildlife Active in Winter with Potential to Occur within the Project Area</b>
Klamath	Northern goshawk, northern spotted owl, American marten, American peregrine falcon, golden eagle, mountain lion, Cascades frog
Modoc	Bald eagle, northern goshawk, northern spotted owl, American marten, Pacific fisher, American peregrine falcon, golden eagle, mountain lion
Shasta-Trinity	Bald eagle, northern goshawk, northern spotted owl, American marten, Pacific fisher, American peregrine falcon, McCloud River redband trout, golden eagle, mountain lion, Cascades frog
Lassen	Bald eagle, northern goshawk, great gray owl, California spotted owl, American marten, Pacific fisher, California wolverine, Sierra Nevada red fox, American peregrine falcon, spring-run Chinook salmon, Sierra Nevada snowshoe hare, American badger, golden eagle, mountain lion, foothill yellow-legged frog, Cascades frog
Plumas	Bald eagle, northern goshawk, California spotted owl, American marten, Pacific fisher, California wolverine, Sierra Nevada red fox, American peregrine falcon, American badger, golden eagle, mountain lion, Sierra Nevada yellow-legged frog, foothill yellow-legged frog
Tahoe	Bald eagle, northern goshawk, California spotted owl, American marten, American peregrine falcon, California wolverine, Sierra Nevada red fox, Lahontan cutthroat trout, Sierra Nevada snowshoe hare, American badger, Sierra Nevada mountain beaver, golden eagle, mountain lion, Sierra Nevada yellow-legged frog, foothill yellow-legged frog
Eldorado	Northern goshawk, California spotted owl, American marten, Sierra Nevada red fox, American peregrine falcon, Sierra Nevada snowshoe hare, golden eagle, mountain lion, Yosemite toad, Sierra Nevada yellow-legged frog, Mount Lyell salamander
Stanislaus	Bald eagle, northern goshawk, great gray owl, California spotted owl, American marten, California wolverine, Sierra Nevada red fox, American peregrine falcon, Lahontan cutthroat trout, Sierra Nevada snowshoe hare, golden eagle, mountain lion, Yosemite toad, Sierra Nevada yellow-legged frog, Mount Lyell salamander
Sierra	Bald eagle, northern goshawk, great gray owl, California spotted owl, American marten, Pacific fisher, American peregrine falcon, Lahontan cutthroat trout, American badger, golden eagle, mountain lion, Yosemite toad, Sierra Nevada yellow-legged frog, Mount Lyell salamander

<b>Table 5-4. Special-status Wildlife Active in Winter within Project Area</b>	
<b>National Forest</b>	<b>Special-status Wildlife Active in Winter with Potential to Occur within the Project Area</b>
Inyo	Bald eagle, northern goshawk, American marten, Sierra Nevada red fox, American peregrine falcon, California golden trout, western white-tailed jackrabbit, Mt. Lyell shrew, Sierra Nevada mountain beaver, golden eagle, mountain lion, Yosemite toad, Sierra Nevada yellow-legged frog, Mount Lyell salamander
Sequoia	Bald eagle, northern goshawk, great gray owl, California spotted owl, California condor, American marten, Pacific fisher, California wolverine, American peregrine falcon, Little Kern golden trout, California golden trout, American badger, golden eagle, mountain lion, Sierra Nevada yellow-legged frog, Sierra Madre yellow-legged frog, Mount Lyell salamander
<p>Note:</p> <p>In general, fish and amphibians would not be considered directly impacted by the Project (fish are underwater and amphibians hibernate during winter); however, they are considered for impacts in this analysis due to potential Project impacts to water quality. Please see Section 5.3.6.2.</p>	

Source: TRA Environmental Sciences, Inc. 2010

<b>Table 5-5. USFS Management Actions for Special-Status Wildlife Species, OSV Program</b>		
<b>Special-Status Species<sup>1</sup></b>	<b>Location and Habitat</b>	<b>USFS Management Action</b>
northern goshawk (FSS, CSSC)	Mature coniferous forests and riparian aspen groves serve as both nesting and foraging habitat. Nests in a wide variety of forest types including deciduous, coniferous, and mixed forests across all national forests.	All OSV Program national forests: Monitoring of northern goshawk Protected Activity Centers (PACs). Limited operating period (LOP) on groomed trails within 1/4 mile of nest sites after February 15 where there is documented evidence of disturbance from existing recreation activities.
northern spotted owl (FT, CSSC)	Inhabits old growth forests in the northern part of its range (Canada to southern Oregon) and landscapes with a mix of old and younger forest types in the southern part of its range (Klamath region and California).	<u>Klamath, Modoc, and Shasta-Trinity National Forests</u> : Monitoring of northern spotted owl PACs. LOP on groomed trails within 1/4 mile of nest sites after February 15 where there is documented evidence of disturbance from existing recreation activities.
California spotted owl (FSS, CSSC)	Resides in dense, old growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 7,600 feet.	<u>Eldorado, Lassen, Plumas, Sequoia, Sierra, Stanislaus, and Tahoe National Forests</u> : Forest monitoring of California spotted owl PACs. LOP on groomed trails within 1/4 mile of nest sites after March 1 where there is documented evidence of disturbance from existing recreation activities.

**Table 5-5. USFS Management Actions for Special-Status Wildlife Species, OSV Program**

Special-Status Species <sup>1</sup>	Location and Habitat	USFS Management Action
bald eagle (SE, SFP)	Preferentially roosts in conifers or other sheltered sites in winter in some areas; typically selects the larger, more accessible trees. Wintering areas are commonly associated with open water, though in some areas eagles use habitats with little or no open water if other food resources are readily available.	<u>Inyo, Modoc, and Plumas National Forests</u> : Annual checks in late winter on nesting/roosting territories within 1/4 mile of groomed trails for nest success, roost disturbance, and OSV off trail use.
American peregrine falcon (FSS, SE [proposed for delisting], SFP)	Includes most of California during migrations and winter. The breeding range includes the Cascade and Sierra Nevada. Nests on ledges in rock outcrops and needs open or edge areas for foraging.	<u>All OSV Program national forests</u> : Monitor and protect existing and historical nests from disturbance using signage and trail closures. Stanislaus National Forest also prohibits new OSV activity w/in 200 feet of lake shorelines that are used by peregrine falcons.
great gray owl (FSS, SE)	Generally occurs in mature conifer stands associated with high-mountain meadows. Winter range is the same except at a lower elevation with thinner snow cover.	<u>Sequoia, Sierra, and Stanislaus National Forests</u> : Forest monitoring of great gray owl PACs. LOP on groomed trails within 1/4 mile of nest sites after February 15 where there is documented evidence of disturbance from existing recreation activities.

**Table 5-5. USFS Management Actions for Special-Status Wildlife Species, OSV Program**

Special-Status Species <sup>1</sup>	Location and Habitat	USFS Management Action
American marten (CDFG code Section 4700, FSS)	Mature and old-growth coniferous forests with large diameter trees and snags, large down logs, and moderate-to-high canopy closure interspersed with riparian areas and meadows.	<p><u>Inyo, Shasta-Trinity, Stanislaus National Forests:</u> Implement LOP or enforce trail closures from May 1 – July 31 within ¼ mile of identified den site. Install restrictive signs in areas prone to illegal off-trail use.</p> <p><u>Sierra and Tahoe National Forests:</u> Enforce LOP from March 1 through June 30, within ¼ mile of den site if analysis determines that OSV activities are causing noise disturbance to martens.</p> <p><u>Klamath National Forest:</u> Provide informational and educational materials to prevent harassment of wildlife. Patrol trails with USFS or snowmobile club personnel.</p> <p><u>Plumas National Forest:</u> Implement trail closures or rerouting of selected portions of OSV trails within ¼ mile of identified den site. Install proper signage and increase patrolling to educate and enforce these measures.</p> <p><u>Sequoia National Forest:</u> If wildlife appears to be affected, implement trail closures or alternate routes, or implement other mitigation.</p>
Pacific fisher (FC, FSS, CSSC, SC)	Prefers mature and old growth forest with structural diversity, downed wood, and high canopy closure. When inactive, occupies a den in a tree hollow, under a log, or in the ground or a rocky crevice.	<u>Sequoia and Sierra National Forests:</u> Forest monitoring for presence of Pacific fisher. LOP on groomed trails within 1/4 mile of known den sites after March 1.
California wolverine (FSS, ST, SFP)	Prefers areas with low human disturbance. Habitat includes alpine and arctic tundra and boreal and mountain forests. Typically found in areas with snow on the ground in winter. When inactive, occupies dens in caves, rock crevices, fallen trees, thickets, or similar sites, generally in denser forest stages.	<p><u>All OSV Program national forests:</u> Part of annual winter inventory monitoring for forest carnivores.</p> <p><u>Sierra National Forest:</u> LOP on groomed trails March 1 – June 30.</p> <p><u>Plumas National Forest:</u> Trail closure and rerouting OSV trails if disturbance is identified.</p>





appear to play a significant role in habitat selection during the winter: diurnal feeding perches and communal night roost areas. Most communal winter roosts offer considerably more protection from the weather than diurnal habitat (USFWS1986). Human activity near wintering eagles can adversely affect eagle distribution and behavior (USFS 2003f). Inyo, Modoc, and Plumas National Forests perform annual checks in late winter on nesting/roosting territories within 1/4 mile of groomed trails for nest success, roost disturbance, and OSV off-trail use. The bald eagle occurs on all 11 national forests but not necessarily along the groomed trail system or within the broader Project Area (Figures 16 through 34).

### **Golden Eagle**

The golden eagle (*Aquila chrysaetos*) is a California fully protected species and is one of North America's largest predatory birds. More common in southern California than in northern California, this species ranges from sea level up to 11,500 feet. Its habitat typically consists of rolling foothills, montane areas, sage-juniper flats, and desert; it avoids heavily forested areas. The golden eagle eats mostly rabbits and rodents, but also other small mammals, birds, reptiles, and carrion. The diet is most varied in the nonbreeding season. Open terrain is required for hunting such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats. Breeding begins in late January with eggs laid from early February to late May. Only one egg is laid at a time. Golden eagles nest on cliffs of all heights and in large trees in open areas. Alternative nest sites are often maintained and old nests are reused. The nest is usually a large platform nest, often 10 feet across and 3 feet high made of sticks, twigs, and greenery. Rugged, open habitats with canyons and escarpments are used most frequently for nesting. Nest construction begins in fall and continues through the winter (Kochert et al. 2002). They winter in areas between 1,500 feet and 8,200 feet.

Humans cause greater than 70% of recorded golden eagle deaths, directly or indirectly (Franson et al. 1995). Accidental trauma (collisions with vehicles, power lines, or other structures) is the leading cause of death (27%), followed by electrocution (25%), gunshot (15%), and poisoning (6%; Franson et al. 1995). Recreation and other human activity near nests can cause breeding failures, but most evidence is anecdotal or tied to multiple variables (Kochert et al. 2002). Golden eagle sightings are not commonly reported and not monitored by USFS. The CNDDDB only has 11 occurrences of the golden eagle, and none are within the Project Area, but they are presumed present.

### **Northern Goshawk**

The northern goshawk (*Accipiter gentilis*) is a FSS species as well as a California species of special concern. A large forest raptor, the goshawk is a powerful hunter capable of killing a variety of prey including tree squirrels, hares, grouse, and other birds such as corvids and American robins (Squires and Reynolds 1997). The goshawk prefers dense, mature conifer and deciduous forest, interspersed with meadows, other openings, and requiring riparian areas in close proximity. Nesting habitat usually includes moderate north-facing slopes near water in mature forests with an open understory. As top-trophic level carnivores with large spatial requirements, low breeding density, and association with late-seral forest (old growth), goshawks are of increasing conservation concern due to forest management practices that reduce or fragment habitat.

The northern goshawk is a year-round resident throughout most of California (Figures 16-34). The primary threat to northern goshawks concerns the effects of vegetation management on the distribution, abundance, and quality of habitat (Keane 2000). The nesting home range of goshawks contains three components: the nest area, the post-fledging family area, and the foraging area, each with its individual characteristics and management requirements. Nesting pairs usually return to nesting territories by late March or early April and eggs are usually laid late April to early May (Squires and Reynolds 1997). The USFS has designated PACs in an effort to protect breeding goshawks from timber cutting and other forest management activities that can disrupt breeding. Northern goshawk PACs are designated based upon the latest documented nest site and the location(s) of alternate nests, or the location of territorial adult birds or recently fledged juvenile goshawks during the fledgling dependency period if the actual nest site is not located. PACs are delineated to include the known and suspected nest stands, and encompass the best available 200 acres of forested habitat in the largest contiguous patches that are possible based on aerial photography. Breeding requirements have been well-studied (Graham et al. 1994). The winter requirements are poorly understood, with most research taking place in northern Europe, but the few studies available show goshawk abundance in winter is primarily dependent on food source availability, not habitat preferences (Squires and Reynolds 1997).

New biological studies are being conducted by national forests in order to address potential impacts of OHV/OSV activity on northern goshawk. The Regional Northern Goshawk Focused Study has completed 4 years of data collection on Plumas National Forest. Data have been collected on hawk behavior and reproductive success with paired OHV use and hiker experiments. Radio-tagged dispersing juveniles and foraging adults were tracked. Final data analysis for the goshawk study is expected to be completed in 2010. Results of this study will be incorporated into the OHV/OSV Management Actions of the affected national forests.

### **Great Gray Owl**

The primarily nocturnal great gray owl (*Strix nebulosa*) is listed as endangered in California and is a USFS sensitive species. The great gray owl is North America's largest owl, in terms of length, and is primarily a rare boreal forest inhabitant. Suitable habitat exists in parts of the Sierra Nevada, most notably around Yosemite National Park (CNDDDB 2010; Bull and Duncan 1993). The southern Sierra Nevada is the southern-most limit of the species' range in North America. The great gray owl is found at higher elevations and shows a strong affinity for dense forests affiliated with wet meadows (Bull and Duncan 1993) (Figures 24, 26, 28, 30, and 34). In the Sierra Nevada, breeding habitat may be limited to elevations of roughly 3,000 to 8,000 feet, but generally occurs between 4,500 and 7,500 feet.

In 1986, the California great gray owl population was estimated at 60 to 70 individuals (Winter 1986 as cited in CDFG 2008). Currently, it is generally accepted that the owl is a rare inhabitant of the Sierra Nevada whose population does not likely exceed 200 to 300 individuals (CDFG 2008). It is suspected that there are individuals in the northern Sierra Nevada and the Cascades within California, but that has not been documented (CDFG 2008). Loss of mature forest habitat for nesting and the degradation of montane meadows remain the major sources of habitat loss.



## California Spotted Owl

The primarily nocturnal California spotted owl (*Strix occidentalis occidentalis*) is a FSS species. The California spotted owl is one of three recognized subspecies of spotted owls. It is intermediate in color between the darker northern spotted owl (*S.o. caurina*) and lighter Mexican spotted owl (*S. o. lucida*). It is found in the southern Cascades and northern Sierra Nevada from Shasta County south through the remainder of the western Sierra Nevada and Tehachapi Mountains to Kern County and is sometimes found east of the Sierra Nevada crest (Figures 18-26 and 30-34). Largely associated with old growth/mature forests with high canopy cover and high tree density, these owls are susceptible to timber harvest and other forest management practices. Similar to the northern spotted owl, this owl is monogamous and territorial; divorce occasionally occurs (this has never been observed in northern spotted owl; Gutiérrez et al. 1995). The USFS has designated PACs in an effort to protect breeding California spotted owls from timber cutting and other forest management activities. California spotted owl PACs are delineated surrounding each territorial owl activity center detected on national forest System lands since 1986. Spotted owl PACs are delineated, using aerial photography, to include the known and suspected nest stands, and encompass the best available 300-acres of habitat in as compact a unit as possible. Home range core areas (HRCAs) surround spotted owl PACs. Size of HRCAs vary from forest to forest and is defined in the individual forest plans. For example, on the Stanislaus National Forest HRCAs are 1000 acres of the best available contiguous habitat within 1.5 miles of a PAC (Carly Gibson, pers. comm., 2009).

In general, California spotted owls are nonmigratory, remaining within the same home ranges year round. However, in the Sierra Nevada, some migration downslope to winter ranges occurs (USFWS 2005). Spotted owl habitat is adversely affected by wildfire, fuels-reduction activities, timber harvest, tree mortality and development (USFWS 2005). They also face competition from non-native barred owls.

## Northern Spotted Owl

The primarily nocturnal northern spotted owl (*Strix occidentalis caurina*) is a federal listed threatened species and a California species of special concern (Figure 16). The northern spotted owl range extends from British Columbia south to the southern Cascades and along the California coast south to Marin County. This owl is territorial and monogamous. Courtship behavior usually begins in February or March, and females typically lay eggs in late March or April. The timing of nesting and fledging varies with latitude and elevation (Gutiérrez et al. 1995). Northern spotted owls are nonmigratory, remaining within the home range year round. After reaching maturity (one year), juveniles disperse usually less than 60 miles and typically less than 15.5 miles.

Numerous management plans and reviews of the owl's ecological status have been developed to enhance conservation of the species (Gutiérrez et al. 1995). USFWS uses a circle of 0.7-mile radius (984 acres) from the activity center to delineate the most heavily used area during the nesting season. Northern spotted owls use smaller home ranges during the breeding season and often increase their home range size during fall and winter (USFWS 2008a). A final recovery plan was issued in 2008 by the USFWS. Even with intensive maintenance and restoration of suitable habitat in recent years, many populations of spotted owls continue to decline (USFWS 2008a). The recovery plan identified the invasive barred owl as presenting a significant threat to the northern spotted owl.

### **American Peregrine Falcon**

The American peregrine falcon is a California endangered species (proposed for delisting) and a California fully protected species. It is still protected under the MBTA. Like bald eagles, the peregrine falcon was added to the federal endangered species list due to the effects of dichloro-diphenyl-trichloroethane (DDT). After decades of work to aid in its recovery, including extensive re-introduction efforts, the peregrine falcon has recovered to the extent that it was removed from the federal endangered species list in 1999.

One of the most widespread species, the peregrine falcon occurs on every continent except Antarctica. The peregrine falcon nests on high cliffs and on bare ledges. A nearby water source is required during breeding season. Peregrines forage most commonly in open habitats such as marshes, open grasslands, coastal strands, and bodies of water where prey cannot easily escape attack. The peregrine falcon primarily eats songbirds that were captured in flight and occasionally can be found eating rodents. Breeding times vary depending on latitude. In southern California, the first egg is laid mid- to late-February, while in northern California the first egg is laid usually in May but replacement clutches occur as late as September (White et al. 2002). The species is known to occur on all Project forests and cannot be mapped at one particular location.

### **California Condor**

The California condor (*Gymnogyps californianus*) is a California and federal endangered species, as well as a California fully protected species. The condor is one of the most endangered birds in the world. By 1987, the only California condors in existence were living at the San Diego Wild Animal Park and the Los Angeles Zoo. Since then, considerable captive breeding has taken place and reintroduction to the wild has been attempted. A single egg clutch and six years to reach sexual maturity in the wild make the California condor a difficult species to restore to a viable population (Meretsky et al. 2000). The California condor has a high rate of mortality historically caused by poisoning and shooting. This species is strictly a scavenger, subsisting on carrion exclusively.

Since releasing began in 1992, the California condor has been returned to several locations in southern California and northern Arizona. Historically, the California condor was known to forage from beaches to high mountain meadows. While most nesting occurs on mountainous cliffs, some have nested in large cavities in giant sequoia (*Sequoiadendron giganteum*; Snyder and Schmidt 2002). This species' range extends from the mountain ranges surrounding the southern San Joaquin Valley, including the Coast Ranges from Santa Clara County south to Los Angeles County, the Transverse Ranges, the Tehachapi Mountains and southern Sierra Nevada. The California condor requires open habitat, such as grasslands and foothill chaparral, for extended soaring and easily accessible food. Traditional roosts are ledges and cliffs, but also include old-growth Douglas fir and ponderosa pine. California condor is not a migratory species; however, subadults and non-breeding adults often move to the southern Sierra Nevada from March to May and return south for the summer. Breeding adults remain near nesting areas year-round (Polite 1988-1990). With regard to the OSV Program, only Sequoia National Forest contains suitable and/or critical habitat for the condor (Figure 32). Recent monitoring results show that breeding is unlikely, but the species does use the Sequoia National Forest for foraging and roosting.

## American Marten

The American marten (*Martes americana*) is a state protected fur-bearing animal (CDFG Code Section 4700) and a FSS species (Figures 16-20). The marten is a carnivorous mammal found at high elevations in the southern Cascades and Sierra Nevada and, along with the fisher, is considered one of the most habitat-specialized mammals in North America (Zielinski et al. 2005). Martens prefer late seral and old growth forest habitat with large diameter trees and snags, large down logs, and moderate-to-high canopy closure interspersed with riparian areas and meadows. Historical populations were extirpated by trapping and habitat alterations. Male martens are larger than females weighing up to 3.3 lbs for the male and up to 2.2 lbs for the female (Powell et al. 2003). Small mammals, such as mice and voles, birds, insects, and fruit make up the main diet of a marten, and they forage on the ground, in trees, snags, logs, and rocky areas. Active year-round, habitat with limited human use is important (Zielinski et al. 2007). Mostly nocturnal, they are non-migratory; however, it is believed some individuals move to lower elevations in the winter. Martens mate in the summer months, usually June to August. Implantation is delayed until February when the fertilized egg implants itself and the litter is born in March to early April (Powell et al. 2003).

In 2005, Zielinski et al. showed that populations between the southern Cascades and Sierra Nevada have become discontinuous, and there are large gaps between historical and contemporary occurrences. Recent marten detections were clustered near Lassen Volcanic National Park and adjacent protected wilderness areas, as well as just east of Mt. Shasta. These areas have intact late seral and old growth forests. The marten does appear to have a continuous distribution across high-elevation forests from Placer County south to Tulare County. The marten is particularly vulnerable to habitat disturbance with the main threat being habitat alteration.

Monitoring for marten occurs on all forests in the Sierra Nevada at a higher intensity than for fishers (USFS 2004a), with sampling concentrated on the Sierra and Sequoia National Forests. From 2002 to 2007, 1099 primary sample units were sampled throughout the Sierra Nevada. Marten has been regularly detected on Sierra National Forest and parts of Sequoia National Forest, though most sampling occurs at elevations lower than where martens are presumably most abundant. Martens are more commonly detected on Sierra National Forest than on Sequoia National Forest, and have not been detected on the west slope of Sequoia National Forest south of Tulare County. No marten detections have been recorded on the Kern Plateau on Sequoia National Forest during annual monitoring (USFS 2007a).

## Pacific Fisher

The Pacific fisher (*Martes pennanti*) is a California species of special concern, a FSS species, and is a candidate for federal listing by the USFWS (Figures 16-32). Like the marten, a close relative, the fisher is a carnivorous mammal occupying late seral and old growth forests, but in California, fishers are more closely associated with riparian areas and lower elevations than martens (Powell et al. 2003). Historical populations were extirpated by trapping and habitat alterations. The fisher is the largest member of the genus *Martes* with males generally weighing 7.5 to 12 lbs and females generally weighing 4.5 to 5.5 lbs (Powell et al. 2003). Fishers are one of the few predators of porcupines, including them in their diet of small mammals, fruit, truffles, and plants. Fishers prefer closed-canopy habitats and generally avoid openings. Female fishers usually give birth in late February to early May, with most litters born in March or early April.

Breeding takes place 7 to 10 days later. Like martens, implantation is delayed until the following winter (Powell et al. 2003).

The Pacific fisher occurs at relatively low elevations (elevations range from 2,000 feet to 7,000 feet), placing it in closer proximity to human activities than the marten. In winter, fishers typically do not occur where snow is deeper than 5 or 6 inches; it is believed that snow depth affects the ability to travel and lowers reproductive success (Krohn et al. 1997). Few historical records exist in the northern Sierra Nevada and southern Cascades; this is also the same area that fisher has not been detected in more recent surveys (Zielinski et al. 2005). It is possible that trapping had extirpated the species from this area by the time the first assessments were done. From 2002 to 2007, 1099 primary sample units were sampled by the USFS throughout the Sierra Nevada. Fishers were detected at 111 sample units (45 on Sierra National Forest, 64 on Sequoia National Forest, one in Yosemite National Park, and one in Sequoia–Kings Canyon National Park). The Pacific fisher's threats are habitat loss and fragmentation, small population sizes and isolation, and human-caused mortality from incidental trapping and vehicle collisions.

### California Wolverine

The California wolverine (*Gulo gulo*) is a California threatened species, a California fully protected species, and a FSS species (Figures 16, 18, and 22-34). In California, the wolverine once occurred throughout the Sierra Nevada, Cascades, Klamath, and northern Coast ranges in forests in alpine, boreal forest, and mixed forest vegetation types (Schempf and White 1977). There are few studies about wolverine habitat use in the coterminus U.S.; the results of a five-year study (Copeland 2007) indicate that the wolverine inhabits tundra, remote mountains, and boreal forests at elevations between 7,800 and 8,500 feet. In general, wolverines live at or above timberline, moving to lower elevations in winter likely due to prey availability. Primarily nocturnal, wolverines are difficult to observe, even when they are abundant (Banci 1994). An empirical wolverine habitat model developed for the Rocky Mountains found that wolverine occurrence was strongly associated with low human population density and low road density (Carroll et al. 2001). Females will give birth in natal dens as early as January or as late as April (Banci 1994). Snow tunnels or snow caves are characteristic natal and maternal dens for wolverine in many areas (Banci 1994) and, in general, females choose remote alpine talus slopes with snow cover until late spring (Carroll et al. 2001).

Wolverines are highly mobile and have extremely large home ranges, estimated at 150 square miles for females and 355 square miles for males, including long distance excursions (Banci 1994). By the early 1900s, the wolverine's distribution was limited to the southern Sierra Nevada (Zielinski et al. 2005); however, it has not been observed there for decades. The last known population was documented in 1937 and occurred at very low densities in alpine and sub-alpine habitats in the southern Sierra Nevada (8,200 to 13,000 feet; Grinnell et al. 1937 in Moriarty et al. 2009). In February of 2008, a wolverine was photographed by a remote-controlled camera on the Tahoe National Forest, much farther north than an individual from the California population would be expected. A genetic analysis showed that the individual was a male individual more closely related to populations in the western Rocky Mountain region (Moriarty et al. 2009). This sighting is a unique occurrence and suggests that dispersal to long-vacant portions of a species range is possible. Regardless of this individual's origin, wolverines and this individual are protected by California. Several studies have concluded that the wolverine is very sensitive to humans because, in the U.S. it is now only found in remote and isolated areas (Carroll et al. 2001, Rowland et al. 2003, May et al. 2006). It is suspected that there are only 500 individuals in

the contiguous U.S., with the effective population size (the total number of individuals successfully breeding) at 39 (USFWS 2008b).

### **Sierra Nevada Red Fox**

The Sierra Nevada red fox (*Vulpes vulpes nicator*) is a California threatened species and a FSS species (Figures 16-22 and 28, 30, and 34). North American mountain red fox ecology is poorly known (Perrine et al. 2010). Only three ecological studies have been conducted. The lack of targeted scientific research on this species is a major factor complicating their effective management (Perrine et al. 2010). This subspecies of red fox is distinguished from members of the introduced lowland population of red foxes by its slightly smaller size and darker colored fur. Primarily nocturnal, the range of the Sierra Nevada red fox is limited to the conifer forests and rugged subalpine areas near treeline between 5,000 feet and 12,000 feet (Perrine et al. 2007). Open areas are used for hunting, forested habitats for cover and reproduction. Edges are utilized extensively for tracking and stalking prey. The red fox hunts small and medium-sized mammals, ground squirrels, gophers, mice, marmots, woodrats, pikas, and rabbits. In general, red foxes breed from December to April with most matings occurring in January and early February. Perrine (2005) showed that Sierra Nevada red foxes have distinct seasonal movements between their summer and winter ranges. Summer home ranges in Perrine's 2005 study ranged from 647 to 17,250 acres with a mean of 5740 acres. In winter, the foxes moved to significantly lower elevations and centered their home ranges on parking lots and campgrounds in Lassen Volcanic National Park and just south of the Park near Morgan Summit trailhead. In 2002, one red fox was photographed by a camera trap at the Swain Mountain snowmobile park (Perrine 2005). Winter home ranges are generally larger than summer's due to diminished food supply (Perrine 2005).

Historically, the Sierra Nevada subspecies of the red fox occupied habitat in the Sierra Nevada from Tulare County north to Sierra County as well as areas around Mt. Shasta and Lassen Peak. The current range is unknown and recent research in the vicinity of Lassen Peak estimated that only 10-15 individuals were likely present in the area (Perrine 2005; Perrine et al. 2007). Unconfirmed sightings exist on other national forests in the Sierra Nevada, but those sightings are all more than 20 years old and have not been verified. The USFS Redwood Science Laboratory conducted a seven-year (1996-2002) systematic carnivore survey of the entire Sierra Nevada and southern Cascade range, including the Lassen Peak region and no red foxes were detected (Zielinski et al. 2005). Its current distribution, population size, and demographic trend are unknown (Perrine 2005). The Sierra Nevada red fox likely occurs at low population densities even within areas of high relative abundance and an abundance of sightings is not necessarily indicative of a large local population (Perrine et al. 2008). Most of the hundreds of red fox sighting reported in Lassen Volcanic National Park were due to three human-acclimated individuals (Perrine and Arnold 2001 in Perrine et al. 2010).

Until recently, the species had only been confirmed on Lassen National Forest where begging behaviors at trailheads were observed posing potential conflicts with humans (Perrine 2005; Perrine et al. 2007). However, on September 2, 2010, the Humboldt-Toiyabe National Forest announced that a Sierra Nevada red fox sighting had been confirmed during annual monitoring activities on August 11 for Pacific fisher and American marten in the Sonora Pass area (USFS 2010); subsequently, there have been at least 2 additional confirmed detections (Diana Craig, pers. comm., 2010). The last known sighting in this area dated from the 1920s. The genetic signature of this sighting indicates that the animal is from a Sonora Pass population distinct from the Lassen National Forest population (USFS 2010). The sightings took place in an area where



the Humboldt-Toiyabe and Stanislaus National Forests and Yosemite National Park come together. Highway 108, running through the Sonora Pass, is closed during the winter, and the Snow Program does not operate on the Humboldt-Toiyabe. The OSV Program grooming along Highway 108 ends at Kennedy Meadows approximately 8 miles west of the Sonora Pass.

### **Mountain Lion**

The mountain lion, also called cougar, panther, and puma, is a “specially protected” species under Sections 4800 et seq. of the Fish and Game Code, making mountain lion hunting illegal in California. It is illegal to take, injure, possess, transport, import, or sell any mountain lion or part of a mountain lion. Mountain lions may be killed only 1) if a depredation permit is issued to take a specific lion killing livestock or pets; 2) to preserve public safety; or 3) to protect listed bighorn sheep. Mountain lion diet generally consists of large prey, such as deer, bighorn sheep and elk. However, they can also survive on small animals. They usually hunt alone and at night. They often cover the carcass with dirt, leaves or snow and may come back to feed on it over the course of a few days. Mountain lions live in many different types of habitat in California, from deserts to the humid coast range forest, and from sea level to 10,000 ft in elevation. They prefer areas with dense undergrowth and cover and they generally will be most abundant in areas with plentiful deer. An adult male's home range often spans over 100 square miles. Females generally use smaller areas, about twenty to sixty square miles. Along the Sierra Nevada's western slope, where competition for habitat is intense, as many as ten adult lions occupy the same 100 square mile area. In California, mountain lion populations have grown in recent decades. Field studies in the 1970s indicate a population of more than 2,000 mountain lions, whereas a 2007 report estimated population ranges of 4,000 to 6,000 individuals (CDFG 2007). Mountain lions are known to occur across all forests and cannot be mapped at one particular location.

### **Sierra Nevada Snowshoe Hare**

The Sierra Nevada snowshoe hare (*Lepus americanus tahoensis*) is a California species of special concern (Figures 22 and 26). The snowshoe hare is found in young, upper montane forests favoring habitats with a dense shrub layer. This species occurs within riparian habitats with thickets of alders and willows, and in stands of young conifers interspersed with chaparral. Mixed conifer, subalpine conifer, red fir, Jeffrey pine, lodgepole pine, and aspen are likely habitats, primarily along edges, and especially near meadows. Preferred cover includes brush adjacent to both meadows and riparian deciduous vegetation at altitudes above 4,000 feet in the north of their range and 5,000 feet in the south. Upper elevation limits are unknown, but they generally occur below 8,000 feet. The snowshoe hare is most active at dawn and dusk (crepuscular) and active all year. This species molts to a white coat in winter and a brown coat in summer. The range of this species in California extends from the southern Cascades to Tuolumne County. The only national forest in the Project Area not having the snowshoe hare is Sequoia National Forest (USFS 2004b). Snowshoe hares eat a variety of plant materials. The snowshoe hare's diet varies with the season. Succulent green vegetation is consumed when available from spring to fall; after the first frost buds, twigs, evergreen needles, and bark form the bulk of snowshoe hare diets until spring greenup. There is no evidence of this species' decline although it is vulnerable to habitat alterations due to logging and use of meadows for agriculture (USFS 2004b). This species remains a harvest species in California.

### **Western White-tailed Jackrabbit**

The western white-tailed jackrabbit (*Lepus townsendii townsendii*) is a California species of special concern (Figures 20 and 28). This species is limited to higher elevations in the eastern Sierra Nevada and southern Cascades with its range in California extending from the Oregon border south to Tulare and Inyo counties. Preferred habitats for this species include sagebrush, subalpine conifer, juniper, alpine dwarf-scrub, and perennial grassland. Low sagebrush, wet meadow, and early successional stages of various coniferous communities are also used. Within these communities, the western white-tailed jackrabbit prefers open areas with scattered shrubs and exposed flat topped hills with stands of trees, brush, and herbaceous understory. The white-tailed jackrabbit is active at dawn and dusk and rests in shallow depressions at the base of a shrub or in a cavity in the snow. This jackrabbit is often found in open areas and flat-topped hills with open stands of trees. Winters are mostly spent in areas of sagebrush or in thickets of young trees.

### **Mount Lyell Shrew**

The Mount Lyell shrew (*Sorex lyelli*) is a California species of special concern (Figure 28). Not much was known about the Mount Lyell shrew until recently. Once known from only a few occurrences near Mount Lyell, the highest peak in Yosemite National Park, its known range has been extended to include a more widespread distribution in high (above 6,500 feet) montane and sagebrush communities of the central and eastern Sierra Nevada slopes. This species is typically found in subalpine herbaceous vegetation along fast-moving streams associated with riparian shrubs, and less frequently in subalpine sagebrush thickets. The most recent occurrence, at 11,900 feet in elevation, is from an alpine lakeshore above treeline, with vegetation limited to grasses, sedges, and forbs (Epanchin and Engilis 2009).

### **American Badger**

An uncommon resident, the American badger (*Taxidea taxus*) is a California species of special concern (Figures 16-22). Adults of this non-migratory species are primarily nocturnal, whereas juveniles are mostly active during the day. Badgers are active year round; however, in the winter, they go through states of torpor for variable periods (up to 29 hours; Long 1973). Badgers are found in a variety of open, arid habitats and are mostly associated with grasslands, mountain meadows, and desert scrub. Friable soils, a sufficient prey base of rodents, and uncultivated ground are required. The American badger's distribution extends throughout California and the elevational range extends from below sea level (Death Valley) to over 12,000 feet.

### **Sierra Nevada Mountain Beaver**

The Sierra Nevada mountain beaver (*Aplodontia rufa californica*) is a California species of special concern (Figures 22 and 28). The only living members of the Aplodontidae family, mountain beavers are rabbit-sized, stocky rodents. Not related to true beavers, the mountain beaver is the most ancient living rodent and the sole survivor of a long line of primitive rodents. The Sierra Nevada mountain beaver is found near mountain streams up to 7,500 feet in elevation from the Oregon border south to the Mono Lake region. The mountain beaver is active all year and prefers riparian habitats with thick undergrowth where it builds tunnels in moist soils. This species is mostly underground in winter. Its main food items include shrubs and forbs, such as

thimbleberry, blackberry, dogwood, ferns, and lupines. It mainly forages in heavy undergrowth, burrows, and on the ground surface.

### **Volcano Creek Golden Trout**

The Volcano Creek golden trout (*Oncorhynchus mykiss aguabonita*) is a California species of special concern and a FSS species. The Volcano Creek golden trout is native to two high altitude (about 10,000 feet above sea level) watersheds in the southern Sierra Nevada. Its native range once encompassed 450 miles of stream habitat in the upper South Fork Kern River and the Golden Trout Creek tributary. This species is extremely vulnerable to hybridization with non-native rainbow trout (CGTIC 2009). Hybridization combined with other factors such as, predation by and competition for habitat with brown trout has resulted in the Volcano Creek golden trout now occupying less than 10 percent of its original range. Preferring meandering streams with sparse riparian vegetation, this species thrives in cold, clear waters with substrates composed of cobble, gravel, and sand. Favorable reaches include pools with undercut banks and aquatic vegetation (U.C. Davis 2010).

### **Lahontan Cutthroat Trout**

Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) is a federal threatened species. This cutthroat trout is found in a variety of cold-water habitats, such as large terminal alkaline lakes (e.g., Pyramid and Walker lakes), alpine lakes (e.g., Lake Tahoe and Independence Lake), slow meandering rivers (e.g., Humboldt River), mountain rivers (e.g., Carson, Truckee, Walker, and Marys Rivers), and small headwater tributary streams (e.g., Donner and Prosser Creeks). General habitat requirements include cool flowing water with well-vegetated and stable streambanks for cover, stream velocity breaks, and relatively silt-free, rocky riffle-run areas. The Lahontan cutthroat trout is native to the Lahontan basin of northern Nevada, eastern California, and southern Oregon. In 1844, there were 11 lake dwelling populations and 3,600 stream miles were occupied. Currently, self-sustaining populations only occur in approximately 10 percent of the historic stream habitats and 0.4 percent of the historic lake habitats (USFWS 2010b).

### **McCloud River Redband Trout**

The McCloud River redband trout (*Oncorhynchus mykiss* spp. 2) is a California species of special concern and a FSS species. The species is restricted to Shasta-Trinity National Forest (Figure 16) and the headwaters of the McCloud River by geographic features including the upper and middle falls of the McCloud River. The McCloud River redband trout's survival is threatened by hybridization with introduced rainbow trout and environmental damage associated with logging operations. This trout is tolerant of low-flow streams and habitat preferences are variable, but for the small streams near Project trails, the redband trout habitat is limited by stream size, steep gradient, or low stream flows. Riffles and flat-water areas are the most abundant habitat types in these smaller streams (USFS 1998).

### **Spring-Run Chinook Salmon**

On the Pacific coast, there are 17 distinct groups, or Evolutionarily Significant Units (ESUs) of Chinook salmon (*Oncorhynchus tshawytscha*). California's Central Valley spring-run ESU is a federal threatened species. Chinook salmon are anadromous; migrating adults travel from the ocean to the freshwater streams and rivers of their birth where they spawn and die. The Central Valley spring-run population currently exists in a very small portion of its range having lost 70-



90 percent of its former spawning and rearing habitats. The average yearly abundance is 8,500 fish, whereas in the 1940s, 40,000 Chinook salmon were observed. Within the Project Area, spring-run Chinook salmon spawning habitat is found on Lassen National Forest in Mill Creek and Deer Creek between the Morgan Summit and Jonesville trail systems (Figure 18).

### **Yosemite Toad**

The Yosemite toad (*Anaxyrus canorus*) is a federal candidate for listing under the ESA, a California species of special concern, and a FSS species. The Yosemite toad is only active a few months out of the year. The activity period ranges from April-July to late September or early October. After breeding in shallow pools and the margins of lakes or streams, males and females move from the breeding site to meadows where they feed for two to three months before the snows return. During winter, Yosemite toads shelter in rodent burrows, willow thickets, forest edges adjacent to meadows, and in clumps of vegetation near water. Native to California, the Yosemite toad is found at high elevations in the Sierra Nevada, from the Ebbets Pass area of Alpine County south to the Spanish Mountains in Fresno County (Figures 26, 28, and 30). It has been estimated that the Yosemite toad has disappeared from over 50 percent of its historic range. The causes of the decline are unclear. Disease, degradation of habitat by grazing livestock, increased ultraviolet radiation, introduced predatory fishes, a severe 1980's drought, windborne pesticide contamination, and increased predation by common ravens, whose population has increased greatly due to human activities, are all causes thought to have contributed to the decline (California Herps 2010).

### **Sierra Nevada Yellow-legged Frog**

The Sierra Nevada yellow-legged frog (*Rana sierra*) is federal candidate for listing under the ESA, a California species of special concern, and a FSS species. The Sierra Nevada yellow-legged frog inhabits high elevation (900 to over 12,000 feet) lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada. This species hibernates at the bottom of the frozen waters during the winter months. Mating and egg-laying occur shortly after the snow melts and adults have emerged from hibernation, which can be anytime between May and August. This species' current range extends from Plumas National Forest south to Inyo National Forest (Figures 20 through 28). Absent from a large portion of its range, the decline has been attributed to many factors, including introduced non-native trout, airborne pollution, cattle grazing, ozone depletion, mining pollution, public dumping, and chytrid fungus (California Herps 2010).

### **Foothill Yellow-legged Frog**

The foothill yellow-legged frog (*Rana boylei*) is a California species of special concern and a FSS species. The foothill yellow-legged frog typically inhabits perennial streams and ephemeral creeks that retain pools throughout the summer. This frog occupies streams associated with a variety of upland habitats including foothill hardwood, foothill hardwood-conifer, mixed conifer, chaparral, and coastal scrub (Seltenrich and Pool 2002). Historically, the foothill yellow-legged frog's range in California extends along the Coast Ranges from Oregon south to the San Gabriel River drainage in Los Angeles County and along the western slopes of the Sierra Nevada. Currently, this frog is no longer found south of Monterey County (California Herps 2010). The elevational range extends from near sea level to 5,000 feet (Seltenrich and Pool 2002). Isolated populations are found near Project trails on Lassen, Plumas, and Tahoe National Forests (Figures

18, 20, and 22). The foothill yellow-legged frog is absent from approximately 66 percent of its former habitat in the Sierra Nevada, especially south of Interstate 80 where it is mostly extinct (California Herps 2010). Habitat loss, introduced fish, disease, stream alteration from dams, mining, logging, and grazing are all serious threats to this frog.

### **Cascades Frog**

The Cascades frog (*Rana cascadae*) is a California species of special concern and a FSS species. The Cascades frog inhabits wet mountain areas in open coniferous forests to near timberline, including small streams, small pools in meadows, lakes, bogs, ponds, and marshy areas near streams from 750 to around 9,000 feet. Historically, this frog was found in fragmented populations in northern California from the slopes of Mt. Shasta to Plumas National Forest (Figures 16, 18, and 20). The Cascades Frog is no longer present in approximately 50 percent of its historical range in California, and has disappeared from as much as 99 percent of its southernmost California populations, including Mt. Lassen, where they were once abundant (the majority of the occurrences on Figure 18 are pre-1975). Introduced sport fishing, environmental pollution, solar UV-B radiation, fungal pathogens, and loss of open meadow habitat due to fire suppression have all been suggested as factors contributing to the decline of Cascade Frogs in California (California Herps 2010).

### **Western Tailed Frog**

The western tailed frog (*Ascaphus truei*), also known as the Pacific tailed frog is a California species of special concern. The western tailed frog inhabits cold, clear, rocky streams in wet forests. A rocky streambed is necessary for cover for adults, eggs, and larvae. Adults are active from April to October. This species ranges from near Anchor Bay in Mendocino County to Shasta-Trinity National Forest. The two occurrences on Figure 16 appear to be the easternmost occurrences reported. Those occurrences date from 1989. Sedimentation and warmer stream temperatures have been proposed as possible causes of this species' decline (California Herps 2010).

### **Sierra Madre Yellow-legged Frog**

The Sierra Madre yellow-legged frog (*Rana muscosa*) is a federal endangered species, a California species of special concern, and a FSS species. In the southern Sierra Nevada Mountains, the Sierra Madre yellow-legged frog inhabits lakes, ponds, meadow streams, and isolated pools, along sunny riverbanks in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats. Reproduction does not take place until lakes and streams are free of ice. The distribution of this species in the Sierra Nevada is limited by the eastern crest of the Sierra Nevada; no populations occur east of the crest. This species was once known as the mountain yellow-legged frog, populations north of a ridge dividing the middle and south forks of the Kings River are now considered the Sierra Nevada yellow-legged frog. The decline of the Sierra Madre yellow-legged frog has been attributed to many factors, including bullfrogs, introduced non-native trout, airborne pollution, cattle grazing, ozone depletion, mining pollution, off-road vehicle disturbance, public dumping, chytrid fungus, fires, and excessive flooding. (California Herps 2010).

## Mount Lyell Salamander

The Mount Lyell salamander (*Hydromantes playcephalus*) is a California species of special concern. This salamander is nocturnal, cold-tolerant, and inhabits caves, granite exposures, rock fissures, and seepages from springs and melting snow. This species is found between 4,000 and 12,000 feet in elevation and ranges from the Sonora Pass south to the Franklin Pass area in Tulare County (California Herps 2010). Much of their range lies in Wilderness Areas and Yosemite National Park so there are few threats from human activities (Wake and Papenfuss 2005). In the Project area, the Mt. Lyell Salamander has been observed near Inyo OSV trails (Figure 28).

### 5.3 PROJECT IMPACTS

#### 5.3.1 Thresholds of Significance

The following thresholds of significance are adapted from Initial Study Checklist included in the CEQA Guidelines Appendix G. A project would have a significant biological impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Biological resources in the Project Area are located in national forests. There are no local policies, ordinances, adopted habitat conservation plans, or natural community conservation plans in effect within the Project Area.

#### 5.3.2 Project Baseline, Year 2010

##### 5.3.2.1 Special-Status Wildlife

For any project, managers of wildlife are concerned with general habitat protection, management, and enhancement; protection of breeding activity; minimizing effects on common wildlife; and maintaining wildlife corridors and connectivity to promote genetic diversity. Recreational activities (motorized and non-motorized) can alter wildlife behavior, cause wildlife displacement from preferred habitat, and decrease reproductive success and individual vigor (as discussed below). The OSV Program could have both direct and indirect impacts on wildlife. These impacts are associated with vehicle collision, home range use, breeding, physiological stress, opening corridors for predators that would not ordinarily be available, and snow

compaction, are described below. It is possible that OSV use would have a greater impact on wildlife during severe winters when wildlife is already stressed by environmental conditions. As noted in the Project Description, project trail grooming occurs on minimum snow depths of 12 inches. Trail grooming generally occurs at night between dusk and sunrise. Popular trails may be groomed several times per week, while other trails may be groomed only once per week. Some species or individuals become habituated to OSV activities (i.e., the animal decreases or stops its response to a repetitive stimulus that neither rewards nor harms the animal). Habituation is a variable phenomenon among wildlife species (Knight and Gutzwiller 1995) with some species, or some individuals within a species, habituating to certain circumstances but not others (e.g., white-tailed deer (*Odocoileus hemionus*; Moen et al. 1982 in Zielinski et al. 2007).

The 11 national forests included in the Project Area use a range of management tools to provide quality habitat for all wildlife species, common and special-status; these are described in the LRMPs for each forest (see Land Use Plans and Policies, Section 4.0 and LRMP policies in Appendix D). For example, the Klamath National Forest closes roads when necessary to limit activities that inhibit mule deer use of quality foraging, fawning/rearing, or wintering areas, and it maintains or establishes roadside screening along open roads in areas important for migration, fawning/rearing, or concentrated seasonal use. Key winter and spring use areas are managed to provide a good forage to cover habitat ratio for mule deer. USFS forest-wide S&G s and management prescriptions identified in Appendix D are taken into account in the following impact analysis.

Vehicle Collision. The likelihood of a collision between snow grooming equipment and wildlife is extremely low because the equipment travels slowly (3 to 6 mph). There is an increased likelihood of collision with OSVs due to higher frequency of OSV use and higher speeds. Vehicle collision with a mammal would result in an adverse impact to that particular animal, but is assumed to be so rare in occurrence that it would not significantly affect the population, even in the event that the mammal was a special-status species. Sensitive habitat areas such as known denning sites are identified through surveys and monitoring and are closed to OSV use (Table 5-5). Because vehicle collision would not have a substantial adverse effect on a species population either directly or through habitat modifications, it is considered a less-than-significant impact.

Home Range Use. Noise and extended human presence from OSV activities could reduce the size of the winter home range for several wildlife species. The home range provides food, shelter, and breeding opportunity, and if it is reduced, could compromise species survival, particularly during stressful survival conditions in the winter. Trail grooming activities occur at night, are infrequent, and move slowly enough that grooming is not expected to have a substantial adverse effect on wildlife home range. Many of the species that may be active or present during the OSV Program season are nocturnal and may not be affected by daytime snowmobile activities at all; however, 29 percent of snowmobilers report some nighttime riding (Project Description, Table 2-9). This can include daytime riders who do not return to the trailhead before early nightfall and those that ride in late night hours. For diurnal species, OSV use of the trails may result in animals avoiding areas used by snowmobilers. For nocturnal and crepuscular species trail grooming and OSV use may also result in animals avoiding areas frequented by snowmobilers and groomers. The continued funding of the Program would not change the extent of existing effects; however, with the anticipated increase in riders accessing the backcountry, extended human disturbance may reduce the home range for special-status wildlife species. The impact by the OSV Program is not considered to have a substantial adverse effect on common species' populations or home range use either directly or through habitat

modifications. However, an adverse impact may be felt by special-status species already pressured by existing forest uses and by an increase in riders. The national forests operating under the OSV Program operate under numerous Land Resource Management Plan policies (Appendix D) that address this issue and mitigate any substantial adverse impact to less than significant.

Breeding Disruption. If the winter season overlaps with the beginning of breeding season as may be the case for species such as the yellow-bellied marmot and other birds and mammals, the presence of OSVs in the forests could disrupt courtship and nesting or denning activities due to noise and/or visual disturbance that result in behavioral changes in the animals. This ongoing impact, along with the anticipated increase in riders over the next 10 years, may have a minor to moderate effect on common species as it would affect individuals, but it would not affect the viability of common wildlife species' populations. For special-status species, breeding disruption could be a significant adverse impact to a species with an already low population. With the implementation of the Management Actions already in use (Table 5-5) by the national forests and Mitigation Measures BIO-1 and 2 identified below in Section 5.4, the project impacts during early courtship and nesting/denning periods would remain at existing levels. No new impacts would occur as a result of the continuation of the OSV Program and therefore, the Project's effect on special-status birds is less than significant.

Physiological Stress. Single or repeated interactions between OSVs and wildlife could lead to energy expenditures from flight or vigilance reactions. Mammals, birds, and fish may experience an elevated heart rate and metabolism resulting in high energy expenditures, elevated production of stress hormones (i.e., glucocorticoids), increased susceptibility to predation, decreased reproduction, and diminished nutritional condition (NPS 2007). The energetic cost of flight can be significant for predatory animals. Quantifying these physiological responses in wildlife is extremely difficult.

The grooming equipment operates infrequently and moves slowly, so it is estimated that it results in fewer flight or vigilance reactions. Grooming is not expected to have a substantial adverse effect on wildlife populations as a result of physiological stress. Snowmobile use likely results in more flight or vigilance reactions because there are more vehicles, they move faster, and they are generally louder than grooming equipment. It is assumed that an individual animal is unlikely to have repeated encounters with OSVs as encounters would likely result in animals avoiding trail areas (NPS 2007). Physiological stress may impact individuals, but given that only some individuals from a population may not even travel within the Project Area affected by the OSV Program, the effect to populations is expected to be negligible to minor and is thus less than significant.

Coyote Incursion. Packed trails resulting from snowmobile use facilitate coyote incursion into deep snow areas (Bunnell et. al. 2006) and can adversely impact marten or other mammal populations through increased competition and predation. A study in Utah found that 90 percent of coyote movement was made within 1,150 feet of packed trails (Bunnell et. al. 2006). Competition and predation, if occurring, would be predictably restricted to areas in the immediate vicinity of trails. The use of OSV trails and regular grooming is an existing condition that has been in operation for numerous years; and no new trail expansion is proposed at this time. Therefore, coyote incursion, if occurring, would continue, but would not be increased by OSV Program activities.



Snow Compaction. Mechanical snow compaction changes water content and the rate of spring-melt-off, reduces snow depth, and increases thermal conductivity and snow density to a point where subnivean fauna (small mammals that live under the snow in winter such as shrews, voles, pocket gophers, and mice) could not move in the small spaces between the ground and the snow (Brander 1974). Snow compaction may impact individuals, but given that small mammals' population densities are dependent on numerous factors, and only some individuals from a population may even be affected by snow compaction, the effect to populations is not considered significant.

Deer. Wintering deer are sensitive to disturbances of all kinds. Both snowmobiles and cross-country skiers are known to cause wintering ungulates to flee (Freddy et al. 1986). Dorrance et al. (1975) found that snowmobile traffic resulted in increased home range size, increased movement, and displacement of deer from areas along trails. Direct environmental impacts of snowmobiles include collisions causing mortality and harassment that increased metabolic rates and stress responses (Canfield et al. 1999 in NPS 2007).

The majority of groomed trails in the Project Area do not cross deer winter habitat; Tahoe National Forest's China Wall trailhead is the only exception (Figure 22). In addition, the Big Creek trailhead at Bucks Lake and portions of the La Porte trail system on Plumas National Forest (Figure 20) are adjacent to mule deer winter range and portions of Sequoia National Forest's groomed trails are within or less than a mile from winter range. The Tri-Forest and Tahoe National Forests' snowmobile routes travel through several sections of known mule deer fawning grounds. Fawns are born from early April to mid-summer, varying geographically so fawning season could overlap with a late snowmelt. The USFS monitors deer populations and, in general, sites most OSV trails away from winter range in order to lessen the impacts on deer. When activities affect deer's use of quality foraging, fawning/rearing, or wintering areas, national forests use a variety of techniques for protecting these areas including road and OSV trail closure (Appendix D). With these management policies in place the effect of the OSV Program on deer populations is not significant.

Birds. Proposed trail grooming would not adversely affect most wildlife active in the Project Area in winter (Table 5-4) because it occurs on existing roads and trails and primarily occurs at night when fewer species are active. Trail grooming would not modify habitat. In some years, there is a possibility that an extended snow season would overlap with the start of the breeding season for some birds. Noise disturbance in proximity to nesting birds may lead to nest abandonment and/or reproductive failure. However, due to the nighttime operating hours and the limited frequency and duration of trail grooming at any trail segment location, as well as the grooming activity being an ongoing operation for many years on the same trail routes, the noise disturbance from trail grooming would not have a substantial adverse effect on nesting birds.

The proposed OSV Program funding would facilitate the continuation of existing OSV use levels on project trails. OSV use occurs mostly in daylight hours potentially every day of the week with the heaviest use occurring on weekends and holidays; however, night riding can also occur on any of the trails. OSV use in the Project Area late in the snow season may cause noise disturbance to courting or nesting birds and cause decreased reproductive success. If an extended snow season overlaps with the start of the breeding season, noise disturbance in proximity to nesting birds may lead to nest abandonment and/or reproductive failure. The likelihood of affecting nesting birds is rare; for most species, nesting occurs after the snow season has ended. Given the potential for multiple occurrences of OSV use throughout each day, noise disturbance

may have a minor to moderate adverse effect on special-status bird individuals, such as bald eagle, American peregrine falcon, northern spotted owl, and golden eagle. Where nest sites are known to occur within ¼ mile of a trail, the national forests implement LOPs or trail closures during the breeding season (Table 5-5). Nest checks are performed annually by national forest personnel to confirm that known nest sites remain active and successful. With the implementation of the Management Actions already in use by the national forests, the project noise impacts to birds during early courtship and nesting periods would remain at existing levels. No new impacts would occur as a result of the continuation of the OSV Program and therefore, the Project's effect on special-status birds is less than significant.

### **Bald Eagle**

Studies in Yellowstone National Park showed bald eagle response to snowmobiles depended on distance from road, interaction time, human behavior, and habitat. These studies also indicated that successful nesting and fledging could not be correlated with cumulative OSV traffic (NPS 2007). In the low snow-fall years when snowmobilers have access to lakes that are beginning to melt out, OSV use may have an impact on bald eagle foraging success. However, bald eagles are known to forage on lakes with power boats, and may not be adversely affected by snowmobile noise or activity.

In Inyo, Modoc, and Plumas National Forests, the USFS annually checks historic bald eagle nests within ¼ mile of groomed trails for presence and nesting activity. No significant effect on bald eagle from OSV activity has been determined. With this USFS Management Action in effect (Table 5-5) the project impact to bald eagle is considered less than significant.

### **Northern Goshawk**

For northern goshawk, occurring on all national forests in this study, noise disturbance during breeding activity is the primary concern. Breeding territories and protected activity centers present within ½ mile of snowmobile routes are monitored for occupancy, nesting status, and reproductive success. In addition, a LOP within ¼ mile of a nest is imposed beginning February 15th. With the continued implementation of this USFS Management Action, (Table 5-5) the project impact to northern goshawk is considered less than significant.

The USFS Pacific Southwest Region has been conducting a study to further evaluate potential effects of OHV/OSV activity on northern goshawk. This study, conducted on the Plumas National Forest, evaluates OHV/OSV use and noise around northern goshawk nests and nest stands and uses experimental manipulations designed to evaluate the bird's sensitivity to direct disturbance by OHV/OSVs during the nesting, post-fledging, and winter (non-breeding) seasons. The study will estimate the relationship between goshawk reproductive success, post-fledging survival rates, nesting behavior, and likelihood of nesting relative to OHV/OSV use and noise. The Regional Northern Goshawk Focused Study is expected to be completed in 2010. At the time of this EIR, the study has not been published.

As discussed above, based upon the data available to date, the current USFS northern goshawk management action (monitoring and LOPs) is adequate to ensure the impacts of the OSV Program on northern goshawks are less than significant. Since the USFS continues to study the species, however, this EIR takes an adaptive management approach to mitigation. Based upon the results of the Regional Northern Goshawk Focused Study, biologists may revise the USFS

northern goshawk management action. Measure BIO-1 thus requires the USFS to report any changes in the USFS northern goshawk management action to the OHMVR Division for incorporation into the OSV Program contract requirements. Revisions to the management action, such as new LOPs or trail closures, would be sufficient to continue to address any adverse effects to goshawks from OSV activities and would ensure that the impact to goshawks remain at a less-than-significant level.

### **California Spotted Owl, Northern Spotted Owl, Great Gray Owl**

Trail grooming and night riding could disturb owls that forage at night. The passage of a trail grooming machine or an OSV may interrupt owl foraging, result in owl prey taking refuge, or cause owls to redirect their foraging away from trail areas. Trail grooming impact on owl foraging is negligible due to the limited frequency of trail grooming and the short presence of the grooming machine at any trail segment location.

The great gray owl could potentially be affected by OSV activities. Snowplay in meadows may disrupt foraging activities or prey base; however the great gray owl's occurrence is rare at high elevations and breeding and foraging generally occur below snowline in the Sierra Nevada. Noise that disturbs breeding is the primary potential conflict. Effects are likely to be minimal due to limited overlap of breeding (March) and the nocturnal nature of owls. Disturbance depends upon proximity of snowmobile use within ¼ mile of nests. An LOP on groomed trails within ¼ mile of PACs is imposed beginning March 1 on those national forests with known presence – Sequoia, Sierra, and Stanislaus. With the continued implementation of this USFS Management Action (Table 5-5), the project impact to the great gray owl is considered less than significant.

California spotted owls face the same potential disturbances as the great gray owl. Those national forests with known presence, Eldorado, Lassen, Plumas, Sequoia, Sierra, Stanislaus, and Tahoe, monitor California spotted owl PACs. LOPs on groomed trails are imposed within ¼ mile of PACs after March 1. With the continued implementation of this USFS Management Action (Table 5-5) the project impact to the California spotted owl is considered less than significant.

Similar to the great gray owl and California spotted owl, the northern spotted owl could potentially be affected by OSV activities. Where the northern spotted owl occurs on the Klamath, Modoc, and Shasta-Trinity National Forest, monitoring of spotted owl PACs occur every year and LOPs on groomed trails within 1/4 mile of PACs are imposed after February 15. With the continued implementation of this USFS Management Action (Table 5-5) the project impact to the California spotted owl is considered less than significant.

The USFS Pacific Southwest Region has been conducting a study to further evaluate potential effects of OHV/OSV activity on northern spotted owls. The objectives of this study, conducted on the Shasta-Trinity and Mendocino National Forests, are to: 1) describe northern spotted owl stress levels, behavior, and nesting success and OHV use at selected northern spotted owl nest and/or roost sites over time; 2) determine whether OHV use affects northern spotted owl stress levels, behavior, or nesting success, and, whether observed effects vary with reproductive state over time; and, 3) determine the need for disturbance-specific management considerations to minimize potential adverse effects of OHV use on spotted owls that reside on national forest system lands. Final data analysis for the northern spotted owl study has been completed and is undergoing final review prior to publication. The Northern Spotted Owl Focused Study is expected to be completed in 2010. At the time of this EIR, the study has not been published.



As discussed above, based upon the data available to date, the current USFS northern spotted owl management action (monitoring and LOPs) is adequate to ensure the impacts of the OSV Program on northern spotted owls are less than significant. Since the USFS continues to study the species, however, this EIR takes an adaptive management approach to mitigation. Based upon the results of the Northern Spotted Owl Focused Study, biologists may revise the USFS northern spotted owl management action. Measure BIO-1 thus requires the USFS to report any changes in the USFS northern spotted owl management action to the OHMVR Division for incorporation into the OSV Program contract requirements. Revisions to the management action, such as new LOPs or trail closures, would be sufficient to continue to address any adverse effects to northern spotted owls from OSV activities and would ensure that the impact to goshawks remain at a less-than-significant level.

### **American Peregrine Falcon**

Due to its breeding success and subsequent removal from the federal endangered species list, the peregrine falcon is a low monitoring priority for the USFS. Noise disturbing breeding activity is the primary potential conflict. If nests are active early in the season while OSV activity still occurs, the USFS generally enacts at least ¼ mile closures surrounding the nest (Table 5-5). With the continued implementation of this USFS Management Action (Table 5-5) the project impact to the American peregrine falcon is considered less than significant.

### **California Condor**

Potential nesting habitat for California condor exists within the Giant Sequoia National Monument; however nesting has yet to occur there. Female condors lay eggs in February or March, so there is the possibility of overlapping with OSV activity as well as the possibility of nesting behavior being disrupted by human intrusion. If a female condor does nest, the management direction from the USFWS includes trail closure around the nest grove and potential nest trees if condors are in the area and possibly looking for a nest site during the breeding season. For this reason, coupled with no OSVs allowed off-trail within the National Monument, the impact of the OSV Program to the California condor and its critical habitat is considered less than significant.

### **American Marten**

A recent study on the effect of OHV/OSV use on American martens found that martens were pervasive in both OHV/OSV use and non-use areas; occupancy and probability of detection appeared to be unaffected (Zielinski et al. 2007). As OSV trail use is an existing condition, animals that occur in the areas affected by the OSV Program during winter may be habituated to OSV disturbance or may have already modified their behavior to avoid trail areas. Night riding has the potential to affect nocturnal animals like the marten. OSV noise resonating in the forest may cause an alert or startle response in individual animals or may be accepted as ambient noise conditions of the environment as suggested by the study on American martens (Zielinski et al. 2007) even though that study concluded that martens appear to be unaffected by snowmobile recreation. Zielinski et al. 2007 acknowledged the limits of their study by saying, “We did not, however, measure behavioral, physiological, or demographic responses, so it is possible that OHV/OSVs may have effects, alone or in concert with other threats (e.g., timber harvest) that were not quantified in this study.” Several national forests that are involved with the OSV Program implement management measures to protect martens. Inyo, Plumas, Sequoia, Shasta-

Trinity, Sierra, Stanislaus and Tahoe National Forests implement LOPs or enforce trail closures within ¼ mile of identified den sites if martens appear to be affected and install restrictive signs in areas prone to illegal off-trail use. Klamath National Forest provides informational and educational materials to prevent harassment of wildlife and patrols trails with USFS or snowmobile club personnel. With these existing management measures in effect, the OSV Program's effect on marten is considered less than significant.

### **Pacific Fisher**

The USFWS (2004) concluded that, "vehicle traffic during the breeding season in suitable habitat may impact foraging and breeding activity" and that "hiking, biking, OHV and snowmobile trails, may adversely affect fishers." In winter, fishers occur at elevations lower than the heaviest snowfalls (greater than 5 or 6 inches; Krohn et al. 1997) and would not be expected to be present during snowmobile activities. The USFS continues to monitor for presence of Pacific fisher (Table 5-5). LOPs on groomed trails are established within ¼ mile of known den sites after March 1. With the continued implementation of this USFS Management Action (Table 5-5) the OSV Program impact to the Pacific fisher is considered less than significant.

### **California Wolverine**

The California wolverine has not been detected in the Project Area during winter for decades and none of those sightings occurred within a groomed trail corridor. A recent wolverine sighting occurred north of Truckee at a camera tracking station operated by the Pacific Southwest Research Station. DNA testing revealed that the wolverine did not match the California population but has a genetic type that is found throughout the Rocky Mountains, Alaska, and Canada (Science Daily 2008). Wolverines appear to select areas that are free from significant human disturbance, especially during the denning period from late winter through early spring. (Carroll et al. 2001). Highly secretive animals such as the wolverine are likely to avoid any areas of human presence and thus are not likely subject to adverse effects from OSV activity. However, most researchers agree that adult females, particularly during the natal denning period (January to April) are highly sensitive to disturbance (Banci 1994).

California wolverine is not expected to be present; however, if present, snowmobile activity around a natal den could create a significant impact by stressing and increasing energy expenditures of female wolverines and result in incidental mortality of offspring due to den abandonment possibly resulting in population-level impacts (Banci 1994). The USFS includes wolverine in its annual carnivore monitoring: Sierra National Forest enforces a LOP from March 1 through June 30 if monitoring determines that OSV activities are causing noise disturbance to wolverine, and Plumas National Forest implements trail closures and rerouting of selected portions of OSV trails if disturbance is identified through the monitoring process. Mitigation Measure BIO-2 incorporates management measures to be taken if monitors on other OSV Program national forests discover natal denning sites. These measures include route closures and/or LOPs surrounding den sites. With this measure in place, the Project's potential effect on California wolverine would be less than significant.

### **Sierra Nevada Red Fox**

Little information exists on the distribution and ecology of the Sierra Nevada red fox in California (Perrine et al. 2010). Over the last 20 years, it has been predominantly found in and

surrounding Lassen Volcanic National Park, including occurrences at the Morgan Summit trailhead and the Swain Mountain trailhead (Perrin 2005). There are incidental sightings, however, within or adjacent to other snowmobile trail systems (Sierra National Forest WHPP), as well as the recent sighting on the Humboldt-Toiyabe National Forest near Sonora Pass (USFS 2010). The USFS has announced that wildlife biologists from the USFS, CDFG, and the University of California, Davis, will set-up additional monitoring stations to gather more information on the presence of Sierra Nevada red fox in the area of Sonora Pass.

The effects of OSV/OHV activity on this species have not been studied, but noise and extended human presence from OSV use has the potential to significantly impact nocturnal animals like the red fox through direct collisions, disruption of breeding activities, and reduction in home range use. It has also been reported that begging behavior has occurred at Lassen National Forest snowmobile trailheads (Perrine 2005). Increased exposure to humans, vehicles, and pets increases undesirable behaviors on the part of foxes and increases their exposure to disease transmitted from pets. Measure BIO-3 requires Lassen National Forest to provide educational materials on red fox and the importance of minimizing direct contact with red foxes.

Two national forests include the red fox in their annual carnivore monitoring: Sierra National Forest enforces a LOP from March 1 through June 30, if monitoring determines that OSV activities are causing noise disturbance to red fox; and, Plumas National Forest implements trail closures and rerouting of selected portions of OSV trails if disturbance is identified through the monitoring process.

Measure BIO-3 addresses known potential impacts within the Lassen National Forest and requires the USFS to conduct an inventory of the Sierra Nevada red fox in order to refine occurrence data with the Project Area. Measure BIO-3 also incorporates management measures to be taken if monitors on other OSV Program national forests determine that OSV activities are disturbing red fox affecting behaviors. While the recent sighting of a red fox occurred on a the Humboldt-Toiyabe National Forest which is not part of the OSV Program, the sighting occurred in the vicinity of Stanislaus National Forest near the OSV Program Project Area. Measure BIO-3 requires the USFS to provide the results of their new inventory and monitoring in the area to the OHMVR Division as it becomes available. Continued implementation of the USFS management actions within the Sierra and Plumas National Forests, in conjunction with the mitigation in Measure BIO-3, would ensure the impacts of the OSV program on the Sierra Nevada Red Fox are less than significant.

### **Mountain Lion**

Mountain lions can be found throughout California, but are closely associated with mule deer and mule deer migrations. Only the China Wall trailhead is located within wintering deer habitat. Mountain lions generally are active and hunt at night; consequently, the likelihood of OSVs encountering a mountain lion diminishes as only 29 percent of riders report night riding. Potential impacts could include direct vehicle collision and indirect physiological stress. These are considered unlikely and less than significant as the primary threat to mountain lions in California is degradation of its habitat. With the ongoing implementation of the Management Actions already in use by the national forests of siting snowmobile trails away from mule deer winter range, the Project's impacts to mountain lions would remain at existing less than significant levels. No new impacts would occur as a result of the continuation of the OSV Program and, therefore, the Project's effect on mountain lions is considered less than significant.

### **Sierra Nevada Snowshoe Hare**

Potential direct impacts to the Sierra Nevada snowshoe hare include vehicle collisions; indirect impacts include fragmented habitat, physiological stress, and displacement from home ranges. Sierra Nevada snowshoe hares rarely leave the security of dense brush, places OSVs and grooming equipment avoid. In addition, lagomorphs (hares, rabbits, and pikas) have been found to avoid trails in order to avoid predators (Neumann and Merriam 1972). Small mammals' population densities are dependent on numerous factors, and only some individuals from a population may be affected by OSV activities. For these reasons, the Project's effect on Sierra Nevada snowshoe hare populations is considered less than significant.

### **Western White-tailed Jackrabbit**

Potential direct impacts to the western white-tailed jackrabbit include vehicle collisions; indirect impacts include fragmented habitat, physiological stress, and displacement from home ranges. In winter, white-tailed jackrabbits avoid open areas and prefer dense thickets for hiding and resting; these dense thickets are places OSV riders generally avoid. In addition, lagomorphs (hares, rabbits, and pikas) have been found to avoid trails in order to avoid predators (Neumann and Merriam 1972). Small mammals' population densities are dependent on numerous factors and only some individuals from a population may be affected by OSV activities. For these reasons, the Project's effect on western white-tailed jackrabbit populations is considered less than significant.

### **Mount Lyell Shrew**

Potential direct impacts to the Mount Lyell shrew include vehicle collisions; indirect impacts include snow compaction, physiological stress, and displacement from home ranges. Mount Lyell shrews avoid open areas and prefer dense riparian areas with moist soils near fast moving water, places OSV riders generally avoid. Small mammals' population densities are dependent on numerous factors, and only some individuals from a population may be affected by OSV activities. For these reasons, the Project's effect on Mount Lyell shrew populations is considered less than significant.

### **American Badger**

Potential direct impacts to the American badger include vehicle collisions; indirect impacts include physiological stress and displacement from home ranges. The American badger spends most of the winter in a state of torpor (not true hibernation), and the likelihood of encountering one during OSV Program activities is rare. Small mammals' population densities are dependent on numerous factors, and only some individuals from a population may be affected by OSV activities. For these reasons, the Project's effect on American badger populations is considered less than significant.

### **Sierra Nevada Mountain Beaver**

Potential direct impacts to the American badger include vehicle collisions; indirect impacts include physiological stress and displacement from home ranges. The Sierra Nevada mountain beaver spends most of the winter underground, so encountering this species would be very rare. Small mammals' population densities are dependent on numerous factors, and only some

individuals from a population may be affected by OSV activities. For these reasons, the Project's effect on Sierra Nevada mountain beaver populations is considered less than significant.

### **Fish and Amphibians**

Direct impacts to fish and amphibians would be extremely rare as amphibians hibernate during the winter, and OSVs would have to travel through water to collide with fish. Due to the rarity of this occurring, the direct impacts to fish and amphibians are considered less than significant.

Potential indirect impacts include impaired water quality. Impacts to water quality are assessed in Hydrology, Section 6.0. Based on multi-year studies in Yellowstone National Park, researchers concluded that Yellowstone OSV use levels have not resulted in impaired water quality. Given that OSV use levels at OSV Program trailheads is less than OSV use levels occurring at Yellowstone during the study period, it is determined that water quality is not impaired by the OSV Program (Hydrology, Section 6.3.3). For this reason, negative impacts on special-status fish and amphibians due to impaired water quality are considered less than significant.

#### **5.3.2.2 Special-Status Plants**

In most of the 11 national forests in the Project Area, grooming of trails would occur only when there is at least 12 inches of snow on the ground (Eldorado, Stanislaus, and Inyo National Forests require a minimum of 18 inches, and Sequoia National Forest requires a minimum of 24 inches). These routes are used all year, and plants do not grow on the paved and gravel roads and dirt trails comprising the groomed trail system. If plants were to take root along these routes, the 12 inches of snow would protect them from grooming. Therefore, special-status plant species and their habitat are not impacted by trail grooming.

Although most national forests do not have minimum snow depth requirements for OSV users, OSV users generally favor deep snow conditions because traveling on dirt or pavement can cause severe damage to snowmobiles. Low snow conditions on the groomed trail systems do not pose a threat to special-status plants because the groomed trails mainly occur over existing roads (either dirt based or improved road surfaces) or OHV trails which do not contain special status plants. However, snowmobiles in off-trail or open riding areas during low snow conditions can potentially damage special-status plant populations and associated habitats. Impacts can range from destroying seeds and trampling and breaking seedlings or saplings, to destroying growing medium and even to enhancing habitat (for plants that prefer disturbance). The special-status plants listed in Appendix F and Table 5-2 are comprised of annuals and perennials. Both annual and perennial special-status plants could be impacted if OSVs traveled over bare ground or in areas with low-snow conditions.

Lassen and Inyo National Forests monitor snow depths (Inyo) or after snow melt (Lassen) and inspect for damage to four FSS species that are also California rare plant ranked species (Table 5-3). Both national forests take corrective actions (signage, barriers, etc.) if necessary. Inyo National Forest works with OSV outfitters to educate users regarding snow conditions and appropriate use areas. While the potential special-status plant impacts by the OSV Program grooming activity and subsequent OSV use are very low, impacts could occur if off-trail snowmobile use crosses the habitat of these species when the snowpack is minimal and over bare ground. All the national forests involved with the OSV Program manage and conserve federal special-status plant species and their habitats to ensure viable populations are maintained.



Monitoring of federal special-status plant species occurs every season, and if adverse impacts occur, corrective actions are taken. Corrective actions may include, but are not limited to, improved trail maintenance, adjusting seasons of use, reducing OSV use, signing barriers to redistribute use, partially closing areas, rotating use, prohibiting specific vehicle types causing damage, or totally closing an area. Site conditions are monitored by USFS staff in each national forest and recorded on the OSV Program Monitoring Checklist (see Appendix C). These are submitted to the OHMVR Division for review prior to the next season's funding. The five special-status plant species for which the USFS has ongoing or recent management measures (Table 5-3) are discussed below in detail.

### **Mono Milk-Vetch**

The Mono milk-vetch is a low-growing perennial plant, dormant in the winter and occurring in the Inyo National Forest at the Smokey Bear Flat in the Lookout Loop use area. Inyo requires a minimum of 18 inches of snow for grooming operations, and because grooming occurs on well-established routes, no impacts to Mono milk-vetch are expected from grooming. Off-trail use of snow play areas may cause occasional soil disturbance or compaction during low snow conditions. Under normal winter conditions, the majority of the pumice flat will have adequate coverage for snowmobile use, but a few isolated areas, e.g. south aspects or windblown areas, may have a very thin snow cover or be entirely exposed. Inyo National Forest works with OSV outfitters to educate users regarding snow conditions and appropriate use areas. OSVs are permitted to use these trails only when there is sufficient snow cover to protect soil and vegetative resources and the population is monitored annually. With ongoing implementation of the USFS Management Action (Table 5-3) the continuation of the OSV Program would not have a significant effect on Mono milk-vetch.

### **Mono Lake Lupine**

Mono Lake lupine is a low-growing perennial, dormant in winter and occurring in the Inyo National Forest on pumice flats, in the same habitat association as the Mono milk-vetch, and is known to occur at Smokey Bear Flat in the Lookout Loop use area. Inyo requires a minimum of 18 inches of snow for grooming operations and because grooming occurs on well-established routes, no impacts to Mono milk-vetch are expected from grooming. Off-trail use of snow play areas may occasionally cause soil disturbance or compaction during low snow conditions. While the Mono Lake lupine may tolerate disturbance, as evidenced by its occurrence along roads, studies indicate a decrease in plant density related to proximity to the road, and a decrease in plant vigor and plant density in off-road tire tracks (Inyo National Forest 2003 WHPP). Under normal winter conditions, the majority of the pumice flat will have adequate coverage for snowmobile use, but a few isolated areas, e.g. south aspects or windblown areas, may have a very thin snow cover or be exposed. Inyo National Forest works with OSV outfitters to educate users regarding snow conditions and appropriate use areas. OSVs are permitted to use these trails only when there is sufficient snow cover to protect soil and vegetative resources. The population is monitored annually (Table 5-3), and OSV use has not had an adverse effect on Mono Lake lupine to date. With ongoing implementation of the USFS Management Action (Table 5-3), the continuation of the OSV Program would not have a significant effect on Mono Lake lupine.

### **Slender Orcutt Grass**

Slender Orcutt grass is an annual plant that grows at numerous locations on Lassen National Forest. Critical habitat and one occurrence are adjacent to the Jonesville trailhead. Critical habitat and a small population are also within three miles of the Bogard trail system. Because this plant is an annual, it is dormant as a seed bank in the winter and is covered by snow in OSV areas. This species inhabits open, vernal areas, which would make good “play” areas for snowmobiles. As such, concern would be for riders in low snow conditions affecting bare soils where seeds may have been deposited. Past monitoring has not indicated any OSV impacts to these occurrences or habitat. The Swain Mountain kiosk contains educational materials due to documented evidence of OHV impacts during summer activities. In 2007, Lassen National Forest determined it was no longer necessary to monitor for OSV damage because there were no observed impacts (Table 5-3). The continuation of the OSV Program would not have a significant effect on slender Orcutt grass.

### **Barron’s Buckwheat**

Barron’s buckwheat occurs on the Lassen National Forest on minor ridge tops in sandy loam soils at a narrow elevation range of 6,600 to 6,725 feet. The occurrence adjacent to the Swain Mountain OSV route (Figure 19) has been consistently monitored every year by the USFS using the CNPS’s Botanical Survey Guidelines, and OSV damage has not been found to occur. However, the habitat for this species has topography attractive to OSV use, and damage could occur to this perennial plant under low snow conditions. Lassen National Forest monitors for damage each spring; no damage has been found. If damage were to be found, corrective actions would be taken such as trail reroutes, signage, etc. With ongoing implementation of the USFS Management Action (Table 5-3), the continuation of the OSV Program would not have a significant effect on Barron’s buckwheat.

### **Columbia Yellow Cress**

The Columbia yellow cress occurrence (habitat and individuals) within the Bogard area of Lassen National Forest is at risk of damage if that area is used during low snow conditions. While no OSV damage has been noted in past monitoring, this occurrence is monitored during or right after snowmelt to ensure the continued viability of the occurrence and the hydrology of the playa. If damage is detected, corrective actions, such as trail closures, would be taken at that time. With ongoing implementation of the USFS Management Action (Table 5-3), the continuation of the OSV Program would not have a significant effect on Columbia yellow cress.

### **Additional Special-Status Plant Species**

The USFS actively manages four plant species identified by the USFS as sensitive (Table 5-3). Additional federal and non-federal special-status plant species with potential to occur in the Project Area are found in Appendix F.

The potential for impacts of OSV Program grooming and subsequent OSV use on special-status plants is very low because: 1) grooming does not occur when the snowpack is less than 12 inches deep (18 inches in some locations) per USFS management practices; 2) groomed trails are typically located over unvegetated existing roads and OHV trails; and 3) snowmobilers generally avoid low snow areas and bare soil to avoid vehicle damage. However, significant impacts could

occur if off-trail snowmobile use crosses the habitat of these species when the snowpack is less than 12 inches deep.

The USFS has not monitored all California rare plant ranked species because not all are federally listed or FSS species. As the proposed OSV Program is a project under CEQA review, the OHMVR Division is responsible for addressing potential impacts to other special-status plants species, such as CRPR-list 1B and 2 species that are not also federally listed or FSS species. Ongoing USFS management measures listed in Table 5-3 address known potential impacts to special-status plant species. Measure BIO-4 requires the USFS to conduct resource inventories and monitoring for fifty-three CRPR 1B and CRPR 2 species listed in Table 5-6 in order to refine occurrence data with the Project Area. The USFS shall also incorporate management measures to be taken if monitoring data determine that OSV activities are significantly impacting any of the monitored plant species. Such measures (trail reroutes, barriers, seasonal closures, signage, public education, etc.) would be specified as needed to address site-specific concerns. Until the resource inventories are completed and any necessary management strategies developed and implemented, the USFS shall also conduct public outreach with educational materials that include discussion of the hazards of riding on less than 12 inches of snow. Implementation of ongoing management actions, in conjunction with Measure BIO-4, would ensure that OSV Program impacts on special-status plants remain less than significant.

<b>Table 5-6 CRPR 1B and CRPR 2 Plant Species to be inventoried and monitored as part of Mitigation Measure BIO-4</b>	
<b>National Forest</b>	<b>Special-status Plant Species</b>
Klamath	Newberry's cinquefoil, grass alisma
Modoc	Hall's sedge, little hulsea, pyrola-leaved buckwheat, Boggs Lake hedge-hyssop, snow fleabane daisy
Shasta-Trinity	Pyrola-leaved buckwheat, Cascade alpine campion, Aleppo avens
Lassen	Barron's buckwheat, Newberry's cinquefoil, snow fleabane daisy, mud sedge, flat-leaved bladderwort, Lewis Rose's ragwort, rayless mountain ragwort, water bulrush, dwarf resin birch, wooly-fruited sedge, northern spleenwort, English sundew, long-leaved starwort, wooly stenotus, nodding vanilla-grass, squarestem phlox, Janish's beardtongue, little ricegrass
Plumas	Caribou coffeeberry, Mildred's clarkia, Clifton's eremogone, wooly-fruited sedge, water bulrush, buttercup-leaf suksdorfia, yellow willowherb, northern coralroot, Norris' beard moss, hairy marsh hedge-nettle
Tahoe	White-stemmed pondweed, slender-leaved pondweed, English sundew, alder buckthorn
Eldorado	Alpine dusty maidens
Stanislaus	Jack's wild buckwheat, subalpine cryptantha, alpine dusty maidens, cut-leaf checkerbloom, mountain bent grass
Inyo	Field ivesia, Mono Lake lupine, Inyo phacelia, smooth saltbush, slender-leaved pondweed
Sierra	Flat-leaved bladderwort, mud sedge, prairie wedge grass
Sequoia	Field ivesia, copper-flowered bird's-foot trefoil, pygmy pussypaws, Needles' buckwheat, prairie wedge grass, Kern Plateau milk-vetch, delicate bluecup, Greenhorn fritillary, Piute cypress, Mineral King draba, Norris' beard moss, flat-leaved bladderwort

Source: TRA Environmental Sciences, Inc. 2010



Measure BIO-4 is limited to CRPR 1B and CRPR 2 species. The potential impacts to CRPR 3 and CRPR 4 plants are less than significant and are not included in Measure BIO-4. The likelihood of the Project resulting in a substantial adverse impact on CRPR 3 and CRPR 4 species, either directly or through habitat modifications, or changing the diversity of species or number of species, to a point where their populations would be reduced or pushed towards extinction is considered extremely low.

### **5.3.2.3 Riparian, Wetland, and Other Sensitive Aquatic Communities**

OSV Program activities could result in both direct and indirect impacts to aquatic communities. Physical disturbance caused by equipment operating near or in wetlands, streams, rivers, or lakes could directly damage riparian vegetation and stream banks and impact aquatic wildlife. These would be considered significant impacts, and such impacts could occur even with snow and ice cover.

Groomed trails occur over existing roads or OHV trails, and the water crossings are on constructed bridges or are protected by snowpack. Grooming equipment is operated exclusively on roads and trails with a minimum of 12 to 18 inches of snowpack, and snowmobilers typically avoid running the equipment in exposed aquatic habitat (when it is most vulnerable to impacts) because of possible vehicle damage. Off-trail riding in the Project Area can affect aquatic resources if riding takes place in low-snow conditions or by traveling through streams, wetlands, and riparian areas without using formal crossings. In wetland communities, snowmobile activities can result in frost penetrating more deeply thereby delaying the spring thaw (Stangl 1999). Herbs and shrubs in these areas may exhibit localized population declines, and wetland shrubs are highly susceptible to physical damage (Stangl 1999).

If one snowmobile rider crosses a wetland or riparian area during low-snow conditions, it would not likely result in a substantial adverse impact. If however, this occurs repeatedly in the same area, a substantial adverse impact is likely. Apart from Inyo National Forest, which specifically addresses these concerns in its forest policies, other OSV Program national forests do not regularly monitor these resources for OSV impacts. Although national forests have not indicated damage caused by OSV Program activities to aquatic resources, further monitoring and protective measures required under Mitigation Measure BIO-5 would ensure that aquatic resources are adequately protected. Measure BIO-5 protective measures include restricting access to aquatic communities where substantial impacts are observed through educational materials and signage, or, if necessary through the use of barriers or trail re-routes. The OHMVR Division shall revise the annual OSV monitoring checklist used by the USFS to include monitoring of riparian, wetland, and other sensitive aquatic habitats occurring near the groomed trail system.

Concentrations of pollutants from OSVs in snowmelt runoff and the effects they have on aquatic systems are not well understood (Arnold and Koel 2006). Studies show that OSV-related pollution in snowmelt is negligible and does not adversely affect water quality (see Hydrology, Section 6.0). Based on these studies, the OSV Program impact to water quality by VOCs from exhaust emissions is considered less than significant and therefore indirect impacts to aquatic systems related to snowmelt water quality from OSV use is also considered less than significant.

### **5.3.2.4 Wildlife Movement Corridors**

In addition to the direct physiological stress of snowmobiles, evidence suggests that roads and winter trails can fragment habitat and wildlife populations. Winter trails through surrounding

wilderness areas or other core areas create more “edge effect” (the negative influence of the periphery of a habitat on the interior conditions of a habitat) and thereby marginalize the vitality of some species (Baker and Bithmann 2005). The groomed trails occur on paved or dirt roads utilized year round for vehicle travel or summer OHV use; consequently, the edge effect of project trails exists year-round. In addition to the edge effect of groomed winter trails, off-trail riding or cutting trails through forested areas can further increase edge effects and fragmentation of habitat (Biodiversity Conservation Alliance 2002). Habitat fragmentation may result in smaller and more isolated wildlife populations more susceptible to the negative effects of inbreeding depression and random events. The groomed trail system funded by the OSV Program has been in existence for many years. OSV use is dispersed across the Project Area and throughout the 14-week snow season. The continuation of this funding as proposed by the Project would not change the extent of existing effects.

### 5.3.3 10-Year Program Growth, Year 2020

#### 5.3.3.1 Special-Status Species

**Expanded Trailhead Parking.** New plowing required to open the Four Trees trailhead at Bucks Lake (Plumas National Forest) would provide a new point of access to the existing groomed trail system at Bucks Lake recreation area. The Four Trees trailhead is an existing trailhead that is presently unplowed and therefore closed in winter. Plowing ten miles of the Oroville Quincy Highway to reach the existing Four Trees trailhead parking lot would not modify special-status species habitat or introduce new impacts to special-status species. Vehicle travel on the road already occurs during non-winter months. Keeping the road open in winter does not introduce new impacts to special-status species.

Development of an expanded parking area at the China Wall trailhead is planned by the Tahoe National Forest. Potential impacts of parking lot construction on special-status species would be subject to environmental review separate from the OSV Program (Project Description 2.7.1). Snow removal conducted on the expanded parking lot pavement under the OSV Program would not modify special-status species habitat or otherwise introduce new impacts to special-status species.

**Increased Grooming at Existing Trails.** Increasing the operating hours of plowing and grooming equipment at the existing trail sites under the 10-year program growth conditions (Project Description, Section 2.7) would not significantly affect special-status species. As described in Section 5.3.2 above, special-status wildlife and plant species are not affected by existing plowing and grooming operations. Increasing the frequency of these operations would not introduce new impact to special-status species.

**New Trail Systems.** The OHMVR Division has identified three trail sites for potential future inclusion in the OSV Program; however, no immediate plans have been made to establish OSV Program trail systems at these sites (Project Description, Section 2.7.1). Plowing and trail grooming activities at these three sites would not likely have a substantial adverse impact on special status species. Both activities would occur on an established road or OHV trail network and would not modify habitat. Grooming at new trail sites is unlikely to disturb special-status wildlife given the nature of the grooming operation as described in Section 5.3.5.1 above.

OSV use has the potential to disrupt special-status wildlife and plants dependent upon the species present at the potential new trail site and the proximity of OSV use to these species. OSV use

already occurs without groomed trails at Lake Davis (Plumas National Forest) and Bass Lake (Sierra National Forest). OSV use does not presently occur on the ungroomed portion of State Route 4 (Humboldt-Toiyabe National Forest) due to lack of access. Establishing a new groomed trail system at Lake Davis, State Route 4, and Bass Lake would likely increase OSV use at these locations and could result in biological impacts. Mitigation measures required for the biological impacts of the existing OSV Program trail systems (Section 5.4) would also reduce the impacts of increased OSV use at new trail system locations to a less than significant level. The increase in OSV activity at these new locations would be required to maintain consistency with LRMP S&Gs and other management prescriptions governing biological resources. Species affected would be similar to those affected by current OSV activities on Plumas, Sierra, and Stanislaus National Forests.

As discussed in the Introduction (Section 1.2), site-specific impacts of developing new trail systems would be subject to environmental review under CEQA as a separate project.

**Growth in OSV Recreation.** As described in Project Description, Section 2.7.2.1, OSV ownership in California has increased an average of 4% annually from 1997 to 2009. A continuation of this growth rate over the 10-year program period could result in a 48% increase of snowmobiles using the Project Area trails by the year 2020. The increase places more OSVs on project trails and open riding areas in and adjacent to wildlife habitat. Based on the impact analysis presented in Sections 5.3.2 and mitigation measures prescribed in Section 5.4, there are no significant effects of the OSV Program on biological resources identified that cannot be maintained at less than significant levels over the 10-year program period. The growth in OSV use expected over the program period would intensify OSV use in the Project Area but not create new impacts to special-status species that have not already occurred. For example, a trail that currently gets 50 OSVs a day would get 75 OSVs by 2020. The increased OSV use would be dispersed throughout the Project Area and throughout the approximately 14-week snow season. Therefore, the effect of increased OSV use on biological resources over the 10-year program period is not considered significant.

**Snowmobile Technology.** Advancements in snowmobile technology are expected to continue. Most scientific studies looking at snowmobile effects on wildlife populations were conducted many years ago when snowmobile technology was in its infancy and available speeds were much lower than the high speeds that the current snowmobile models can attain. This advancement in technology could enable an increase of OSV traffic into previously inaccessible backcountry and wildlands possibly affecting individual animals/or populations. However, national forests participating in the OSV Program report that the incidents of trespass into wilderness areas are few (Land Use Plans and Policies, Section 3.3.4). With existing management plans and the addition of Mitigation Measures BIO-1 through BIO-5, technological advances are not expected to result in increased substantial adverse effects upon special-status species over the next 10 years.

#### 5.3.3.2 Riparian, Wetland, and Other Sensitive Aquatic Communities

**Increased Plowing and Grooming at Existing Trails.** Plowing operations occur on paved road surfaces. Increased plowing frequency on the project access roads would not affect riparian, wetland, or other sensitive aquatic communities. Trail grooming is conducted over an established road network on a minimum snow base of 12 inches. As described in Sections 5.3.3 no riparian, wetland, or aquatic communities are affected by trail grooming. Increased grooming frequency

on the existing trail system would not affect riparian, wetland, or other sensitive aquatic communities.

**New Trail Systems.** As discussed in the Introduction (Section 1.2), site-specific impacts of developing new trail sites would be subject to environmental review under CEQA as a separate project. Any new proposed project would be required to site recreational facilities including new trail systems away from riparian, wetland, and other sensitive aquatic communities by LRMP S&Gs and other management prescriptions governing biological resources. OSV Program participating national forests would continue to use annual monitoring checklists to address biological resource impacts. Mitigation Measure BIO-5 requires corrective actions if substantial adverse impacts are observed during this annual monitoring. Mitigation includes, but is not limited to, restricting access to aquatic communities through educational materials and signage, or, if resource damage consistently shows damage, then through the use of barriers or trail closures or re-routes.

**Growth in OSV Recreation.** Growth in OSV recreation would increase intensity of use near sensitive aquatic communities and potentially contribute to an increase in impacts to resources. To assure that impacts do not reach significant levels, OSV Program participating national forests would continue to use annual monitoring checklists to address biological resource impacts. Mitigation Measure BIO-5 requires corrective actions if substantial adverse impacts are observed during this annual monitoring. Mitigation includes, but is not limited to, restricting access to aquatic communities through educational materials and signage, or, if resource damage consistently shows damage, then through the use of barriers or trail re-routes.

Advancements in snowmobile technology enable OSV users access to previously undisturbed winter areas. To ensure that impacts do not reach significant levels, OSV Program participating national forests would continue to use annual monitoring checklists to address biological resource impacts. Mitigation Measure BIO-5 requires corrective actions if substantial adverse impacts are observed during this annual monitoring. Mitigation includes, but is not limited to, restricting access to aquatic communities through educational materials and signage, or, if resource damage consistently shows damage, then through the use of barriers or trail closures or re-routes.

### 5.3.3.3 Wildlife Movement Corridors

**Increased Plowing and Grooming at Existing Trails.** OSV Program groomed trails occur on paved or dirt roads utilized year round for vehicle travel or summer OHV use; consequently, an increase in plowing and grooming at existing trails would not significantly impact wildlife corridors above existing levels.

**New Trail Systems.** Any proposed groomed trails would occur on paved or dirt roads utilized for summer vehicle use. These roads already impact wildlife movement year-round. As discussed in the Introduction (Section 1.2), site-specific impacts of developing new trail sites would be subject to environmental review under CEQA as a separate project. If, during review, proposed trails were to significantly impact wildlife movement, alternate trails would be examined at that time.

**Growth in OSV Recreation.** The projected anticipated increase in riders over the next ten years would not significantly increase the amount of off-trail riding above current levels. The increased

OSV use would be dispersed throughout the Project Area and throughout the 14-week snow season.

Advancements in snowmobile technology enable OSV users access to previously undisturbed winter areas. This activity could impact wildlife movement corridors; however, with the dispersed nature of this activity, advancements in snowmobile technology are not likely to have a substantial adverse impact. As discussed in the Introduction (Section 1.2), site-specific impacts of developing new trail sites would be subject to environmental review under CEQA as a separate project.

#### **5.3.4 Cumulative Impacts**

In addition to the OSV Program, ongoing activities occur in national forests throughout the year possibly affecting the same biological resources occurring in the Project Area. A list of specific projects planned or proposed is presented in Appendix G. These activities can all influence wildlife populations by introducing more recreationists into the natural landscape and/or fragmenting wildlife habitat. Presumably, state and national wildlife management agencies would attempt to minimize significant population declines.

Noxious weed growth is a problem throughout California and limits foraging opportunities for big game; this is especially important during the winter as energy expenditures increase in searching for forage. The federal, state, and county agencies have active noxious weed control programs that attempt to prevent further spread of these plants, limiting their effect on most animal species.

Timber harvest, grazing, mining, fires, and fuels reduction projects will continue to occur on federal lands and other lands outside forest boundaries although not all of these activities occur in winter. These actions have variable effects on animal species, sometimes stimulating the growth of their preferred forage and sometimes limiting it. Timber harvest on forest lands is an ongoing activity in places, although more and more of it entails fuels reduction efforts with only small-diameter timber being taken. Grazing can be expected to continue similar to current levels on USFS lands. Mining is more difficult to predict, but would have to undergo NEPA review. Both grazing and mining can significantly affect wildlife species.

Wheeled OHV use occurs on national forest lands year round. The USFS in California is currently working through the Travel Management process, the first step in developing a Travel Management Rule. This effort is the beginning of an ongoing process to provide a sustainable system of roads, trails, and areas for public motor vehicle use on national forest lands, and the end of unmanaged cross-country (off-trail) motor vehicle travel. Unmanaged motor vehicle use has resulted in unplanned roads and trails, erosion, and watershed and habitat degradation. Since 2003, national forests in California have been working to identify existing routes and areas, and to develop changes to motor vehicle use by the public of the existing National Forest Transportation System.

Each national forest within the Project Area is responsible for managing activities occurring within its boundaries in a manner that protects biological resources as prescribed by the LRMP (see Land Use Plans and Policies, Section 3.0). USFS management of the national forests, in compliance with its LRMP policies, mitigates the cumulative effect of activities on biological resources within the national forests. The OSV Program facilitates OSV use, which is a managed



use within the national forests. The cumulative effect of the OSV Program, along with other activities occurring within the national forests, is actively managed by implementation of LRMP policies, and therefore the cumulative effect on biological resources is considered less than significant.

## 5.4 MITIGATION MEASURES

The following mitigation measures would reduce significant impacts to biological resources to a less-than-significant level.

**IMPACT:** *Northern spotted owls and northern goshawks occur within or near the Project Area. USFS actively monitors nesting habits and fledgling success. Management actions are currently in place that reduce the potential effects of OSV recreation on northern goshawks and northern spotted owls to a less than significant level. The USFS employs adaptive management. Thus, based upon the results of the Regional Northern Goshawk Focused Study and the Northern Spotted Owl Focused Study, biologists may revise the USFS Management Actions.*

**Measure BIO-1:** USFS shall incorporate the results of the northern goshawk and northern spotted owl studies into management actions and report these actions to the OHMVR Division for incorporation into the OSV Program as soon as revised USFS management actions are formulated.

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Implementation of updated management actions would ensure the effects of OSV operations and recreation on northern goshawk and northern spotted owl remain less than significant.

**Feasibility:** Feasible

**Monitoring:** USFS shall maintain a log of monitoring efforts and any management actions taken to protect northern goshawk and northern spotted owl. This log shall be submitted to OHMVR Division for review each summer prior to contract approval for OSV Program operations for the following winter season.

**IMPACT:** *California wolverine is not known to be present near OSV sites. If present, disturbance caused by OSV activities may adversely affect California wolverine natal denning behaviors.*

**Measure BIO-2:** USFS shall continue to work with the Pacific Southwest Research Station and other partners to monitor for presence of California wolverine. If there are verified wolverine sightings, USFS shall conduct an analysis to determine if OSV use within 5 miles of the detection have a potential to affect wolverine and, if necessary, a LOP from January 1 to June 30 will be implemented to avoid adverse impacts to potential breeding.

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Implementation would prevent significant impacts to California wolverine from OSV operations.

**Feasibility:** Feasible; required by SNFPA S&G #32.

**Monitoring:** USFS shall maintain a log of monitoring efforts and any management actions taken to protect California wolverine from OSV use impacts. This log shall be

submitted to OHMVR Division for review each summer prior to contract approval for OSV Program operations for the following winter season.

**IMPACT:** *Disturbance caused by OSV activities may adversely affect Sierra Nevada red fox breeding behaviors, home range use, and/or establish trailhead scavenging and begging behaviors.*

**Measure BIO-3:** Educational materials shall be provided on red fox and the importance of minimizing direct contact with red foxes at each trailhead. USFS shall provide the results of Sierra Nevada red fox inventory and monitoring currently being performed by wildlife biologists from the Forest Service, CDFG, and the University of California, Davis, to the OHMVR Division.

USFS shall work with CDFG, the University of California, Davis, OHMVR, and other partners to continue inventory and monitoring in the Sierra Nevada, including the Project Area where the red fox is most likely to occur (e.g., Lassen, Plumas, Tahoe, Eldorado, Stanislaus, Sierra, Inyo, and Sequoia National Forests). For those portions of the Project Area where presence is confirmed, USFS shall conduct an analysis to determine if OSV use within 5 miles of the detection have a potential to affect Sierra Nevada red fox and, if necessary, a LOP from January 1 to June 30 will be implemented to avoid adverse impacts to potential breeding. The USFS will evaluate activities for a 2-year period for detections not associated with a den site. In addition, if monitoring or other scientific information shows disturbance of Sierra Nevada red fox behaviors within the Project Area, the USFS shall implement suitable management actions to reduce any adverse impacts to a less than significant level. These management actions may include signage, barriers, LOPs, limits on night riding, trail closures, or reroutes of selected portions of OSV trails.

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Implementation of inventory and management actions would prevent significant impacts to Sierra Nevada red fox populations from OSV operations.

**Feasibility:** Feasible; required by SNFPA S&G #32.

**Monitoring:** USFS shall provide an inventory report and maintain a log of monitoring efforts and any management actions taken to protect Sierra Nevada red fox. This log shall be submitted to OHMVR Division for review each summer prior to contract approval for OSV Program operations for the following winter season.

**IMPACT:** *OSV off-trail riding in low snow conditions could adversely impact individuals and/or populations of CRPR-listed 1B and 2 plant species and FSS plant species.*

**Measure BIO-4:** The USFS will do one of the following:

(1) Only permit OSV use on the groomed trail system and adjacent concentrated-use riding areas when there is sufficient snow cover (minimum snow depth of 12 inches) to protect soil and vegetation;

(2) Inventory the groomed trail system and adjacent concentrated-use riding areas for all CRPR 1B, CRPR 2, and FSS plant species not already monitored by USFS (Table 5-6) for OSV impacts. Surveys shall focus on locations that are chronically exposed to OSV use and where

plants listed in Table 5-6 have a potential for occurrence and exposure to OSV impacts. The USFS shall conduct public outreach with educational materials until resource surveys are complete. Educational materials shall include information that discourages OSV travel over bare ground, exposed vegetation, and snow less than 12 inches deep, including a description of the special-status plant species potentially affected and the adverse effects on those species. The species previously assessed and not included in this Mitigation Measure include Kern Plateau milk-vetch, Hall's daisy, Kern River daisy, and Kern Plateau horkelia, Mono milk-vetch, Mono Lake lupine, slender Orcutt grass, Barron's buckwheat, and Columbia yellow cress. Follow-up monitoring shall be conducted for those species where presence is confirmed to ensure any protective measures needed to address OSV impacts are identified, implemented, and effective. Protective measures that shall be implemented when needed to avoid damage to special-status plants from OSVs include trail reroutes, barriers, seasonal closures, signage, and/or public education; or

(3) Annually monitor the groomed trail system and adjacent concentrated-use riding areas where plants listed in Table 5-6 have a potential for occurrence. Monitoring shall focus on locations that are chronically exposed to OSV use and where plants listed in Table 5-6 have a potential for occurrence and exposure to OSV impacts. If this monitoring reveals impacts, USFS shall implement protective measures (e.g., temporary fencing, barriers, seasonal closures, signage, trail re-routes, public education, etc.) to restrict access and prevent further damage to these plants and engage in public education. Follow-up monitoring shall be conducted to ensure that protective measures are implemented and effective.

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Completion of inventories and implementation of protective measures would minimize significant impacts on special-status plant species from OSV operations.

**Feasibility:** Feasible

**Monitoring:** USFS shall maintain a log of protective measures taken. This log shall be submitted to OHMVR Division for review each summer prior to contract approval for OSV Program operations for the following winter season.

**IMPACT:** *Chronic disturbance caused by OSVs riding during low-snow conditions over wetlands, riparian areas, streams, and lake ice can adversely affect aquatic communities.*

**Measure BIO-5:** USFS shall annually monitor aquatic resources in the Project Area near the groomed trail system for damage by OSV use during low-snow conditions. If these assessments reveal impacts, USFS shall implement protective measures (e.g., fencing, signage, trail reroutes, etc.) to restrict access and prevent further resource damage and engage in public education.

**Implementation:** By OHMVR Division and USFS

**Effectiveness:** Would prevent significant impacts to aquatic communities from OSV operations.

**Feasibility:** Feasible; requires increased resource monitoring efforts by USFS.

**Monitoring:** OHMVR Division shall modify the OSV Program Checklist used by national forests (Appendix C) to include monitoring for damage to aquatic resources. USFS shall maintain a monitoring log along with results, any protective measures taken, and success rate. This log shall be submitted to the OHMVR



Division for review each summer prior to contract approval for OSV Program operations for the following winter season.

## 6.0 HYDROLOGY AND WATER QUALITY

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This chapter describes the hydrologic resources in the Project Area and the potential impacts of project equipment operations and OSV use on water quality.

### 6.1 REGULATORY SETTING

#### 6.1.1 Federal Clean Water Act

The federal Clean Water Act (CWA) establishes as federal policy the control of point and nonpoint source pollution and assigns to the states the primary responsibility for control of water pollution. The objective of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” Compliance with the CWA by national forests in California is achieved under state law. The CWA requires each state to adopt water quality standards by designating beneficial uses of water to be protected and adopting water quality criteria that protect those beneficial uses. In California, the beneficial uses and water quality objectives are the State’s water quality standards.

Sections 208 and 319 of the CWA address nonpoint source pollution and require water quality management plans for nonpoint sources of pollution. The USFS in the Pacific Southwest Region (Region 5) has worked with the California water quality agencies to meet CWA requirements. The greatest emphasis in this coordination has been on the management and control of nonpoint sources of water pollution, with sediment, water temperature, and nutrient levels of most concern. The State Water Resources Control Board (SWRCB) and Regional Water Quality Control Boards (RWQCBs) entered into agreements with the USFS to control nonpoint source discharges by implementing BMPs. These BMPs, which are set forth in the USFS Pacific Southwest Region guidance document, Water Quality Management for Forest System Lands in California, Best Management Practices (2000), constitute a portion of the State’s Nonpoint Source Management Plan and comply with the requirements of Sections 208 and 319 of the CWA. The agreements include BMPs related to OHV use, and to road construction and maintenance. The implementation and effectiveness of the BMPs are reviewed annually. In recent years, the USFS has emphasized monitoring in national forests to ensure the implemented projects follow approved control measures (USFS 2000, 2004b).

##### 6.1.1.1 U. S. Forest Service

Through the execution of a formal Management Agency Agreement with the USFS in 1981, the SWRCB designated the USFS as the Water Quality Management Agency for USFS lands in California. The USFS water quality BMPs (USFS 2000) represent a portion of the State of California's Nonpoint Source Management Plan. The USFS BMPs are in conformance with the provisions and requirements of the federal CWA and within the guidelines of the Basin Plans developed for the nine RWQCBs in California. The USFS BMPs address eight categories: 1) timber management, 2) road and building site construction, 3) mining, 4) recreation, 5) vegetation manipulation, 6) fire suppression and fuel management, 7) watershed management, and 8) range management.

These BMPs do not directly apply to project activities associated with the OSV Program, which is primarily snow grooming on USFS land and snow removal on forest roads and at trailhead

parking areas. Of these categories, the most relevant BMPs to the OSV Program pertain to recreation and roads and include the following:

**BMP 2-25: Snow Removal Controls to Avoid Resource Damage**

a. Objective: To minimize the impact of snowmelt runoff on road surfaces and embankments and to consequently reduce the probability of sediment production resulting from snow removal operations.

b. Explanation: This is a preventative measure used to protect resources and indirectly to protect water quality. Forest roads are sometimes used throughout winter for a variety of reasons. For such roads the following measures are employed to meet the objectives of this practice.

1. The contractor will be responsible for snow removal in a manner which will protect roads and adjacent resources.
2. Rocking or other special surfacing and drainage measures will be necessary before the operator is allowed to use the roads.
3. Snow berms will be removed where they result in an accumulation or concentration of snowmelt runoff on the road and erosive fill slopes.
4. Snow berms will be installed where such placement will preclude concentration of snowmelt runoff and serve to rapidly dissipate melt water. If the road surface is damaged during snow removal, the purchaser or contractor will be required to replace lost surface material with similar quality of material and repair structures damaged in snow removal operations as soon as practical unless otherwise agreed to in writing.

c. Implementation: Project location and detailed mitigation will be developed by the IDT during environmental analysis and incorporate into the project plan and/or contracts. Project crew leaders and supervisors will be responsible for implementing force account projects to construction specifications and project criteria.

**BMP 4-7: Water Quality Monitoring of OHV Use According to a Developed Plan**

a. Objective: To provide a systematic process to determine when and to what extent OHV use will cause or is causing adverse effects on water quality.

b. Explanation: Each Forest's OHV Plan [Travel Management Plan and LRMP] will:

1. Identify areas or routes where OHV use could cause degradation of water quality
2. Establish baseline water quality data for normal conditions as a basis from which to measure change.
3. Identify water quality standards and the amount of change acceptable.
4. Establish monitoring measures and frequency.
5. Identify controls and mitigation appropriate in management of OHVs.
6. Restrict OHVs to designated routes.

c. Implementation: Monitoring results are evaluated against the OHV plan objectives for water quality and the LRMP objectives for the area. These results are documented along with actions necessary to correct identified problems.

If considerable adverse effects are occurring, or are likely to occur, immediate corrective action will be taken. Corrective actions may include, but are not limited to, reduction in the amount of OHV use, signing, or barriers to redistribute use, partial closure of areas, rotation of use on areas, closure to causative vehicle type(s), total closure, and structural solutions such as culverts and bridges.

BMP 2-25 and 4-7 are currently in effect. However, the SWRCB is in the process of drafting new BMPs specifically for OHV use on USFS land, which will be in effect to control non-point source pollution in compliance with the federal CWA. It is expected that the new draft BMPs will be released for public review and comment by the end of November 2010. Once adopted, the USFS will be responsible for implementing the new BMPs to ensure that OHV and OSV activities within the national forests are compliant with the CWA (John Stewart and Amy Granat, pers. comm., September 29, 2010)..

#### **6.1.1.2 California Department of Transportation (Caltrans)**

Caltrans removes snow on several OSV Program trailheads under contract to Lassen and Sequoia National Forests and Sierra County (Table 2-6). Trailhead parking areas and access roads are nonpoint sources of pollutants managed through Basin Plans and are subject to state water quality requirements of the CWA.

Motorist safety frequently necessitates the use of deicers and abrasives to assist in providing a more negotiable travel way and prevent major slowing of traffic flows within the snow removal areas. The primary anti-icer/deicer currently used is salt and the primary abrasive is sand. Caltrans considers alternative products in an effort to reduce the use of salt and abrasives while still providing a comparable level of safety and service.

Caltrans implements BMPs to minimize water quality effects of its snow removal operations on state-highways. For example, District 3 implements the following management practices as specified in its Caltrans Snow Removal Operations Plan (2009):

##### Phase VI, Post Storm Clean-up and Deactivation

2. Abrasives used during the storm should be retrieved and/or cleaned up in accordance with Best Management Practices (BMP) for Storm Water Guidelines. Maintenance areas in the Tahoe Basin need to perform this activity as quickly as conditions allow after a storm.
3. The snow storage areas along the shoulders and medians of routes should be reestablished if necessary.

Additionally the Caltrans Snow Removal Operations Plan instructs that the use of deicers and abrasives should always be used prudently and judiciously and not distributed unnecessarily. In an effort to control abrasive run off due to storm water flow, straw bales and storm wattles should be placed around abrasive stock piles locations per BMP storm water requirements in an effort to control abrasive run off due to storm water flow.

#### **6.1.1.3 County Public Works**

The OSV Program funds snow removal operations by several counties or their contractors (Table 2-6) on county roads. Each county road department manages its own snow removal operations in

accordance. For example, Plumas County road maintenance crews clear culvert openings during the thaw period to facilitate snow melt drainage into the designated areas. Culvert outlets are positioned to minimize erosion and sedimentation. Sierra County has informal snow management practices developed over many years that is handed down from operator to operator without formal adoption of BMPs.

### **6.1.2 Sierra Nevada Forest Plan Amendment**

The 2001 Sierra Nevada Framework established for the first time a comprehensive aquatic and riparian conservation strategy for all of the national forest lands in the Sierra Nevada. The Sierra Nevada Framework applies to all of the Project Area national forests except for Klamath and Shasta-Trinity National Forests. Key components of this strategy include riparian buffer zones, critical refuges for threatened and endangered aquatic species, special management for large meadows, and a watershed analysis process. The Framework includes S&Gs in national forests for construction and relocation of roads and trails and for management of riparian conservation areas. These S&Gs require the USFS to avoid road construction, reconstruction, and relocation in meadows and wetlands; maintain and restore the hydrologic connectivity of streams, meadows, and wetlands by identifying roads and trails that intercept, divert, or disrupt flows paths and implementing corrective actions; and determine if stream characteristics are within the range of natural variability prior to taking actions that could adversely affect streams.

The Framework's S&Gs for riparian conservation areas are intended to minimize the risk of activity-related sediment entering aquatic systems. The Framework established riparian conservation area widths for all Sierra Nevada forests: 300 feet on each side of perennial streams; 150 feet on each side of intermittent and ephemeral streams; and 300 feet from lakes, meadows, bogs, fens, wetlands, vernal pools, and springs (Forest Issues Group 2009).

### **6.1.3 National Forest Land and Resource Management Plans**

The LRMPs of each of the national forests include management direction related to water resources. The LRMP forest-wide S&Gs and management prescriptions are discussed in Land Use Plans and Policies (Section 3.0). These policies are listed in Appendix D, Tables 1 and 2.

### **6.1.4 The Porter-Cologne Water Quality Act**

Water quality in California is governed by the Porter-Cologne Water Quality Control Act (Porter-Cologne; Calif. Water Code sections 13000 et seq.), which establishes the regulatory authority of the state over activities and factors that may affect the quality of the waters of the state. This law assigns overall responsibility for water rights and water quality protection to the SWRCB and directs the nine statewide RWQCBs to develop and enforce water quality standards within their boundaries.

The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. Each RWQCB is charged with developing, adopting, and implementing a Water Quality Control Plan (Basin Plan) for each region. Basin Plans are mandated by both the federal CWA and the Porter-Cologne Water Quality Act. Basin Plans are adopted for each of the nine water quality regions. The Basin Plans, which apply to waters on the national forests, contain the water quality standards that are the basis for the RWQCBs' regulatory programs. The water quality standards consist of designated beneficial uses (e.g., wildlife habitat, recreation, groundwater recharge, etc.) for individual surface water bodies and groundwater, as well as the

narrative and numerical water quality objectives which must be maintained or attained to protect those beneficial uses. The Basin Plans also contain waste discharge prohibitions and other implementation measures to achieve water quality objectives. Water quality control measures include Total Maximum Daily Loads required by the federal CWA.

Under Porter-Cologne, RWQCBs regulate the discharge of waste to "waters of the state." All parties proposing to discharge waste that could affect waters of the state must file a report of waste discharge (RWD) with the appropriate RWQCB. The RWQCB will then respond to the report of waste discharge by issuing waste discharge requirements (WDRs) in a public hearing or by waiving WDRs (with or without conditions) for that proposed discharge. Porter-Cologne allows a water board to waive RWD requirements and subsequent issuance of WDRs for specific types of discharges, when those discharges comply with any applicable water quality control plan and are in the public interest. When final, the new BMPs discussed above that specifically address OHV use are anticipated to support a waiver from RWD requirements for a broad range of activities on USFS lands, including recreational activities likely to have water quality impacts.

## **6.2 ENVIRONMENTAL SETTING**

### **6.2.1 Regional Hydrology**

#### **6.2.1.1 Southern Cascade Range**

The Cascade Mountain Range (Cascades) extends from British Columbia south through Washington and Oregon to northern California, mostly consisting of a series of volcanoes. In the southern portion of the Cascades occurring in California, the volcanic peaks include Mount Shasta, Medicine Lake Volcano, and Lassen Peak. Mount Shasta dominates with a peak elevation over 14,000 feet, while Lassen Peak at the southern limit of the range reaches an elevation of 10,000 feet. The western slope of the southern Cascades north of Lake Shasta drains toward the Klamath and Shasta Rivers to Lake Shasta. South of Lake Shasta, the western slope of the Cascades drains toward the Sacramento River and through the Central Valley. The eastern slope of the Cascades drains toward numerous lakes, ponds, and reservoirs on the Modoc Plateau – a volcanic tableland (elevated platform of volcanic deposits) with elevations ranging from 3,000 to 9,900 feet. The Pit River drains the northern half of the Modoc Plateau in a southwesterly direction from the Warner Mountains in the northeast corner of the state through the Cascades to Lake Shasta.

The Cascades receive 20 to 80 inches of precipitation annually with most of it occurring as snow. Summers see very little precipitation, and ambient air temperatures frequently exceed 100 degrees Fahrenheit. Water flows are particularly vulnerable to drought conditions, premature snow melting, heat waves, or high ambient temperatures (USDI 2004).

#### **6.2.1.2 Sierra Nevada**

The Sierra Nevada extends 400 miles along eastern California, bounded on the west by the Central Valley (comprised of the Sacramento Valley and San Joaquin Valley) and on the east by the Great Basin. The northern Sierra Nevada is characterized by rolling uplands, mostly less than 9,000 feet in elevation, while the high peaks of the central and southern Sierra reach elevations of over 14,000 feet. The high Sierra contains more than 4,000 lakes and a myriad of springs, seeps, and wetlands occur throughout the range. On the west side of the Sierra Nevada, waters from the northern half of the range drain to the Sacramento River and flow south through the Sacramento Valley, and waters from the southern half of the range flow to the San Joaquin River

through the San Joaquin Valley. The Sacramento and San Joaquin Rivers both flow to the San Francisco Bay and the Pacific Ocean. The major watersheds along the west slope of the Sierra Nevada are defined by the Feather, Yuba, American, Cosumnes, Mokelumne, Stanislaus, Tuolumne, Merced, San Joaquin, Kings, Kaweah, and Kern Rivers. North of Yosemite National Park, the eastern slope of the Sierra Nevada drains toward the Great Basin in Nevada. The Truckee, Carson, and Walker Rivers are the major rivers flowing east from the Sierra Nevada toward the Great Basin. Waters on the eastside of the Sierra Nevada crest from Yosemite southward flow in a southern direction to the Mono Lake Basin and through the Owens Valley in the Owens River toward the Mojave Desert.

The Sierra Nevada climate is dominated by a pattern of cool wet winters followed by a long dry period in spring, summer, and fall. Approximately 50 percent of the annual precipitation occurs in winter, 33 percent in fall, 15 percent in spring, and only two percent in summer. The Pacific Ocean is the primary influence on storm tracks. Winter storms are moisture laden and release heavy precipitation on the west slope. Snow covers the landscape down to approximately 6,000 feet. Winter storms are generally more frequent north of Lake Tahoe, whereas the southern Sierra receives summer moisture as a result of monsoonal activity originating in the interior Southwest and Gulf regions. Precipitation increases with elevation. The Sierra Nevada summit wrings water from winter storms and summer convection systems, leaving the eastern slopes much drier. Soils generally have high infiltration rates, and precipitation is usually absorbed into the soil (USFS 2004b).

## **6.2.2 Project Area**

### **6.2.2.1 Hydrology**

OSV Program trail sites in the Klamath, Modoc, Shasta-Trinity, and Lassen National Forests are located in the southern Cascades with the majority occurring on the east side of the crest (Table 6-1). OSV Program project sites in the Plumas, Tahoe, Eldorado, Stanislaus Inyo, Sierra, and Sequoia National Forests are located in the Sierra Nevada. Of the 25 OSV Program trailheads in the Sierra Nevada, six are located on the east side of the Sierra Nevada crest (Table 6-1). These include Gold Lake on Plumas National Forest, Little Truckee Summit and Bassetts on the Tahoe National Forest, Mammoth Lakes on the Inyo National Forest and the two Kern Plateau trailheads on the Sequoia National Forest. Portions of the trails accessed from Quaking Aspen and Sugarloaf trailheads run along the Sierra Nevada crest known as the Western Divide.

There are many streams, lakes and reservoirs within the Project Area. Many water bodies are directly accessed or crossed by the Project trails and many more can be accessed by off-trail cross-country riding. Major water bodies identified by each individual national forest as accessible by OSV are presented in Table 6-1. Inyo National Forest notes that many of its water bodies can only be accessed during limited periods due to inconsistent snowpack. Tahoe National Forest notes that many high altitude lakes such as those near or above 7,000 feet in elevation are frozen over in the winter.

The hydrology of the Project Area is dynamic and evolving. There can be significant annual variations in water availability and quality, seasonal flow rates, and water temperatures. Precipitation and snow accumulation also change over time as a result of climate change. Modern human activities have altered the natural dynamics of water through the construction of dams and diversions, watershed practices that alter water yields, temperature, and sedimentation, and the introduction of pollutants and exotic biota. Forestry practices and fire suppression have

also influenced erosion and flooding. Limited localized winter and early spring flooding in portions of the Project Area can result from rapid and concentrated snowmelt, rain-on-snow events, severe summer thunderstorms, or the displacement of lake water by snow avalanches or landslides.

### 6.2.2.2 Water Quality

Located in high elevations of the Cascades and Sierra Nevada, the project activities occur on snowpacks forming the headwaters of many watersheds. These elevations generally produce surface water of excellent quality. Contaminant levels in most waters meet State standards and the fishable and swimmable objectives of the federal CWA. Most pollutants come from nonpoint sources, such as erosion from roads and parking areas. Sediment at levels above natural rates of erosion is the most common nonpoint source pollutant in forested ecosystems (USFS 2001).

The Project Area separates into three water quality management regions regulated by the RWQCBs: North Coast Region (Region 1), Central Valley Region (Region 5), and Lahontan Region (Region 6).

**North Coast Region.** The North Coast Region encompasses the Klamath River and North Coastal Basins covering the high broad valleys in the north central part of the state, as well as the Klamath and Coast Ranges. The three trail systems on the Klamath and Modoc National Forests are located within the North Coast Region. The water quality within the North Coast region generally meets or exceeds the water quality objectives set forth in the Basin Plan, although there are some localized problems (North Coast RWQCB 2007).

<b>Table 6-1. Major Water Bodies Accessible by OSV in the Project Area</b>	
<b>National Forest/ Trail System</b>	<b>Major Water Body</b>
<b>Cascade Mountain Range – East Side</b>	
Klamath/Deer Mountain and Four Corners	Orr Lake
Modoc/Doorknob	Medicine Lake
Shasta-Trinity/Pilgrim Creek	Pumice Stone Well and Tamarack Lake
Lassen/Ashpan	North Battle Creek Reservoir
Lassen/Bogard	Crater Lake
Lassen/Fredonyer	McCoy Flat Reservoir and Hog Flat Reservoir. Both devoid of water in 2007, 2008, and 2009.
Lassen/Swain Mountain	Silver Lake, Caribou Lake, Echo Lake, Lake Almanor
<b>Cascade Mountain Range – West Side</b>	
Lassen/Morgan Summit	No lakes occur near trail system
Lassen/Jonesville	Lake Almanor
<b>Sierra Nevada – West Side</b>	
Plumas/Bucks Lake	Bucks Lake
Plumas/La Porte	Little Grass Valley Reservoir
Tahoe/China Wall	French Meadows
Eldorado/Silver Bear	Bear River Reservoir



<b>Table 6-1. Major Water Bodies Accessible by OSV in the Project Area</b>	
<b>National Forest/ Trail System</b>	<b>Major Water Body</b>
Stanislaus/Lake Alpine and Spicer Reservoir	Spicer Reservoir, Utica Reservoir, and Lake Alpine
Stanislaus/Highway 108	Donnell Lake and Relief Reservoir
Sierra/Huntington Lake/Kaiser Pass and Tamarack Ridge	Deer Lake, Edison Lake, Florence Lake, Huntington Lake, Strawberry Lake, Red Lake, and West Lake
Sequoia/Big Meadow/Quail Flat	Located in Sequoia National Monument. OSV use is limited to roads with bridges or culverts at stream crossings. No water bodies are accessible.
Sequoia/Quaking Aspen/Sugarloaf	Located in Sequoia National Monument. OSV use is limited to roads with bridges or culverts at stream crossings. Portion of trails east of Sugarloaf is outside of National Monument and has access to small creeks. No lakes occur within Project Area.
<b>Sierra Nevada – East Side</b>	
Plumas/Gold Lake	Gold Lake and numerous small lakes in Lakes Basin
Tahoe/Bassetts	Salmon Lake and Sardine Lake
Tahoe/Little Truckee Summit	Independence Lake, Weber Lake, Jackson Meadows Reservoir, Meadow Lake, White Rock Lake, Lake of the Woods, Little Truckee River, Stampede Reservoir, Prosser Reservoir, and Boca Reservoir.
Inyo/Mammoth Lakes	Ellery, Grant, June, Laurel, Mammoth, Silver, and Tioga Lakes Convict, Deadman, Glass, Laurel, Mammoth, McGee, Reverse, Sherwin, and Upper Owens Creeks
Sequoia/Kern Plateau	No lakes occur within Project Area.

Source: USFS 2009

Central Valley Region. The Central Valley Region extends from the Oregon border at the Warner Mountains to the southern end of the San Joaquin Valley, and from the crest of the Sierra Nevada west to the Coast Range and Klamath Range. It includes the watershed of the Pit River which drains the Modoc Plateau on the east side of the Cascades to Shasta Lake and the Sacramento River. The 19 project sites on the west side of the Sierra Nevada crest (Table 6-1) plus the one project site on the Shasta-Trinity National Forest in the Cascades are all located within the Central Valley Region. The Central Valley Region is divided into three basins: the Sacramento River Basin, the San Joaquin River Basin, and the Tulare Lake Basin. Major groundwater basins underlie the valley floors. Water quality in the mountain portions of the Sacramento and San Joaquin River Basins is affected by sedimentation and herbicide use from timber harvest activities. Water quality in the mountain streams of the Tulare Basin is generally excellent (California RWQCB Central Valley Region 2004 and 2007).

Lahontan Region. The Lahontan Region includes all areas draining east from the Cascades and Sierra Nevada toward the Great Basin as well as all land on the east side of the Sierra Nevada crest from the Mono Lake Basin to the Mojave Desert. The Lahontan Region contains 15 major watersheds. This region is mostly in the Sierra Nevada rain shadow and receives little precipitation. There are 13 project sites in the Lahontan Region: seven in the Cascades (Lassen National Forest) and six in the east side of the Sierra Nevada (Plumas, Tahoe, Inyo, and Sequoia National Forests) as shown in Table 6-1. The quality of most higher elevation waters derived

from snowmelt is generally very good or excellent, with some localized problems. Water quality problems in the Lahontan Region are largely related to erosion from construction, timber harvesting, and livestock grazing (California RWQCB Lahontan Region 2005).

## **6.3 PROJECT IMPACTS**

### **6.3.1 Thresholds of Significance**

According to Appendix G of the CEQA Guidelines, a project would normally be considered to have a significant adverse impact on the environment if it would:

- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river in a manner that would modify the capacity or hydraulics of the stream or result in substantial erosion or siltation, on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- Change the amount of surface water in any water body;
- Violate any water quality standards or waste discharge requirements;
- Affect surface water quality (contaminants including silt, urban runoff, nutrient enrichment, pesticides, etc.);
- Affect a private or public water supply that results in any change in water quality or available water quantity;
- Otherwise substantially degrade water quality;
- Place within a 100-year flood plain hazard area structures that would impede or redirect flood flows;
- Substantially deplete ground water supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Affect the quality of ground water supply, or alter the direction or rate of flow to ground waters; or
- Result in substantial soil erosion or loss of topsoil.

The Project would not involve the construction of any structures which could impede or redirect flood flows, nor any ground modifications which could change drainage patterns, impervious surfaces, soil permeability, or other hydrological characteristics such as surface water volumes. The Project would not expose people or property to a risk of flooding nor increase the risk of flooding for existing development in floodplains in the Project Area. The Project would not place housing or other structures within a flood hazard area. Therefore these issues are not further analyzed in this chapter.

The Project would not involve a change in water use, affect a private or public water supply, or affect the quantity or quality of groundwater recharge, aquifer volume or cause a lowering of the local groundwater table level. The Project would not involve an increase in impervious surfaces. Therefore, these issues are not further analyzed in this chapter.

The Project does not involve discharges of storm water or wastewater. Therefore these issues are not further analyzed in this chapter.

This chapter focuses on the project's potential to cause soil compaction or erosion, or to affect water quality.

### **6.3.2 Project Baseline, Year 2010**

#### **6.3.2.1 Soil Compaction and Erosion**

**Snow Removal and Passenger Vehicle Travel.** Snow removal and subsequent vehicle travel occur on paved surfaces and do not cause soil disturbance, alter existing drainage patterns, or affect soil permeability.

Snow removed from the trailheads and access roads is stored along road shoulders and trailheads in areas established by Caltrans (on state highways), county road departments (on county roads), or national forests (USFS lands). Snow removal on the access roads and trailhead parking areas has been occurring for decades. These agencies are responsible for ensuring that snowmelt from snow storage areas does not result in erosion or impair quality of surface waters, including by employing the BMP measures identified above in Section 6.1.1. The thaw rate in snow storage areas is typically slow, and snow is placed where the runoff percolates into the soil. High runoff rates are uncommon from snow storage areas. As a result erosion or siltation from snow storage runoff is minimal. With implementation of the BMPs, snow removal would not cause significant impacts from erosion. See Section 6.3.2.2 below for further discussion of potential water quality impacts from snow removal.

**Trail Grooming.** All trail grooming occurs on either paved roads or compacted dirt and gravel surfaced roads open to motorized travel and OHV use in non-winter months. Grooming equipment operates only when there is a minimum of 12 inches of snow cover (and in certain national forests, a minimum of 18 or 24 inches). Therefore trail grooming does not disturb the underlying soils and does not result in soil compaction or erosion impacts.

**OSV Use.** OSV use on groomed trails in low snow conditions creates minimal soil impacts. The groomed trails occur on paved, dirt, or gravel roads which are actively maintained in non-winter months by the national forest.

Erosion occurs as a direct result of complex interactions between site topography, soils, vegetation, and geology and external factors such as logging, grazing, wildfires, and other activities that disturb the forest floor and compact soil. Some researchers have found that snowmobiles can contribute to erosion of trails and steep slopes. As noted in Olliff et al. (1999), if steep slopes are intensively used, snow may be removed and the ground surface exposed to extreme weather conditions and increased erosion by continued snowmobile traffic. Similar results could occur when snowmobiles use exposed southern exposures. Because compacted snow generally takes longer to melt, trails may be wet and soft when the surrounding areas are dry, creating trails that are susceptible to damage by other users during the spring.

OSV use in off-trail open riding areas where there is minimal snow cover or bare patches of ground could potentially result in destruction of vegetation, soil compaction, and erosion in areas of repeated and concentrated use. Off-trail OSV use is generally dispersed and does not result in high concentration of OSV use on bare soil. Also, travel over bare soil can damage machines and

is therefore typically avoided by OSV users. As a result, soil compaction and erosion is not a commonly observed condition during USFS trail monitoring (USFS 2009c). A snowmobile and rider exert considerably less pressure on the bare ground than other recreational activities such as hiking as shown in Table 6-2. The pressure of the snowmobile's weight on soil is further reduced by an intervening blanket of snow, making compaction impacts less than significant.

Routes are monitored by USFS after winter snows melt and repairs are made as needed to stabilize the trail and any stream crossings, limit the amount of stream sedimentation, and prevent flow diversions or alterations of the stream channel. Drainage repairs include water bars, adding barriers to prevent entry into streams, and hardening the road surface to prevent erosion. These activities are a routine part of USFS trail maintenance activities. Since the Project does not alter landform and has minimal disturbance of bare soil, the erosion impacts of the project are less than significant.

<b>Object</b>	<b>Pounds of Pressure per square inch</b>
Four-Wheel Drive Vehicle	30
Horse	8
Man	5
All-Terrain Vehicle	1.5
Snowmobile	0.5
Note: All vehicle weights considered include 210 pounds estimated weight of one person and gear.	

Source: American Council of Snowmobile Associations 2010

### 6.3.2.2 Water Quality

**Snow Removal and Passenger Vehicle Travel.** The snow removal operations on paved access roads and trailhead parking areas would not result in direct impacts on water quality. Sand, or an equally environmentally neutral substance, may be used for traction in plowed areas. De-icers may be applied to access roads in accordance with Caltrans or county practices. Snow melt from snow storage areas could contain a more concentrated level of fuel deposits, oils, sand, and particulates. Snow is removed to designated storage areas where the snow melt can percolate into the soil and sheet flow across parking areas is avoided; direct discharge into surface water is avoided. As a result, the potential for water quality impacts associated with contaminants in the snow from vehicle use is considered less than significant. Snow removal operations are subject to county, state, or federal BMPs as described above in Section 6.1.1, which ensures compliance with federal CWA requirements.

Plowing equipment can deposit fuel oils on the road surfaces along with the vehicles using the roads and parking areas. Roads are a nonpoint source of water pollutants from vehicle use – primarily hydrocarbons. By plowing the roads and parking areas in the winter, the Project extends vehicle use of these areas to year round. The proportion of vehicle traffic and snow plowing which occurs on these roads during the approximately 14-week project period is small in comparison to the year round vehicle travel that occurs. The water quality contaminants associated with vehicle use on roads during the project period is considered less than significant.

**Trail Grooming and OSV Use.** In addition to exhaust emissions, grooming equipment and OSVs can leave behind unburned fuel, lubrication oil, and other compounds on the top layers of

snow, and these pollutants can eventually find their way into surface and groundwater. These pollutants can accumulate in snowpack and if present in sufficiently high concentrations, such pollutants could adversely affect surface water quality and aquatic ecosystems by changing pH, hydrogen, ammonium, calcium, sulphate, and nitrate levels, and by contributing harmful levels of VOCs (Arnold and Koel 2006).

Concentrations of pollutants from OSVs in snowmelt runoff and the effects they have on aquatic systems are not well understood (Arnold and Koel 2006). However, studies conducted in the Rocky Mountains region provide some indication of the potential effects of pollution deposition from OSV use. The U.S. Geological Survey monitored the snowpack throughout the northern Rocky Mountains over a period of several years to measure regional water quality trends as well as the effect of OSV use. The monitoring showed a relationship between OSV use and pollutant deposition in the snowpack, but not more than negligible to minor quantities of OSV-related pollution in snowmelt. Detectable vehicle-related pollution in snowmelt was found to be in the range of background or near-background levels (Ingersoll et al. 2005 as cited in NPS 2007).

A study in Yellowstone National Park analyzed snowmelt from four test locations adjacent to roadways and parking lots heavily used by OSVs between Yellowstone's West Entrance at West Yellowstone, Montana, and the Old Faithful visitor area. The purpose of the study was to evaluate whether increased snowmobile use within the Park was creating increased potential for emissions to enter pristine surface waters. Specific objectives were to 1) examine snowmelt runoff for the presence of specific VOCs, 2) determine if concentrations of any VOCs exceed safe drinking water criteria, and 3) predict the potential for impacts by VOCs on the fauna of streams near roads heavily used by snowmobiles in the park. In spring 2003 and 2004, water samples were collected and tested. In situ water quality measurements (temperature, dissolved oxygen, pH, specific conductance, and turbidity) were collected; all were found within acceptable limits. Five VOCs were detected (benzene, ethylbenzene, m- and p-xylene, o-xylene, and toluene). The concentrations were found below EPA criteria and guidelines for the VOCs analyzed and were below levels that would adversely impact aquatic ecosystems (Arnold and Koel 2006).

The number of snowmobiles that entered Yellowstone in 2003 and 2004 was 47,799 and 22,423 respectively (Arnold and Koel 2006). The estimated seasonal use of OSV Program trails in half of the national forests is less than 11,000 OSVs (see Project Description, Table 2-8). The other half has estimated seasonal OSV use levels between 17,000 and 41,000. These visitations are spread across multiple trailheads and trail systems and do not all occur in the same location. Given that OSV seasonal use levels at any project trailhead or trail system is considerably less than OSV use occurring at Yellowstone National Park and that the Yellowstone OSV use levels studied had not resulted in impaired water quality, it can be concluded that the OSV use in the Project Area from the OSV Program does not adversely affect water quality of snowmelt. The impact is therefore considered less than significant.

### **6.3.3 10-Year Program Growth, Year 2020**

#### **6.3.3.1 Soil Compaction and Erosion**

**Expanded Trailhead Parking.** New snow removal operations on the Oroville Quincy Highway and at the Four Trees and China Wall trailhead parking areas and the subsequent increase in passenger vehicle travel to the Project Area using the newly plowed access or parking areas would all occur on paved roads and would not result in soil compaction or erosion. The snow

that is removed from these areas would be stored along the trailheads in areas to be established by the county road departments, possibly in consultation with the national forests. As discussed in Section 6.3.2.1, snowmelt from snow storage areas does not result in significant erosion.

**Increased Grooming at Existing Trails.** Growth in OSV Program operations could result in an additional 500 hours of trail grooming throughout the Project Area at existing trail locations (Project Description, Section 2.7.1). The increase in equipment hours would not affect soils since the grooming equipment is operated either on paved roads or compacted dirt roads with a minimum of 12” depth of snow cover. There are no soil compaction or erosion impacts associated with this activity. See Section 6.3.2.1 above.

**New Trail Systems.** Snow removal operations and passenger vehicle travel to the potential new trail sites would occur on paved roads and not result in soil compaction or erosion. Grooming operations at the new trail sites would be established on an existing road network with a minimum of 12” depth of snow cover. Roughly 200 hours of grooming at each potential new trail site would likely occur (Project Description, Section 2.7.1). There would be no direct soil compaction or erosion impacts associated with grooming activity. See Section 6.3.2.1 above. Subsequent OSV use at these new trail sites could result in OSV contacting bare soil in low snow conditions. However, OSV use does not result in significant soil compaction as shown in Table 6-2, and soil erosion is not expected to be significant given that OSV contact with soil is minimal. Therefore, the impact of OSV use at new trail systems on soil compaction and erosion is less than significant.

**Growth in OSV Use.** Soil compaction and erosion impacts associated with operation of OSV use are minor. Increasing OSV use in the Project Area could increase the potential for snowmobiles to contact bare soil in low snow conditions. However, OSV use does not result in significant soil compaction as shown in Table 6-2, and soil erosion is not expected to be significant given that OSV contact with soil is minimal. Therefore, the impact of the Project on soil compaction and erosion from increased OSV use levels projected for Program Year 2020 is less than significant.

### 6.3.3.2 Water Quality

**Expanded Trailhead Parking.** New snow removal on Oroville Quincy Highway, Four Trees trailhead, and the expanded China Wall trailhead parking off Foresthill Road would increase snow removal operations by slightly more than 500 hours per year. The plowing would accommodate an increase in passenger vehicles traveling to Bucks Lake and China Wall groomed trail systems. Increased snow removal and passenger vehicles would increase the exhaust emissions and fuel deposits on paved roads which can affect water quality of surface runoff. The proportion of vehicle traffic and snow plowing which occur on these roads during the 14-week project period is small in comparison to the year-round vehicle travel that occurs on these same roads. The water quality contaminants associated with vehicle use on roads which can be attributed to the OSV Program is considered less than significant.

The snow that is removed from these areas would be stored in areas designated by the county road departments, possibly in consultation with the national forests. De-icers or sand may be applied to the Oroville Quincy Highway or within the Four Trees and China Wall parking areas. As discussed in Section 6.3.2.2, snow melt from snow storage areas could contain a more concentrated level of fuel deposits, oils, sand, and particulates. The snow removed from Oroville Quincy Highway and the trailhead areas would occur in accordance with practices of each

county road department. Snow storage areas are located in designated areas where snow melt can seep into the ground and sheet flow across parking areas or direct discharge into surface water is avoided. As a result, the potential for water contaminants in snowmelt from snow storage areas to impair surface water quality is considered less than significant.

**Increased Grooming at Existing Trails.** Grooming equipment exhaust deposits on the snowpack are not considered significant. Increasing annual equipment hours of operation by 500 hours would increase the exhaust deposit. This increase would occur over 1,761 miles of groomed trail and 26 trail systems. The increase in grooming operations would not raise hydrocarbon emissions in runoff to significant levels.

**New Trail Systems.** The three potential new trail sites identified in Project Description, Section 2.7.1, would add less than 200 new equipment hours for snow removal to provide plowed access and parking. Plowing on the access roads to Lake Davis and Bass Lake already occurs by county road departments. Plowing on State Route 89 to access a new trailhead on State Route 4 near Monitor Pass, would be new plowing. Vehicle exhaust and nonpoint source water pollutants are not new to these roads. Any increase in nonpoint source pollutants from the snow removal equipment, and passenger vehicle travel associated with the development of new trail systems, at these locations would be minor and less than significant.

The three new trail systems (Lake Davis, State Route 4, and Bass Lake) would combine for 68 miles and are estimated to require 600 new hours of grooming equipment operation. Based on a total parking capacities of 65 vehicles, the three sites combined would support an increase of 5,980 OSV seasonal use days. The largest of the three sites, State Route 4, would support 2,760 OSV seasonal use days. This level of OSV use is far less than the approximate seasonal use levels at Yellowstone of up to 48,000 which were determined to have a less than significant impact on water quality (Section 6.3.2.2 above). Therefore, the water quality impact from these three new trail systems would be less than significant.

**Growth in OSV Recreation.** OSV exhaust deposits on the snowpack from the OSV Program at 2010 baseline levels are not considered significant (Section 6.3.2.2). Growth in OSV use as projected during the 10-year program period would not raise hydrocarbon emissions in runoff to significant levels. The maximum OSV use projected for 2020 at a single trail system location occurs at Mammoth Lakes (Inyo National Forest). In 2010, seasonal OSV use at Mammoth Lakes is estimated at 17,152 (Table 2-8). Based on a 4% average annual increase over the 10-year program period, OSV seasonal use days at Mammoth Lakes could increase to 25,389. This remains less than the OSV seasonal use levels at Yellowstone which were determined to have a less than significant impact on water quality. Therefore, the impact of the OSV Program on water quality projected for Program Year 2020 is considered less than significant.

#### **6.3.4 Cumulative Impacts**

There are many scheduled projects identified in the national forests (Appendix G) which are ground disturbing and could add sediment to surface waters within the forest. The USFS utilizes BMPs in compliance with the CWA to minimize water quality impacts. Non-winter OHV recreation use on designated trails could contribute toward soil erosion and sediment transport to creeks. The USFS is working to create Travel Route Designations to establish a managed network of forest roads and trails suitable for off-road recreation (see Recreation, Section 8.1.4). By restricting vehicle use to designated routes and closure of non-designated routes, the

cumulative effect of soil erosion from summertime road use is addressed. National forests monitor road and trail conditions and implement BMP to control erosion (USFS 2000). National forests which receive California funds under the OHV Grants Program also maintain OHV trails in accordance with the state Soil Conservation Standard and Guidelines (CDPR 2008) in addition to compliance with CWA requirements. Based on active management by the national forests to control soil erosion, the cumulative effects of the project on soil erosion and sedimentation of drainages is less than significant.

#### **6.4 MITIGATION MEASURES**

No significant impacts related to hydrology and water quality were identified; no mitigation measures are necessary.



## 7.0 NOISE

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This chapter addresses the noise effects of operating plowing and grooming equipment associated with the OSV Program and the indirect effects of snowmobile noise on recreation in the Project Area. Noise impacts on biological resources are addressed in Biology, Section 5.3 and noise impacts on recreational uses are addressed in Recreation, Section 6.3.

### 7.1 REGULATORY SETTING

Noise emitted by vehicle is regulated by CVC Section 27200.

For heavy equipment such as snowcats used for grooming project trails and snow plow equipment, CVC Section 27204, limits noise to 80 dBA for equipment with a gross vehicle weight rating of 10,000 pounds and manufacture year after 1987.

For snowmobiles manufactured after 1972, CVC Section 27203 sets the noise limit at 82 dBA. The noise level generated by an OSV is further limited through manufacturer restrictions. Snowmobiles produced since February 1, 1975 and certified by the Snowmobile Safety and Certification Committee's independent testing company emit no more than 78 dBA from a distance of 50 feet while traveling at full throttle when tested under the Society of Automotive Engineers (SAE) J192 procedures. Additionally, those produced after June 30, 1976 and certified by the Snowmobiles Safety and Certification Committee's independent testing company emit no more than 73 dBA at 50 feet while traveling at 15 mph when tested under SAE J1161 procedures.

OSV use on county roads and national forest lands are subject to the state standards described above. Individual LRMP for the national forests do not identify S&Gs regulating noise emissions of forest activities.

### 7.2 ENVIRONMENTAL SETTING

#### 7.2.1 Noise Terminology

Noise is defined as unwanted sound and is widely recognized as a form of environmental degradation. The frequency, duration and intensity of noise contribute to the effect on the listener.

##### 7.2.1.1 The Decibel Scale (dB)

Noise is measured on the logarithmic decibel scale (dB), usually with a frequency sensitivity that matches the human ear, called "A-weighting." Thus, most environmental measurements are reported in dBA, meaning decibels on the A-scale. The logarithmic scale means that a sound level reported as 60 dBA has 10 times the sound energy as a sound with a level of 50 dBA; a sound of 63 dBA is twice as loud as a sound of 60 dBA.

Human hearing matches the logarithmic A-weighted scale, so that an increase of 3 dB is usually perceptible, and in a complex noise environment such as along a street, noise must increase by 5 dB to be considered perceptible. Conversation is in the range from 50 to 65 dBA; with levels rising as the distance between speakers increases or as background noise level rises forcing the

speakers to raise their voice in order to be heard. Generally, as environmental noise exceeds 50 dBA, it becomes intrusive and above 65 dBA, noise becomes excessive. Table 7-1 lists typical outdoor noise levels.

<b>Table 7-1. Typical Outdoor Noise Levels</b>	
<b>Common noise levels</b>	<b>Noise level (dBA)</b>
Jet flyover at 1,000 feet	105
Gas lawn mower at 3 feet	95
Roadway in commercial area at 50 feet (area of rough pavement)	75-80
Quiet urban daytime	50
Quiet urban nighttime	40
Quiet suburban nighttime	35

Source: Caltrans 1991

### 7.2.1.2 Sound Levels

The equivalent noise level,  $Leq$ , represents the level of a steady noise having the same sound energy as the time-varying noise measured.  $Leq$  (h) represents the time-weighted average for a 60-minute (hourly) period.  $Leq$  is useful for evaluating shorter time intervals over the course of a day. Recording a series of  $Leq$  values allows the peak noise periods during a time period to be identified and shows increases in intrusive noise sources.  $Leq$  intervals can be used to more accurately describe the effects of increased traffic in the project vicinity.

Variable noise is described as the level exceeded for a portion of the time. Thus, the L25 is the level exceeded 25 percent of the time during the sample period and L90 is the level exceeded 90 percent of the time and usually corresponds to the background sound level. Construction type equipment produces a fairly steady sound level so that the L25 is not appreciably different than the  $Leq$  or average sound level.

### 7.2.1.3 Attenuation

As a sound wave travels away from the source, the energy is dissipated in space and absorbed by the environment. The impact of a noise source depends on both how inherently loud the source is and how far away the receptor is from the source. For community noise analysis, the inherent loudness of a source is indicated by giving its sound level measured at a reference distance such as 50 or 100 feet from the source; this allows the level at other distances to be calculated.

Theoretically, the sound level drops by 6 dB with each doubling of distance from a stationary noise source. For a roadway line source, attenuation is 3 dB for distance doubling. Over long distances, there is also a loss of 1 dB for each 1,000 feet due to air adsorption.

In actual experience, sound is often more attenuated because of non-reflective ground, intervening dense vegetation, or topographic and structural barriers. With line-of-sight transmission in open country, attenuation proves to be somewhat greater than theoretical loss due to absorption of soft ground and approaches 9 dB per doubling of distance for point sources and 4.5 dB for line sources.

Terrain has a significant attenuating effect. An earth berm such as a hill or the edge of a terrace close to the source and projecting more than 20 feet past the line-of-sight will add as much as 20

dB loss to the attenuation from free-field distance effects. Vegetation absorbs sound in proportion to its density. A thinly planted screen has little attenuation effect, but a 100-foot deep strip of woodland will adsorb 10 to 20 dB of acoustic energy as the tree trunks cumulatively obscure direct transmission and increase sound loss.

### **7.2.2 Sensitive Receptors**

Sensitive noise receptors are defined as locations such as residences, hotels, motels, hospitals, schools, churches, libraries, and parks where a quiet environment is essential and people would be adversely impacted by a loud noise environment. As a whole the national forest trail systems are fairly isolated and not near communities where many of these noise sensitive receptors would occur. There are occasional residences located on private property intermixed with the national forests such as occurs in Shasta National Forest. Some national forests also have resort lodges near the trails which cater to recreation visitors year-round such as the Ponderosa Lodge and Montecito Sequoia Lodge in Sequoia National Forest. Visitors to these resort lodges would be considered sensitive to the noise environment around them.

In addition, non-motorized users of the national forest trail system such as skiers and snowshoers would be sensitive noise receptors. Non-motorized trail users are typically sensitive to the aesthetics of their surroundings and find noisy activities intrusive to their enjoyment of the forest experience.

### **7.2.3 Ambient Noise Levels**

Sound levels are usually measured and reported in dB, a unit which describes the amplitude, or extent, of the air pressure changes which produce sound. The A-weighted sound level or dBA is an adjusted or weighted measure of sound that corresponds to human hearing since the human ear cannot perceive all pitches or frequencies equally well. The Leq is used to describe noise levels over extended periods of time, unlike the dBA, which describes a noise level at just one moment. Background noise levels in undeveloped areas, such as open space recreational areas of national forests, are typically in the range of 35 to 45 dBA Leq. These noise levels are fairly quiet and reflect the surrounding natural forested land use. Sounds other than those naturally occurring in the forest during the winter include the sound of vehicle traffic on local roads and highways, aircraft overflight, and motorized vehicles on groomed trails.

The significance of a noise increase largely depends on ambient noise levels. A 3 dBA increase is barely perceptible and a 6 dBA increase is clearly audible. An audible increase in noise is generally significant if the proposed project activity causes noise standards to be exceeded.

## **7.3 PROJECT IMPACTS**

### **7.3.1 Thresholds of Significance**

According to Appendix G of the CEQA Guidelines, a project will normally have a significant effect on the environment if it will result in:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Project activities of snow removal, trail grooming, and OSV recreation do not generate or expose people to groundborne vibration or groundbourne noise levels. Therefore this issue is not further analyzed in this chapter.

### 7.3.2 Project Baseline, Year 2010

#### 7.3.2.1 Noise Levels in Excess of Established Standards

**Snow Removal and Trail Grooming.** Snow removal and trail grooming involves the operation of heavy equipment which generates noise. These project activities began occurring in the Project Area on a seasonal basis between 1982 and 1996 and would continue in 2010 at these baseline levels. Noise associated with the Project is seasonal and episodic. Direct noise emissions generated by OSV Program operations include operating snowplows and blowers for snow removal from roads and parking areas and operating snowcats for trail grooming. Equipment operation begins in mid-December with snowfall and lasts through March dependent upon site location and snow conditions. The frequency of plowing and grooming is weather dependent. Plowing typically occurs along road segments on average once per week during daylight hours for up to 8 hours per day. Trail grooming occurs during nighttime hours up to three times per week on some trail segments and up to 12 hours per day (see Project Description, Table 2-2).

Equipment operation raises ambient noise levels in the immediate project vicinity. Noise generated by typical construction equipment (backhoe, excavator, grader) ranges from 80 to 85 dBA and represents the noise levels that can be expected from snowplows and snowcats used for OSV Program operations. Typical hourly average noise levels from this equipment are 75 to 80 dBA at a distance of 100 feet. These noise levels drop off at a rate of 6 dBA per doubling of distance between the noise source and receptor. Due to its soft surface, snow absorbs sound and thus further dampens equipment noise levels. These activities are not considered to have significant noise impacts because they are periodic, and not constant in one place, thus their contribution to the overall Ldn (day/night average noise level) would be less than significant.

Non-motorized trail users (skiers and snowshoers) are considered sensitive receptors to noise generated by the OSV Program activities. Trail grooming occurs during nighttime hours and is unlikely to impact this group of sensitive receptors. Snow removal on roads and trail heads occurs during daylight hours when non-motorized recreationalists would be using the trail system. If the trail users happened to be near roads and trailheads when snow removal was occurring, it is likely that they would find the noise loud and intrusive but would associate it with normal road maintenance operations. However, the noise impact from the removal equipment is localized to the roads and trailheads and would not impact sensitive receptors once they moved away from the trailhead area. Additionally, snow removal occurs only periodically and is not a constant noise source to the sensitive receptors. Thus, noise impacts from snow removal and trail grooming on sensitive receptors does not expose receptors to prolonged periods of excessive noise levels.

The noise levels generated by these activities are not subject to regulation by USFS S&Gs. Noise standards found in local general plans or noise ordinances do not apply to the Project Area which is located on federal land in national forests. Thus, noise generated by snow removal and grooming operations of the Project would not expose people to or generate noise in excess of established standards. Given that existing noise levels generated by snow removal and trail grooming operations are not excessive, and continuation of the OSV Program at 2010 baseline levels would not increase noise from these activities above historical levels, the impact is considered less than significant.

**Passenger Vehicle Traffic.** Noise from Passenger vehicles traveling to the Project Area for winter trail recreation would be audible to receptors in the Project Area near roads and trailhead parking areas. Noise levels generated by passenger vehicles at trailheads is less than the 75-80 dBA road noise typical for commercial roads (Table 7-1) due to lower traffic volume and slower vehicle speeds associated with parking areas. There are no ambient noise standards governing recreational activities in national forests and therefore passenger vehicle noise does not exceed established standards and is not considered significant. Continued operation of the OSV Program at 2010 baseline levels would not increase noise levels associated with passenger vehicle traffic in the Project Area above historic levels; the impact is therefore less than significant.

**OSV Use.** OSV use is allowable in national forests as designated by the governing LRMP. The audibility of the OSV is largely affected by atmospheric conditions, the terrain and vegetation surrounding the trail routes, the speed of OSV travel, and the number of OSV users. The Project facilitates OSV use along trail routes that have been previously used for wintertime recreation including motorized vehicles. At current OSV use rates, the OSV Program at 2010 baseline levels would not generate an increase the ambient noise levels associated with OSV use above historical seasonal levels.

Noise from snowmobiles manufactured after June 30, 1976 have a noise emission of 73 dBA at 50 feet while traveling at 15 mph when tested under SAE J1161 procedures. This is the equivalent of a single passenger vehicle or motorcycle on a roadway. A snowmobile under full throttle emits the same sound level as a truck pulling a camper at a constant highway speed applying very little throttle. In a worst case scenario, a snowmobile leaving a stop sign and applying full throttle, the noise produced is still about the same as a passenger vehicle driving down the road (International Snowmobile Manufacturers Association 2008). The effect is audible but not long lasting.

Noise levels generated by OSVs in the Project Area are not subject to regulation by local general plan or noise ordinance given the location on federal land in national forests. National forest LRMPs do not have S&Gs which restrict noise levels of OSV recreation. Thus, OSV use facilitated by the OSV Program would not occur in excess of established standards.

In the Project Area, OSV noise occurs in a recreation area open for OSV use. Because the activity is occurring in a trail system area designated for motorized use, the noise is expected by other trail users as part of the ambient noise conditions and therefore does not conflict or substantially detract from the recreational experience of other trail users.

Noise from OSV use is audible to other users on the recreation trail, which may include cross-country skiers and snowshoers. OSV use is restricted to specific trail locations in order to minimize conflicts between uses. OSV trails are signed to indicate that OSV use is permissible

on these trails. Non-motorized users of the trail system know in advance that OSV use occurs on and off the trails in the Project Area and that project trails do not offer protection from intrusive sights or sounds of snowmobiles. Non-motorized trail users who might be sensitive to OSV noise have the option of choosing to recreate in areas closed to OSVs. Continuation of the OSV Program at 2010 baseline levels would not expand OSV use into new areas presently unused by OSV or promote OSV infringement upon quiet areas reserved for non-motorized users such as Nordic skiers and snowshoers. OSV intrusion into closed quiet wilderness areas adjacent to the groomed trails does occur as described in Land Use Plans and Policies, Section 3.3.3.1. Continued and enhanced enforcement of closed area boundaries is required as project mitigation (Measure LU-1) for OSV intrusion into wilderness areas.

Given the 1,761 miles of groomed trails provided by the OSV Program, the quick dispersal rates between the motorized and non-motorized user groups, and the access to wilderness areas from groomed trails which are available exclusively to non-motorized use, the current noise impacts of OSV use on non-motorized users in the Project Area is considered less than significant. Continuation of the OSV Program at 2010 baseline levels would not expose sensitive receptors to increased noise levels above existing conditions and is therefore considered a less than significant impact.

### 7.3.2.2 Substantial Permanent or Temporary Increase in Ambient Noise

**Snow Removal and Trail Grooming.** Existing noise associated with plowing and grooming operations is intermittent and seasonal. It is highly localized and does not substantially increase ambient noise levels in the surrounding environment (see Section 7.3.2.1 above). Continuation of the OSV Program at 2010 baseline levels would not increase snow removal and grooming equipment operations above existing levels and would not result in a substantial permanent or temporary increase in ambient noise and is therefore a less than significant impact.

**Passenger Vehicle Traffic.** As described in Section 7.3.2.1 above, noise levels associated with passenger vehicle traffic visiting the project trailheads is less than significant. OSV Program operations at 2010 baseline levels would not increase passenger vehicle traffic above existing levels and is therefore would not cause a substantial permanent or temporary increase in ambient noise. Therefore, the impact of the OSV Program at 2010 baseline levels on ambient noise from passenger vehicle traffic is less than significant.

**OSV Use.** The nature of OSV noise emissions is temporary and periodic because of the nature of the activity. As described in Section 7.3.2.1 above, snowmobiles manufactured after June 30, 1976 have a noise emission of 73 dBA at 50 feet while traveling at 15 mph. This level of noise emission is considered loud but because the OSV use is periodic and occurring in designated areas where the activity is known to occur, the noise impact it is not considered a substantial permanent or temporary increase in ambient noise. Under the Project Baseline, Year 2010, OSV use is not expected to increase measurably and the noise generated by current use levels would continue at the same level. Therefore the impact is less than significant.

## 7.3.3 10-Year Program Growth, Year 2020

### 7.3.3.1 Noise Levels in Excess of Established Standards

**Expanded Trailhead Parking.** New plowing to open the Four Trees trailhead would occur on the Oroville Quincy Highway which is presently closed during the winter season. Snow removal would occur intermittently as determined by snow fall conditions and would likely require 500

hours of equipment operation per season. Based on existing operations at Bucks Lake (Table 2-7), snow removal on the Oroville Quincy Highway and Four Trees trailhead would likely occur on 60 days of the season. Passenger vehicle travel associated with opening the Four Trees trailhead would be 20 round-trips on a maximum day based on parking capacity. Snow removal and passenger vehicle travel on the road would periodically increase the noise levels along this 10-mile stretch of road and at the trailhead while snow removal equipment was in operation and passenger vehicles pass through. Due to the low traffic volume, the episodic use of snow removal equipment, and the continual movement of the equipment along a road corridor, noise from these sources would not occur at levels that exceed noise levels expected along a rural highway corridor. There are no noise standards governing outdoor ambient noise levels in national forests; therefore the noise levels associated with opening the Four Trees trailhead for OSV access to Bucks Lake is not significant.

Increased snow removal operations needed to serve an expanded parking area at the China Wall trailhead is minimal. Snow removal at China Wall presently occurs on 15 days of the season for a total of 32 hours. Doubling the size of the parking lot would not appreciably increase operating hours of snow removal equipment from 2010 baseline conditions. Increased parking capacity would increase passenger vehicle traffic on Foresthill Road by 30 vehicles (round-trips) on a maximum day. Trips would be dispersed throughout the day. Due to the low volume of traffic generated by the trailhead expansion and the minimal increase in snow removal operation that would occur, the noise impact from trailhead expansion would not exceed noise levels expected for rural roads or outdoors environments. There are no noise standards governing outdoor ambient noise levels in national forests; therefore the noise impact of snow removal and subsequent vehicle use of the expanding China Wall trailhead is not significant.

**Increased Grooming at Existing Trails.** A modest increase in grooming hours may occur on any of the existing trail systems over the next 10 years. Up to 500 new grooming hours would be dispersed throughout the Project Area equating to two extra grooming days per season at each trail system. This would not result in a substantial increase in ambient noise levels above 2010 baseline conditions. There are no noise standards governing outdoor ambient noise levels in national forests and no sensitive receptors are affected by grooming activities; therefore, the impact of increased grooming operations anticipated over the 10-year program period is not considered significant.

**New Trail Systems.** Three new trail system locations (Lake Davis, State Route 4, and Bass Lake) have been identified for possible inclusion in the OSV Program by 2020. Snow removal already occurs at three of the four locations (Lake Davis and Bass Lake) and therefore no new noise impacts would occur from continued plowing or passenger vehicle traffic at these locations. New plowing operations would be required on State Route 89 south of Markleeville to service a new trailhead at State Route 4. Periodic plowing on a highway would not elevate noise levels beyond those expected for a highway. Passenger vehicle traffic on State Route 89, would be increased by 30 round-trips based on trailhead parking capacity. Because of the low traffic volume and the dispersal of vehicle trips throughout the day, the passenger traffic associated with the trailhead would not substantially elevate ambient noise levels; the traffic noise impact is less than significant.

Grooming operations do not generate a substantial increase in ambient noise levels as described above in Section 7.3.2.1. Grooming occurs at night and the snow surface absorbs sound. Because

trail grooming is periodic and the equipment does not stay in one constant place, its contribution to the overall noise environment at these new locations would be less than significant.

See Section 7.3.2.1 above regarding noise levels from OSV use. National forests do not have S&Gs which restrict noise levels of OSV recreation. Thus, OSV use facilitated by the OSV Program at the new trail sites would not occur in excess of established standards.

As discussed in the Introduction (Section 1.2), site-specific impacts of developing new trail sites would be subject to environmental review under CEQA as a separate project.

**Growth in OSV Recreation.** The continuation of OSV recreation at the historical 4% growth rate would result in an increase of OSV use in the Project Area from 159,000 to 235,000 OSV seasonal-use days. This increase of 76,000 vehicles would be dispersed throughout the 26 trail systems in the Project Area over a 14-week season. OSV use on the average trail system would be increased by 209 riders per week. Elevated noise levels would occur in the immediate area of OSV use. Because OSV use at any given trail site is dispersed over miles of groomed trail and riding area, the noise generated by the OSVs are not concentrated and would not create a substantial increase in ambient noise levels at any given location. No ambient noise level standards apply to outdoor recreation in national forests. Therefore the impact is less than significant.

#### 7.3.3.2 Substantial Permanent or Temporary Increase in Ambient Noise

**Expanded Trailhead Parking.** Snow removal on Oroville Quincy Highway to open the Four Trees trailhead and subsequent vehicle traffic on the highway would generate new vehicle noise on the highway during winter months. Likewise, an expansion of the China Wall trailhead parking capacity would accommodate increased vehicle trips on Foresthill Road. As described in Section 7.3.3.1 above the number of vehicle round-trips associated with the increase in parking capacity at these trailheads would not generate a substantial increase in ambient noise. The trips would be dispersed throughout the day. The vehicle noise would be consistent with noise levels associated with rural road corridors. The impact of increased vehicle noise on ambient noise levels is less than significant.

**Increased Grooming at Existing Trails.** Up to 500 new grooming hours may occur on the existing trail systems over the next 10 years roughly equating to two additional grooming days per season on each trail system. The noise from the increased grooming hours would be dispersed across the groomed trail length during nighttime hours. This would not result in a substantial increase in ambient noise levels above 2010 baseline conditions. Therefore, the impact of increased grooming operations anticipated over the 10-year program period is not considered significant.

**New Trail Systems.** See Section 7.3.3.1 above.

**Growth in OSV Recreation.** Increased OSV use in the Project Area would elevate noise levels in the immediate area of use. OSV use would be dispersed and, as described in Section 7.3.3.1 above, would not substantially increase ambient noise levels. The impact is considered less than significant.



### **7.3.4 Cumulative Impact**

Project activities occur in the Project Area during winter months when the ground is covered in snow, which limits the type of noise generating activities which can occur. There are no new activities planned or proposed which would cumulatively add to noise levels from project equipment or OSV use occurring in the Project Area.

## **7.4 MITIGATION MEASURES**

No significant impacts related to noise were identified; no mitigation measures are necessary.

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## 8.0 RECREATION

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This chapter describes the opportunity for access to winter trail recreation created by the OSV Program and the potential conflicts between motorized and non-motorized users of the groomed trail system. Parking demand created at the trailheads is also discussed.

### 8.1 REGULATORY SETTING

#### 8.1.1 California Department of Parks and Recreation, OHMVR Division

The OHMVR Division promotes managed, environmentally responsible and sustainable OHV use. OHMVR Division programs, including the OSV Program, are carried out with the advisory oversight of the OHV Commission and funded directly by the recreational community through OHV gasoline taxes, green and red sticker fees, and entrance fees at the State Vehicular Recreation Areas.

In partnership with federal and county agencies, the OHMVR Division administers motorized and non-motorized winter programs consisting of a system of trailheads and groomed trails for snowmobile use (OSV Program) and 19 sno-parks for non-motorized snow play such as sledding and cross-country skiing. Both the motorized and non-motorized programs offer parking areas cleared of snow, restrooms, and trash collection services.

The OHMVR Division makes grants and cooperative agreements available to local, state, and federal entities as well as non-profits, educational institutions, and federally recognized native American tribes. OHMVR Division staff ensures the appropriate use of these funds and help identify solutions to OHV-related issues. Environmental sciences staff review and monitor grant and cooperative agreement funded projects, focusing on the condition of soils and wildlife habitat, habitat restoration, and compliance with state and federal environmental laws.

The OHMVR Division provides education, training, and information to promote safe and environmentally responsible OHV recreation. The OHMVR Division also offers winter safety and snowmobile operation classes for children. The public safety program assists organizations providing OHV-related public safety to identify issues, encourage cooperation, and facilitate solutions. Marketing and outreach promotes widespread understanding of environmental protection and safe and appropriate OHV recreation.

#### 8.1.2 California Recreation Policy

California's Recreation Policy (CDPR 2005) broadly addresses the full range of active, passive, indoor and outdoor recreation activities throughout the state. This comprehensive policy is directed at recreation providers at all levels: federal, state, and local agencies, as well as private and nonprofit suppliers. Of particular relevance to the Project are the policy's emphasis on opportunity and access for all recreation activities and populations, while preserving natural and cultural resources.

#### 8.1.3 California Outdoor Recreation Plan

The 2008 California Outdoor Recreation Plan (CDPR 2009) identifies the state's most critical outdoor recreation issues in the next five years and lays out a strategy by which state, federal,

and local agencies might best address them. The plan identifies as California's foremost strategic priority projects that provide opportunities for the top 15 outdoor recreation activities identified in public opinion surveys. OHV use ranked tenth in the top 15 outdoor recreation activities. OSV use is not specifically called out in the survey, issues or actions.

#### **8.1.4 U.S. Forest Service**

The USFS is a key provider of recreation in California. There are 18 national forests in California covering over 20.6 million acres, or one-fifth of the state's total area. Portions of 11 of these national forests are within the Project Area. The USFS employs multiple-use and sustained yield principles to manage these lands, while accommodating a variety of uses, including outdoor recreation, timber, grazing, watershed management, fish and wildlife habitat and wilderness. The multiple uses fit within an ecosystem framework approach. The USFS provides about half of the wildland recreation opportunities in California. In 2007, there were 31 million recreation visits to the state's national forests.

Land Resource Management Plans. Each national forest is managed under a LRMP. The LRMPs designate areas as open, restricted, or closed to OHV/OSV use. OSV use is prohibited in areas classified as wilderness, primitive, or semi-primitive non-motorized. Additionally, seasonal closures and designated trails may be used to mitigate impacts from OHV use. Relevant LRMP forest-wide S&Gs and management prescriptions are discussed in detail in Land Use Plans and Policies (Section 3.0) and in Appendix D, Tables 1 and 2.

Travel Management. The USFS identified unmanaged recreation, especially impacts from OHVs, as one of the key threats facing the nation's forests. National forests throughout California have been working since 2003 with the motorized, environmental, and non-motorized communities to implement the 2005 national travel management rule. The effort will prohibit cross-country motor vehicle travel in the national forests and result in the publication of a Motor Vehicle Use Map (MVUM) for each national forest. This map designates the roads, trails and areas open to public motor vehicle use.

National Forests throughout California have been working with the motorized, environmental, and other non-motorized communities to identify roads, trails and areas that are appropriate for motor vehicle use. National Environmental Policy Act (NEPA) decisions and MVUMs represent the first-step in the travel management rule's long-term objective to improve management, reduce the environmental impacts associated with motor vehicle use, and develop a sustainable system of roads, trails and areas for public motorized use.

There are three parts to the Travel Management Rule: Subpart A (Administration of the Forest Transportation System), Subpart B (Designation of Roads, Trails and Areas for Motor Vehicle Use), and Subpart C (Use by Over Snow Vehicles). The national forests in California have been working to complete Subpart B, which affects motor vehicle use on national forest system lands. Sixteen of the eighteen national forests have completed their Final Environmental Impact Statement (EIS) and Record of Decision (ROD). By the publication of this EIR the two remaining national forests will also have completed their Final EIS and ROD. Although the travel management rule provides the framework for designating over-snow vehicle use, the impacts from cross-country use of snowmobiles present a different set of management issues than cross-country use of other types of motor vehicles. The need to allow, restrict, and prohibit

over snow vehicles and over snow travel will be accomplished as needed, on a case-by-case basis, throughout the national forests of California.

OSV Trail Maps. The national forests provide OSV guide maps that indicate where OSV use is appropriate and allowed. These maps also highlight the specific groomed and non-groomed trails available for use and may also call out particular prohibitions or hazards. OSV guide maps are available at Ranger District offices, trailhead kiosks, and national forest websites. Winter recreation opportunity guides may also be available. These guides broadly explain opportunities, rules and hazards for OSVs and other types of winter recreation. Trail systems groomed as part of the OSV Program are shown in Figures 2 through 12.

## **8.2 ENVIRONMENTAL SETTING**

### **8.2.1 National Forest Winter Recreation Trends**

There has been a steady and continuing increase in winter recreation nationwide, in California in particular, and on national forest lands. This increase is attributable to a number of factors, including general population growth, enhanced opportunity and access, more capable equipment, and the growing popularity and new varieties of outdoor recreation pursuits.

The USFS has recently used the National Visitor Use Monitoring (NVUM) program to obtain recreation participation data for each national forest. The NVUM data provides information about the type, quantity, quality and location of recreation use on national forest system managed lands at the national, regional, and forest level. Estimated site visits in the 11 national forests participating in the OSV Program total 17.7 million (Table 8-1). A site visit is defined as the entry of one person into a national forest site or area to participate in recreational activities for an unspecified period of time. The site visit ends when the person leaves the site or area for the last time on that day. Annual snowmobile and cross-country ski and snowshoe visits for each of the national forests in the Project Area is presented in Table 8-1 based on NVUM data collected between 2005 and 2008. The NVUM data highlighted the popularity of both motorized and non-motorized winter recreation in California, with 448,000 total annual snowmobile visits and 610,000 cross-country ski visits throughout the 11 national forests. There were roughly 36% more cross-country ski and snowshoe visits than snowmobile visits. Cross-country ski and snowshoe visits outnumbered snowmobile visits in seven of the 11 national forests. Modoc, Plumas and Tahoe National Forests saw more snowmobile than cross-country ski/snowshoe visits. On the Stanislaus National Forest, snowmobile and cross-country ski/snowshoe visits were equal.

The number of registered snowmobiles in California has increased at compounded annual rate of four percent in recent years, from approximately 14,000 in 1997 to 22,499 in 2009, according data from the OHMVR Division and the DMV (CDPR 1998, DMV 2009). Based on the historic growth rate in the number of snowmobiles registered in California each year (see Project Description, Section 2.6.2), it is estimated that the number of snowmobiles registered in California could increase by roughly 48% by 2020.

<b>National Forest</b>	<b>Total Estimated Site Visits</b>	<b>Snowmobile</b>	<b>Cross-Country Ski and Snowshoe</b>
Klamath	338,800	13,891	54,547
Modoc	178,100	70,171	0
Shasta-Trinity	1,455,300	1,455	11,642
Lassen	1,556,900	21,797	43,593
Plumas	743,700	63,958	12,643
Tahoe	2,082,300	158,255	104,115
Eldorado	1,898,800	7,595	64,559
Stanislaus	2,100,300	37,805	37,805
Inyo	5,082,300	55,905	233,786
Sierra	1,424,900	17,099	39,897
Sequoia	819,700	0	7,377
<b>Total</b>	<b>17,681,100</b>	<b>447,932</b>	<b>609,965</b>

Source: USFS 2009d-n

## 8.2.2 OSV and Non-Motorized Recreation Opportunity and Access

The national forests provide winter recreation opportunities for both motorized and non-motorized recreation, on groomed trail systems and throughout the open areas of the forests. All trails and off-trail open areas of the national forests are open to non-motorized recreation. OSVs are prohibited from using non-motorized trails and OSV use is prohibited in areas classified as wilderness, primitive, or semi-primitive non-motorized. There may be further seasonal and temporary restrictions on OSVs used to protect natural resources. While most non-wilderness areas are legally open for snowmobiling, in practicality steep terrain, lack of snow, and poor access substantially limit areas available to OSV use.

Table 8-2 shows the miles of groomed trails and acres of off-trail open areas open to both motorized and non-motorized recreation (multi-use), and those trails and lands open to non-motorized recreation only. The table shows all multi-use trails as well as those multi-use trails that would be groomed as part of the Project. Non-motorized, non-wilderness, off-trail areas are shown separately because in winter, the distances from plowed parking areas and trailheads can make wilderness areas inaccessible to skiers and snowshoers, so non-motorized, non-wilderness represents the true practical recreational opportunity. As shown in Table 8-2, the OSV Program is the primary provider of groomed trails. Private businesses provide groomed trails in two national forests included in the OSV Program (Tahoe and Inyo National Forests). Additionally, a private concessionaire grooms 25 miles at the Hope Valley Sno-Park (Humboldt-Toiyabe National Forest). The remaining national forests in the Project Area have no other groomed trails which allow motorized use. Outside of the OSV Program, the national forests provide 162 miles of non-motorized groomed trails available for skiers and snowshoers. Additionally, there are approximately 8.9 million acres of off-trail lands designated multi-use and 3.3 million acres designated for non-motorized use only.

**Table 8-2. Winter Recreation Opportunity in California National Forests**

National Forest	Snow Program Groomed Trails (miles)	Other Motorized Groomed Trails <sup>1</sup> (miles)	Non-motorized Groomed Trails (miles)	Ungroomed Trail <sup>2</sup> (miles)	National Forest Total Acreage	Open to OSV and Non-motorized <sup>3</sup> (acres)	Wilderness Non-motorized Only (acres) <sup>4</sup>	Non-Wilderness Non-motorized Only (acres) <sup>5</sup>
Klamath	135	0	12	335	1,700,000	1,260,836	410,164	29,000
Modoc	52	0	0	15	1,654,392	1,000,000	70,385	584,007
Shasta-Trinity	86	0	18	14	2,100,000	733,863	484,986	881,151
Lassen	402	0	18	n/a	1,200,000	418,000	77,881	70,119
Plumas	182	0	0	868	1,200,000	1,137,563	23,958	14,484
Tahoe	270	70	2	n/a	811,740	724,440	19,048	68,252
Eldorado	60	0	35	115	596,724	438,724	123,629	34,371
Stanislaus	70	0	30	796	898,099	539,885	212,537	145,677
Inyo	80	20	12	1000	2,070,000	1,030,000	990,000	50,000
Sierra	209	0	0	25	1,286,000	754,000	532,000	0
Sequoia	215	0	35	190	1,110,000	344,398	307,477	9,523
<b>TOTAL</b>	<b>1,761</b>	<b>90</b>	<b>162</b>	<b>3,358</b>	<b>14,626,955</b>	<b>8,381,709</b>	<b>3,252,065</b>	<b>1,886,584</b>

Notes:  
<sup>1</sup> Groomed trail opportunities provided by private vendors. In Tahoe NF: Bowman Road (14 miles) track packed by Nevada Irrigation District to Bowman Lake; Rattlesnake Snowmobile Trail system (16 miles) groomed by Cisco Grove RV and Campground under agreement with USFS; Main Route (40 to 80 miles) grooming by volunteers on private land inholdings. In Inyo NF: Smokey Bear Flat (10 miles) groomed by DJ's Snowmobile Adventures; Crater Flat East (10 miles) groomed by Mammoth Snowmobile Adventures.  
<sup>2</sup> Ungroomed trails on each NF include both marked and unmarked routes open to OSV and non-motorized use.  
<sup>3</sup> Not all National Forest acreage technically open to OSV use is practically available for use due to low snow conditions, steep terrain, and poor access.  
<sup>4</sup> Includes all National Forest areas except those classified in each forest's LRMP as wilderness, primitive, or semi-primitive non-motorized.  
<sup>5</sup> Non-motorized non-wilderness is shown separately because in winter the distances from plowed parking areas and trailheads make most wilderness areas inaccessible to skiers and snowshoers.

Sources: USFS Response to OHV/MR Division Data Request (USFS 2009). Winter Recreation on Western National Forest Land A Comprehensive Analysis of Motorized and Non-Motorized Opportunity and Access (Winter Wildlands Alliance 2006).

Although multi-use trails are open to both motorized and non-motorized recreationists, there is a certain degree of incompatibility between OSVs and cross-country skiers and snowshoers; OSV use on multi-use trails can diminish the quality of recreation experienced by non-motorized users by generating noise, exhaust, tracks, and potential safety conflicts.

A typical OSV user can travel a considerably greater distance than can a typical cross-country skier or snowshoer suggesting that, by their very nature, OSVs need access to more miles of trail and larger off-trail areas for a quality recreation experience as compared to skiers and snowshoers who have a more limited range. Until the 1990s, OSV use was generally restricted to groomed trails since early snowmobiles would easily become bogged down in deep snow. Today's more capable machines, with improvements in power, weight, traction, and fuel tank capacities, can access remote ungroomed parts of the national forests. Regardless of machine capability, the groomed trail system remains the focal point for most OSV users. A recent survey by the OHMVR Division (Appendix A) showed the majority of OSV users spent the majority of their time on groomed trails (Project Description, Table 2-9). Approximately 19 percent of those surveyed spent 60 to 100 percent of their time off-trail. The range for a snowmobile is typically 85 to 100 miles on groomed trails and 65-85 miles off-trail (based on public comments received at the May 20 and 21, 2009 Fresno, California scoping meeting for this EIR). This is consistent with a 1997 survey of OSV users (CDPR 2008) which show a typical range of 80 miles traveled per day (see Project Description, Section 2.6.1). A typical cross-country skier or snowshoer can cover approximately 10 miles on ungroomed snow in a day (Winter Wildlands Alliance 2006).

## **8.3 PROJECT IMPACTS**

### **8.3.1 Thresholds of Significance**

According to Appendix G of the CEQA Guidelines, a project would normally be considered to have a significant impact on the environment if it would:

- Increase the use of existing neighborhood and regional parks or other recreation facilities such that physical deterioration of the facility would occur or be accelerated; or
- Include recreation facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment.

To address the significance of the current and project future demand for groomed trail recreation, the following thresholds were used in addition to the CEQA thresholds identified above. Would the project:

- Create safety conflicts between motorized and non-motorized users of the trail system or quality of recreation experience conflicts for trail users such that additional facilities would need to be provided, the construction of which might have an adverse physical effect on the environment; or
- Create law enforcement or other public safety concerns at the trail system facilities.

### **8.3.2 Project Baseline, Year 2010**

#### **8.3.2.1 Physical Deterioration of Facilities**

Under the 2010 baseline operating conditions, the OSV Program would not increase the use levels on the groomed trail system or trailhead parking facilities above existing levels. However, as discussed in Project Description, Section 2.6.1.2, plowing and grooming activities of the OSV

Program support higher OSV levels at trailheads than what would otherwise occur. This increased use level is reflected in the project baseline conditions evaluated in this EIR.

Seasonal OSV use of the Project Area is estimated at 158,000 (Project Description, Table 2-8). The groomed trail system funded by the Project comprises 1,761 miles of trail on 26 trail systems. These OSV Program facilities meet the current demand for multi-use trail recreation. The OSV Program requires that project trails are groomed at least once per week in order to remove ruts and maintain an even, hard surface which creates stable and smooth riding conditions. Historic OSV Program operations have been adequate to meet the current demand levels for maintained trails.

Current demands on trailhead parking areas have resulted in overcrowded trailheads and parking shortages (see Section 8.3.2.4 below). The heavy vehicle use at trailheads year-round has caused physical deterioration of the parking pavement at some of the trailheads. These trailheads are maintained by the USFS with state funding through the Grants Program.

### **8.3.2.2 Adverse Environmental Effect from Expanded Recreational Facilities**

Under the 2010 baseline operating conditions, the OSV Program would not result in the construction or expansion of new recreation facilities. The potential for increased demand for winter trail recreation and possible construction or expansion of recreation facilities over the next 10 years is addressed in Section 8.3.3 below.

### **8.3.2.3 Conflicts between Motorized and Non-motorized Use**

There is a certain degree of incompatibility between OSVs and non-motorized recreationists seeking a quiet, pristine natural experience. Snowmobiles are heavy machines capable of moving at high speeds. The machines have exhaust emissions and can be loud depending upon the engine type and the riding habits of the user. Given these characteristics, OSV use has the potential to impact non-motorized winter recreation in a number of ways.

**Noise.** Noise from OSVs can affect the quiet and natural sounds that are an important part of the experience cross-country skiers and snowshoers seek in the national forests. Two-stroke engine models, which accounted for 96 percent of all snowmobiles used by visitors surveyed in the OHMVR Division 2009 Winter Trailhead Survey, are noisier than four-stroke models. Additionally, some riders retrofit their machines with aftermarket parts to enhance performance; this can result in louder engine noise than the 82 dB standard specified by the CVC (see Noise, Section 7.3). Approximately 12 percent of snowmobiles belonging to visitors surveyed in the OHMVR Division 2009 Winter Trailhead Survey had altered mufflers or altered mufflers and engines (Appendix A, Table 24). Noise generated by the majority of OSV is 73 dB at 50 feet, which is slightly less than vehicle traffic (Table 7-1). Noise impacts from OSV use are dispersed throughout the trail system and open riding areas, and the noise effect is highly localized (see also Noise, Section 7.0).

**Exhaust and Air Pollution.** Exhaust from snowmobiles can accumulate at and near trailhead parking lots and on popular trails. Snowmobile exhaust contains pollutants that are hazardous to human health. Emissions from two-stroke engines, which accounted for 96 percent of all snowmobiles used by visitors surveyed in the OHMVR Division 2009 Winter Trailhead Survey, are greater than from four-stroke engines. As a mobile emission source, air quality impacts from OSV use are dispersed over the trail system and open riding areas and do not create hazardous concentrations of pollutant emissions. Given that skiers, snowshoers, and other non-motorized



recreationists using the trail system area tend to recreate in areas separate from snowmobiles, they are unlikely to be significantly affected by concentrated exhaust emissions or strong odors (see also Air Quality, Section 4.0).

**Safety Concerns.** Snowmobiles typically weigh up to 600 pounds and many can travel at high speeds requiring longer stopping distances. Based on the OHMVR Division 2009 Winter Trailhead Survey, the average speed of OSV users on Project trails is 40 miles per hour, although riders maintain lower speeds at trailheads due to the concentration of other OSVs and non-motorized recreationists (Appendix A, Table 22) entering and exiting the trailhead parking area. Snowmobilers and skiers have different travel ranges, and the user groups tend to disperse quickly into separate areas without further interaction. Skiers and snowshoers have short ranges (5 mile radius from trailhead) and tend to get off the groomed trail quickly and stay within a few miles of the trailhead. OSV users have longer ranges (50 mile radius from trailhead) and travel farther down the trail before getting off into open riding areas. Participants in the Winter Trailhead Survey indicated that excessive speed of OSV users was not a problem (Appendix A, Table 26). Law enforcement information provided by the national forests did not identify excessive speed, alcohol and drug violations, or reckless driving as significant problems in response to CDPR's request for information.

**Tracks.** For many snowmobilers and skiers alike, the availability of freshly groomed trails or untracked off-trail terrain is key to a quality recreational experience. On the other hand, some skiers find OSV tracks make off-trail skiing easier. Groomed trails can become churned up or rutted by snowmobiles, making skiing more difficult (Winter Wildlands Alliance 2006). More frequent grooming can provide a smoother and more stable skiing surface. Grooming also improves access for search and rescue operations, and makes law enforcement and resource protection patrols easier.

Based on these factors, the existence of snowmobiles can result in some localized reduction in the quality of the recreation experience for non-motorized recreationists seeking a quiet, pristine natural experience. However, the groomed trail system funded by the OSV Program is an established multi-use trail system. Non-motorized users of the trail system know in advance that OSV use occurs on and off the trails in the Project Area and that project trails do not offer protection from intrusive sights or sounds of snowmobiles. The proposed OSV Program funding does not expand snowmobile use into new areas presently unused by OSVs or promote OSV infringement upon quiet areas reserved for non-motorized users such as Nordic skiers and snowshoers. OSV intrusion into closed wilderness areas adjacent to the groomed trails does occur as described in Land Use Plans and Policies, Section 3.3.3.1. Continued and enhanced enforcement of closed area boundaries is required as project mitigation (Measure LU-1) for OSV intrusion into wilderness areas.

Given the 1,761 miles of groomed trails provided by the OSV Program, the quick dispersal rates between the motorized and non-motorized user groups, and the access to areas from groomed trails which are available exclusively to non-motorized use, the potential conflicts between non-motorized and motorized users in the Project Area are low and considered less than significant. Very few problems were observed or experienced by surveyed visitors to the Project Area (Appendix A, Tables 31 through 42). Patrol logs provided by national forests in response to the OHMVR Division's request for data do not indicate a problem between trail user groups on the project trails (USFS 2009). The multi-use nature of the groomed trail system provided by the Project does not create conflicts between motorized and non-motorized user groups to the degree

that additional recreation facilities should be constructed to separate user groups and reduce conflict.

#### **8.3.2.4 Law Enforcement or Other Public Safety Concerns**

Approximately half of the trailheads included in the OSV Program have somewhat frequent overflow conditions (see Table 8-3). Most overflow parking conditions occur on holiday weekends, sunny weekend days, particularly following a period of heavy snow, or during special events such as poker runs. The majority of overflow parking situations are contained within dead-end, plowed access roads and do not pose any potentially significant environmental, safety, or law enforcement concerns. Some trailheads, however, experience overflow-parking conditions that result in parking on highway shoulders with through traffic. Shoulder parking on these busy highways can present safety concerns; however, it is legal unless the vehicle is parked on the outside of the white fog line or is found to be “blocking.” California Highway Patrol will ticket and/or tow vehicles parked outside the fog line or blocking Caltrans plowing activities, emergency vehicle access to an adjacent site, etc.

The following trailheads have frequent overflow parking conditions that result in shoulder parking on busy, through-traffic highways: Huntington Lake (Sierra NF), Coyote (Sierra NF), Tamarack Ridge (Sierra NF), Kaiser Pass (Sierra NF), Lake Alpine (Stanislaus NF), Little Truckee Summit (Tahoe NF), and Shady Rest (Inyo NF, a non-program trailhead). Of these trailhead parking areas, only two trailheads were identified by national forests as posing potentially significant impacts to law enforcement and public safety: Little Truckee Summit and Shady Rest. Little Truckee Summit overflow parking occurs on the shoulder of State Route 89 and Shady Rest parking occurs up on the shoulder of Highway 395.

To determine the significance of potential impacts caused by parking overflow conditions a multi-step, qualitative process was used. First, trailheads having overflow conditions more than twice a year were identified. The national forest responsible for each trailhead was contacted to determine the nature of overflow parking conditions such as the location of overflow parking, the environmental or safety concern associated with the location of overflow parking, the intensity of the occurrence, the magnitude of the condition (how many vehicles), potential solutions that the national forests may be considering, and the significance of the problem as perceived by the national forests. Inadequate parking is in itself not considered a significant impact. The impact is considered significant where excess parking demand creates adverse environmental impacts or public safety impacts.

To assess the significance of impact to public safety and law enforcement at the Little Truckee Summit (Tahoe National Forest) trailhead and the Shady Rest trailhead (Inyo National Forest) which is no longer maintained by the OSV Program, California Highway Patrol (CHP) staff familiar with the area and the parking situation were interviewed. CHP officers were asked about the legality, safety, frequency, and magnitude of the problem. In the case of both trailheads, CHP officers stated that the parking is legal, safe, and is not considered a burden to law enforcement officials (Craig Muehleisen, pers. comm., 2010; Jeff Holt, pers. comm., 2010). Therefore, any perceived or real impacts created by overflow parking conditions at OSV Program trailheads were found to be less than significant. Therefore, under current trailhead use levels, the impact of parking demand exceeding parking capacity on law enforcement or public safety is not considered significant. The parking demand impact under increased trailhead visitor use over the 10-year program period is discussed below in Section 8.3.3.

Based on observed parking conditions reported by the national forests and follow-up interviews with national forest staff, it was determined that overflow parking conditions at OSV Program trailheads do not pose a significant impact to the environment, safety, or law enforcement.

**Table 8-3. OSV Program Parking Demand, Baseline 2010**

National Forest	Trailhead	Parking Capacity*	Weekday Demand	Max Day Demand	Overflow Frequency
<b>OSV Program Trailheads</b>					
Klamath	Deer Mountain	67	20	26	None
Klamath	Four Corners Medicine Lake	28	6	20	Special events
Modoc**	Doorknob	20	4	15	Rare
Shasta-Trinity	Pilgrim Creek	25	15	25	10x/season
Lassen	Ashpan	16	2	14	None
Lassen	Bogard	22	3	18	None
Lassen	Fredonyer	16	2	14	None
Lassen	Swain Mountain	20	4	16	None
Lassen	Chester-Almanor	50	6	20	Rare
Lassen	Morgan Summit	16	4	14	None
Lassen	Jonesville	12	4	10	None
Plumas**	LaPorte	25	5	50	Almost every weekend
Plumas**	Bucks Summit	75	15	110	Almost every weekend
Plumas**	Big Creek	25	5	40	Almost every weekend
Plumas	Gold Lake	20	3	80	8-12x/season
Tahoe	Bassetts	30	8	30	10-15x/season
Tahoe	Little Truckee Summit	35	17	140	Every weekend
Tahoe	China Wall	32	16	32	None
Eldorado	Iron Mountain	30	3	15	Occasional
Stanislaus**	Lake Alpine	120	24	120	Every weekend
Stanislaus**	Spicer Reservoir	80	16	80	Every weekend
Stanislaus	Highway 108	130	50	280	Holidays and sunny weekend days
Sierra	Huntington Lake	100	50	100	4x/season
Sierra	Tamarack Ridge	100	50	100	4x/season
Sierra	Kaiser Pass (Eastwood)	30	15	30	4x/season
Sequoia	Big Meadow	15	3	15	Some
Sequoia	Quail Flat	20	4	20	Some
Sequoia	Cherry Gap	6	1	3	None
Sequoia	Upper Woodward	4	1	2	None
Sequoia	Quaking Aspen	8	2	2	None
Sequoia	Holby (Ponderosa)	6	5	18	Weekends
Sequoia	Sugarloaf	10	5	5	None

**Table 8-3. OSV Program Parking Demand, Baseline 2010**

National Forest	Trailhead	Parking Capacity*	Weekday Demand	Max Day Demand	Overflow Frequency
Sequoia**	Kern Plateau-Westside	10	2	8	Holidays
Sequoia**	Kern Plateau-Eastside	4	1	3	None
	<b>Subtotal</b>	<b>1,207</b>	<b>371</b>	<b>1,475</b>	
<b>Non-OSV Program Trailheads</b>					
Tahoe	Old Gold Lake Highway	16	10	14	none
Tahoe	Yuba Pass Sno-Park	20	4	20	4-7x season
Tahoe	Prosser Hill	12	2	9	none
Sierra	Coyote	75	38	75	4x season
Inyo**	June Lake Hwy395/158	20	4	44	2x season
Inyo**	Obsidian Road/Hwy 395	40	8	78	3x season
Inyo**	Bald Mtn Road/Hwy 395	3	1	15	20x season
Inyo**	Deadman Creek/Hwy 395	3	1	8	10x season
Inyo**	Scenic Loop/Hwy 395	18	4	50	5x season
Inyo**	Shady Rest	40	8	100	20x/season
Inyo**	Deadman Hill Snowplay	15	3	74	22x season
Inyo**	Inyo Craters	4	1	13	25x season
Inyo**	Cinder Shed	5	1	11	16x season
Inyo**	Big Springs	2	0	6	10x season
Inyo**	Tioga Pass Road	8	2	13	25x season
Inyo**	Sherwin Creek Road	6	1	20	35x season
Inyo**	Mt. Morrison Cemetery Rd.	8	2	20	12x season
Sequoia	Greenhorn Summit	10	2	18	some
Sequoia	North Road	6	1	4	none
	<b>Subtotal</b>	<b>311</b>	<b>93</b>	<b>592</b>	
	<b>Total</b>	<b>1,518</b>	<b>464</b>	<b>2,067</b>	

Notes:

\*Parking capacities vary dependent upon plowed conditions and the number of vehicles pulling trailers

\*\* Weekday data not available. Weekday demand assumes 20% of parking capacity.

Source: USFS 2009; TRA Environmental Sciences, Inc. 2010

### 8.3.3 10-Year Program Growth, Year 2020

OSV use is expected to increase by roughly 48% over the OSV Program years 2010 to 2020 based on an historic annual growth trends (Project Description, Section 2.7.2.1). In response, growth in the OSV Program operations is expected.

#### 8.3.3.1 Physical Deterioration of Facilities

**Expanded Trailhead Parking.** OSV use is expected to increase by roughly 48% over the 10-year program period based on an historic annual growth trends (Project Description, Section 2.7.2.1). The resulting increase in OSV use at each trailhead by 2020 is identified in Table 8-4. The USFS has identified expansion at one trailhead and opening of a second trailhead to accommodate use at two trail systems (Project Description, Section 2.7.1). The opening of the existing Four Trees trailhead (Plumas National Forest) for winter use at Bucks Lake would partially relieve the current chronic parking shortage experienced at the other two trailheads at Bucks Lake (Table 8-3) by adding 20 additional parking spaces. Likewise, the planned

expansion of China Wall trailhead would add 30 parking spaces to that trailhead, which is at capacity.

The expanded trailhead facilities would facilitate either current or increased visitor use of the Bucks Lake and China Wall trail systems resulting in increased need for trail grooming. The OSV Program anticipates increasing its trail grooming operations system wide in order to maintain groomed trails and meet the increase in demand (discussed below). Therefore, increased demand on these groomed trail systems facilitated by expanded trailhead parking would be offset by increased grooming operations. The expanded trailheads would not result in a physical deterioration of the groomed trail system.

**Increased Grooming on Existing Trails.** A modest increase in grooming operations at existing trail sites is anticipated by the OHMVR Division over the next 10 years in order to maintain trails in good condition. The increase in grooming operation has the beneficial effect of maintaining the physical integrity of the groomed trail system and preventing deterioration of the trail.

**New Trail Systems.** Growth in state population will likely continue to increase demand for access to winter recreation throughout the state's national forests. Based on projected growth levels in OSV use over the 10-year project period, it can be expected that there will be more demand placed on the state to expand its trail facilities. Three new trail systems could be established by the OSV Program by 2020. Expansion of the groomed trail system to new locations would relieve user demand on the existing 26 trail systems currently operated by the OSV Program. The creation of new trail systems would not result in the physical deterioration of existing recreation facilities. To the degree that new trail systems reduce demand on existing trail systems, the new trails would have a beneficial effect of reducing grooming maintenance needs on existing trails. There are no immediate plans to establish these sites. Development of new trail systems would be subject to environmental review under NEPA and CEQA at the time of actual proposal.

**Growth in OSV Recreation.** The growth in OSV use to 2020 levels would place increased demand on the existing trail system. The existing weekly grooming frequency would be sufficient to maintain the integrity of the trail system and keep it in good riding condition without increased grooming services and new trail systems described above.

### **8.3.3.2 Adverse Environmental Effects from Expanded Recreational Facilities**

**Expanded Trailhead Parking.** Growth in OSV Program operations anticipates the expansion of trailhead parking at two locations. Four Trees trailhead (Plumas National Forest) currently exists but is closed in winter and requires snow removal along Oroville Quincy Highway and at the Four Trees trailhead parking area. This would not result in adverse physical effects on the environment. Expansion of the China Wall trailhead (Tahoe National Forest) would double its parking capacity and requires environmental review under NEPA (Project Description, 2.7.1). Construction of the expanded parking is not proposed under the OSV Program. The OSV Program would provide snow removal services on this expanded parking area once developed. There are no adverse environmental effects associated with snow removal at the China Wall trailhead.

**Increased Grooming on Existing Trails.** Growth in hours of grooming equipment operations is anticipated in order to maintain the groomed surface on existing trails. Increased grooming is not

an expansion of recreational facilities but rather a maintenance requirement for existing trails at established trail system locations.

**New Trail Systems.** Expansion of the OSV Program to provide three new groomed trail systems may occur during the 10-year program period. There are no immediate plans to establish these sites. Development of new trail systems would be subject to environmental review under NEPA and CEQA at the time of actual proposal.

**Growth in OSV Recreation.** Growth in OSV recreation creates a demand for expanded trailhead parking, increased grooming services at existing trails, and creation of new trails systems. Each of these actions is described above.

### 8.3.3.3 Conflicts between Motorized and Non-motorized Use

**Expanded Trailhead Parking.** Adding Four Trees trailhead to the OSV Program and expanding the existing China Wall trailheads would not affect the potential for conflicts between motorized and non-motorized users in the Project Area.

**Increased Grooming on Existing Trails.** Increased grooming frequency is anticipated in response to projected growth in OSV recreation in order to maintain the integrity of the groomed snow surface. The provision of a modest increase in grooming hours (up to 500 hours total for all trails combined) on existing trails during the 10-year program period would not affect the potential for conflicts between motorized and non-motorized users in the Project Area.

**New Trail Systems.** The same potential that exists for conflicts between motorized and non-motorized use on existing trails would exist at new trails established by the OSV Program during the 10-year program period being considered. See Section 8.3.2.3. Existing impacts are not significant and likewise it is expected that potential conflicts at new trail systems would be at a similar level and therefore not significant. The development of new trail systems for the OSV Program would be subject to environmental review under NEPA and CEQA.

**Growth in OSV Recreation.** The historical average annual OSV growth rate of 4% could result in a 48% increase in OSV use in Project Area from 159,000 to 235,000 by 2020. The groomed trails provided by the OSV Program are multi-use trails open to both motorized and non-motorized use. Growth in OSV recreation could increase the potential for conflict with non-motorized users of the groomed trail system. These conflicts are described above in Section 8.3.2.3 and would mostly occur within short range of the trailhead. On trails which have lower use levels, the increase in OSV riders would have a low potential for increasing conflicts between motorized and non-motorized users. For more popular trails that also have a higher degree of non-motorized use, an increase in OSV use would have a greater potential for conflict.

The USFS monitors recreational uses on the national forests through patrols by law enforcement and forest protection officers. Measure REC-1 requires ongoing USFS patrol of trailheads and trail areas to monitor for use conflicts. If monitoring shows that increased OSV use at a trail site has resulted in conflicts which create chronic public safety risks, the USFS and OHMVR Division shall implement necessary controls such as use restrictions, speed limits, segregated trail access points for motorized and non-motorized users, or public outreach. Implementation of Measure REC-1 would reduce the potential for conflicts between motorized and non-motorized user groups creating significant public safety risks to a less than significant level. Establishment

of new non-motorized groomed trails within the Project Area is not contemplated under the OSV Program and would be a separate project subject to additional environmental review.

#### **8.3.3.4 Law Enforcement or Other Public Safety Concerns**

**Expanded Trailhead Parking.** Expanded trailhead parking at Four Trees and China Wall in itself does not create law enforcement or public safety concerns. Expanded trailhead parking would facilitate an increase in visitor use of the Bucks Lake and China Wall trail systems. The effect of increased OSV use at trail sites within the Project Area is addressed below in Growth in OSV Recreation.

**Increased Grooming on Existing Trails.** Increased grooming on the existing trail systems in the Project Area is anticipated in response to projected growth in OSV recreation in order to maintain the integrity of the groomed snow surface. Increased grooming frequency would not adversely affect law enforcement or create public safety concerns. Trail grooming helps delineate where it is legal to ride and helps to discourage incursions into areas closed to OSV use. Trail grooming also has the beneficial effect of hardening the snow surface to keep riders on safe snow conditions. This potentially reduces the number of responses to access violations and search and rescue operations.

**New Trail Systems.** Expanding the OSV Program to include new trail systems would result in increased demand on USFS law enforcement and forest protection officer staffing. Potential law enforcement issues and public safety concerns associated with new trails would be the same as for existing trails as described above in Section 8.3.2.4. New trail systems would be subject to environmental review under NEPA and CEQA. Law enforcement and public safety issues associated with the new trails would be addressed at that time.

**Growth in OSV Recreation.** Growth in OSV recreation would place increased motorized use in the Project Area and more vehicles and vehicles with trailers at trailhead parking areas. Law enforcement activities associated with the OSV Program typically involve enforcement of OSV vehicle licensing and safety rules, patrolling recreation boundaries (see Land Use, Sections 3.3.2.2 and 3.3.3.2), and public contact. Increased OSV use in the Project Area over the 10-year program period may necessitate an increase in law enforcement officer or forest protection officer presence at the trail sites to ensure these law enforcement activities are maintained at sufficient service levels. If adequate service levels are not maintained, potentially significant impacts to resources or public safety could occur. Continued monitoring by USFS personnel and increased staffing as needed is required by Measure REC-1 to meet the potential demands of increased visitor use. Implementation of Measure REC-1 would reduce the potential for inadequate public safety staffing levels to cause inadequate protection of public safety and resources to a less than significant level.

In addition to the potential safety concerns arising from motorized and non-motorized use conflicts (see Section 8.3.2.3 above), public safety issues can arise at trailheads due to a shortage of parking spaces. National forests are responsible for providing parking facilities at levels suitable to accommodate the desired forest carrying capacities. While demand may exceed capacity at some trailheads, it may be desirable from a forest management perspective not to increase parking capacities. The existence of excess parking demand is not itself considered a significant adverse impact; it is considered significant when it results in public safety concerns such as illegal or unsafe parking along heavily traveled access roads. At current use levels, excess parking demand has not created public safety concerns (see Section 8.3.2.3 above).

Increased parking demand associated with growth in trail use over the 10-year program period may create safety concerns that do not presently exist. Congested parking can block staging areas at trailheads for vehicle drop-off creating difficult access as described above in Section 8.3.2.3.

Various national forests are considering different ways to address overflow parking. These include parking lot expansion, new parking lots, plowing further into seasonally-closed winter roads, partnering with public or private entities to expand existing parking areas or creating new ones, and/or creating new parking areas for non-motorized recreation to alleviate pressure at OSV trailheads. Increasing parking capacities is not always feasible due to physical space limitations or national forest carrying capacity constraints. Measure REC-2 requires that USFS evaluate parking demand at trailheads where unsafe parking conditions are documented or anticipated due to growth and implement measures to address safety concerns. Development of new parking areas is not contemplated under the OSV Program and would be a separate project subject to additional environmental review.

<b>National Forest</b>	<b>Trailhead</b>	<b>Parking Capacity*</b>	<b>Weekday Demand**</b>	<b>Max Day Demand**</b>
<b>OSV Program Trailheads</b>				
Klamath	Deer Mountain	67	30	38
	Four Corners Medicine Lake	28	9	30
Modoc	Doorknob	20	6	22
Shasta-Trinity	Pilgrim Creek	25	22	37
Lassen	Ashpan	16	3	21
	Bogard	22	4	27
	Fredonyer	16	3	21
	Swain Mountain	20	6	24
	Chester-Lake Almanor	50	9	30
	Morgan Summit	16	6	21
	Jonesville	12	6	15
Plumas	LaPorte	25	7	74
	Bucks Summit	75	22	163
	Big Creek	25	7	59
	Gold Lake	20	4	118
Tahoe	Bassetts	30	12	44
	Little Truckee Summit	35	25	207
	China Wall	32	24	47
Eldorado	Iron Mountain	30	4	22
Stanislaus	Lake Alpine	120	36	178
	Spicer Reservoir	80	24	118
	Highway 108	130	74	414
Sierra	Huntington Lake	100	74	148
	Tamarack Ridge	100	74	148
	Kaiser Pass (Eastwood)	30	22	44
Sequoia	Big Meadow	15	4	22
	Quail Flat	20	6	30
	Cherry Gap	6	1	4
	Upper Woodward	4	1	3
	Quaking Aspen	8	3	3



<b>Table 8-4. OSV Program Parking Demand, 10-Year Program Growth</b>				
<b>National Forest</b>	<b>Trailhead</b>	<b>Parking Capacity*</b>	<b>Weekday Demand**</b>	<b>Max Day Demand**</b>
	Holby (Ponderosa)	6	7	27
	Sugarloaf	10	7	7
	Kern Plateau-Westside	10	3	12
	Kern Plateau-Eastside	4	1	4
	<b>Subtotal</b>	<b>1,207</b>	<b>546</b>	<b>2,182</b>
<b>Non-OSV Program Trailheads</b>				
Tahoe	Old Gold Lake Highway	16	15	21
Tahoe	Yuba Pass Sno-Park	20	6	30
Tahoe	Prosser Hill	12	3	13
Sierra	Coyote	75	56	111
Inyo	June Lake Hwy395/158	20	6	65
Inyo	Obsidian Road/Hwy 395	40	12	115
Inyo	Bald Mtn Road/Hwy 395	3	1	22
Inyo	Deadman Creek/Hwy 395	3	1	12
Inyo	Scenic Loop/Hwy 395	18	6	74
Inyo	Shady Rest	40	12	148
Inyo	Deadman Hill Snowplay	15	4	110
Inyo	Inyo Craters	4	1	19
Inyo	Cinder Shed	5	1	16
Inyo	Big Springs	2	0	9
Inyo	Tioga Pass Road	8	3	19
Inyo	Sherwin Creek Road	6	1	30
Inyo	Mt. Morrison Cemetery Road	8	3	30
Sequoia	Greenhorn Summit	10	3	27
Sequoia	North Road	6	1	6
	<b>Subtotal</b>	<b>311</b>	<b>135</b>	<b>877</b>
	<b>Total</b>	<b>1,518</b>	<b>681</b>	<b>3,059</b>
Notes:				
*Parking capacities vary dependent upon plowed conditions and the number of vehicles pulling trailers				
**Assumes 4% average annual growth from 2010 Baseline levels				

Source: USFS 2009; TRA Environmental Sciences, Inc. 2010.

### 8.3.4 Cumulative Impacts

There are no additional activities occurring in the Project Area which would create user conflicts on the recreational trails or create additional recreational demand on the groomed trail system. Parking demand at the trailheads during the 14-week project period (mid-December through March) is limited to visitors using the parking areas for winter recreation. There are no additional demands on trailhead parking space. No additional activities are occurring beyond those considered in this analysis which would create a cumulative demand for parking.

## 8.4 MITIGATION MEASURES

Implementation of the following mitigation would reduce potential project effects on public safety or resources to a less than significant level.

**IMPACT:** *Potential growth in OSV use levels projected over the 10-year program period may result in increased conflicts between motorized and non-motorized user groups. Such growth could also lead to a need for additional USFS law enforcement or forest protection officer staffing to ensure adequate public safety services.*

**Measure REC-1:** USFS shall continue to monitor trailheads and groomed trail areas for potential conflicts between motorized and non-motorized users in the Project Area. USFS shall ensure patrols occur with the necessary frequency needed to maintain adequate police and forest protection services. If monitoring results show conflicts between motorized and non-motorized users cause chronic public safety risks, or that existing staffing levels are inadequate to maintain necessary public safety services, the USFS and OHMVR Division shall implement necessary site-specific controls to reduce safety risks such as trail use restrictions, speed limits, segregated trail access points for motorized and non-motorized users, public outreach providing maps and other information about alternative sites for non-motorized recreationists within the Project Area, or increased staffing.

**Implementation:** By USFS and OHMVR Division

**Effectiveness:** Site-specific controls would improve public safety and minimize potential conflicts between motorized and non-motorized users and ensure adequate protection of public safety and resources.

**Feasibility:** Feasible

**Monitoring:** National forests shall annually submit patrol logs showing monitoring and any site-specific measures, including enforcement actions, to OHMVR Division for agency review each summer prior to contract approval for OSV Program operations for the following winter season.

**IMPACT:** *Parking demand at trailheads serving the groomed trail system exceeds parking capacity at several locations. Currently, the excess parking demand is adequately controlled by national forest staff and California Highway Patrol so that illegal or unsafe parking conditions are minimized. Increased trailhead visitor levels over the 10-year program period without corresponding increases in parking capacities could increase the potential for unsafe parking conditions.*

**Measure REC-2:** Each national forest shall document to the OHMVR Division the opportunity and constraints for addressing unsafe parking conditions at trailheads where unsafe parking conditions are documented or anticipated due to growth. Measures to address such conditions may include signage, education, directing recreationists to under-utilized sites, and increased patrols with citations as appropriate. Where trailhead road widths permit, national forests shall establish designated unloading and loading zones and vehicle turnaround areas. National forests may consider increasing parking capacity through increased road shoulder plowing provided by OSV Program funding or coordination with Caltrans or county road departments where road widths can accommodate the parking.

**Implementation:** By USFS and OHMVR Division

**Effectiveness:** Establishing a protected unloading zone at trailheads, in conjunction with other possible measures, would improve safety of OSV users at congested trailheads.

**Feasibility:** Feasible

**Monitoring:**

National forests shall annually submit patrol logs showing monitoring and implementation of necessary actions at OSV Program trailheads to OHMVR Division for review each summer prior to contract approval for OSV Program operations for the following winter season. Documentation of opportunity and constraints for expanding trailhead capacity shall be submitted to OHMVR Division prior to start of 2012 winter season.

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## 9.0 PROJECT ALTERNATIVES

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CEQA Guidelines Section 15126.6 states that an EIR shall describe a range of reasonable alternatives to a project or location of the project which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. The discussion of alternatives is to focus on alternatives that are capable of avoiding or substantially reducing any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives. Factors that may be taken into account when considering feasibility include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site.

### 9.1 CONSIDERED AND REJECTED ALTERNATIVES

Four alternatives have been identified and rejected from further consideration in the Project Alternative analysis due to infeasibility, not achieving project objectives, or not avoiding or substantially lessening an environmental impact. These alternatives are described below.

#### 9.1.1 Alternative Project Locations

There are a total of 1,761 miles of trail groomed by the OSV Program throughout the Project Area. Additionally, there are 90 miles of groomed trail provided by private contractors and made available to the public for a fee in national forests participating in the OSV Program (Recreation, Table 8-2) and an additional 25 miles of privately groomed trail on the Humboldt-Toiyabe National Forest at Hope Valley Sno-Park. Thus, groomed trails funded by the State of California through the OSV Program represent 94% of the groomed trails available in the state. Each national forest in the OSV Program provides from 52 to 402 miles of groomed trail (Table 8-2). The trail routes have been established over the decades in areas deemed acceptable for OSV recreation by the forest plans (LRMPs) of each national forest. There are no other large land holdings outside the national forests which can accommodate this scale of OSV recreational use throughout the state. Therefore, there are no alternate trail systems in existence that are available to receive state funding as a replacement for the existing trail systems in the OSV Program. The OHMVR Division has identified possible locations for new grooming operations (Project Description, Section 2.7), but these locations are all within national forests and would only provide approximately 68 miles of groomed trail. Furthermore, establishing OSV use in new areas not already having OSV recreation could introduce new environmental impacts to those areas and would thus be inconsistent with the purpose of project alternatives under CEQA, which is to reduce or avoid significant environmental effects of the project.

#### 9.1.2 Closure of Trail Systems

Closure of an entire trail system and its trailhead parking areas to winter recreation as a means of reducing significant project impacts such as OSV trespass issues, or potential damage to sensitive biological resources, represents an overly broad solution to very site-specific impacts. Under this alternative, entire trail systems would be closed in response to impacts on specific trail route segments or play areas rather than implementing protective measures focused at the point of impact. Given the relatively small scale of environmental impacts associated with the

groomed trail system, closing an entire recreation area to address site-specific issues is unwarranted and would bring an unnecessary reduction in the winter recreation opportunities contrary to the OHMVR Division's project objective, which is to facilitate winter trail recreation in California.

### **9.1.3 Closure of Off-Trail Riding Areas**

Restricting OSV use in national forests to designated groomed trails throughout the Project Area, similar to the restrictions in Giant Sequoia National Monument, could reduce environmental impacts associated with OSV use. However, the OHMVR Division is not a land manager of national forests and therefore does not have authority to restrict OSV use in national forests. OSV use in national forests is governed by individual forest LRMPs, and closure of off-trail riding areas would be inconsistent with existing LRMPs. Given that the OHMVR Division does not have authority to modify LRMPs or otherwise restrict OSV use in national forests, closure of off-trail riding areas is rejected as infeasible.

### **9.1.4 Prohibition of Two-Stroke Engines**

As described in Air Quality, Section 4.3.2, the two-stroke engines are responsible for most of the emissions associated with snowmobile use. Four-stroke engines use less fuel and generate less noise, resulting in a cleaner and quieter ride. Banning the use of two-stroke engines on project trails in national forests is both infeasible and impractical. Two-stroke engines are legal in California, and banning their use puts the OSV Program and the national forests at odds with state law. National forests are open lands with ungated entry. There is no practical way of preventing two-stroke engines from accessing the project trails. Enforcement of this prohibition would be problematic. According to the Winter Trailhead Survey, 97% of the trail visitors used 2-stroke engines. The prohibition of two-strokes would place a heavy burden on the recreation community to replace their machines. While the switch from two-stroke to four-stroke could be beneficial for HC, CO, and PM emissions, it would increase NO<sub>x</sub> emissions (see Air Quality Section 4.3.2). The change is beyond the scale of the OSV Program project and would have to occur through state legislation and vehicle codes. For this reason, the prohibition of two-stroke engines in the Project Area is rejected from further consideration.

### **9.1.5 Shortened 10-Year Program Funding Period**

Under this project alternative, the OHMVR Division would shorten the OSV Program funding period to less than 10 years. The OSV Program operations would remain the same as the Project, and OSV use levels would remain the same as for the Project. This alternative would not reduce the impacts of the OSV Program; the potential significant impacts identified for the Project (see Table S-1) and their cumulative impact would remain unchanged. As a result, this alternative does not accomplish the purpose of a project alternative as defined by CEQA, which is to reduce or eliminate significant environmental effects of the proposed Project, and is thus rejected from further consideration.

### **9.1.6 Funding of OSV Program through Grants Program**

The 2002 BCP enabled the OSV Program to receive one million dollars of annual funding from the OHV Trust Fund through issuance of direct contracts to local counties and cost share agreements to national forests. Under this alternative, the OSV Program would no longer be funded through the BCP and would instead be returned to funding through the Grants Program.

Each county and national forest would be required to submit an annual application to the Grants Program for its funding needs. The applications would be considered along with summer OHV applications and awarded according to a competitive process. Under this alternative, the OSV Program would no longer have a dedicated source of funds provided through the BCP. Individual applications for grooming, plowing, and restroom maintenance may or may not be awarded dependent upon the scores of competing grant applications. Under this alternative, the OHMVR Division could only provide administrative oversight and ensure proper maintenance of snowcat equipment and consistency of trail grooming operations for those areas that received Grants Program funding. The efficiency and quality of the OSV Program would likely decline over time. Each national forest would be responsible for purchasing, maintaining, and operating snowcat equipment. The expense of the OSV Program could increase as the OHMVR Division would no longer control costs of equipment maintenance and fuel for snowcat operations program-wide through a negotiated contract with a single vendor. This alternative does not meet the project objectives of facilitating OSV recreation and does not meet the purpose of a project alternative under CEQA, which is to reduce or eliminate significant environmental impacts of the proposed Project. Therefore, this alternative is rejected from further consideration.

## 9.2 NO PROJECT ALTERNATIVE

Under the No Project Alternative, the OHMVR Division would not issue contracts to the 11 national forests and three county agencies, and the OSV Program would be discontinued. The one million dollar budget established for the OSV Program under the 2002 BCP (see Project Description, Section 2.9.1) would revert to the OHV Trust Fund. Grooming would not occur on 1,761 miles of trail, and plowing of 97 miles of access road as described in Project Description Table 2-6 would not occur. It is possible that funding from national forests and/or private sources, along with volunteer efforts, could be generated to preserve limited grooming or plowed access in some trail locations. But for the EIR analysis, the No Project Alternative assumes all grooming and plowing funded by the OSV Program would cease. Access to 21 of the 26 trail systems, provided by 27 trailheads currently plowed by the OSV Program, would no longer be plowed as shown in Table 9-1. Access to the remaining 5 trail systems from 7 trailheads plowed by Caltrans at sno-parks (Project Description, Table 2-6) would continue unaffected. The state highways adjacent to many of these trailheads would continue to be plowed by Caltrans, and therefore some trailheads could continue to be used as access points. Restroom and refuse collection service funded by the OSV Program (Table 2-1) would also no longer be available.

Visitor use of the trails would likely drop by half and as much as two-thirds based on the visitor trailhead survey. At least one-third of current OSV use is likely to continue (Project Description, Section 2.6.1.2). Groomed trails favor beginner riders who prefer a stable and predictable snow surface. Experienced riders who are more comfortable in softer, off-trail snow conditions would be more likely to continue riding in the Project Area without groomed trails. The projected growth in OSV Program operations (Project Description, Section 2.7.1) would not occur and growth in OSV recreation, if it occurs, would likely be substantially less than the historical 4% average annual rate projected (Project Description, Section 2.7.2.1).

Land Use Plans and Policies. Trespass incidents described in Land Use Plans and Policies, Section 3.3.2.2, would be reduced by the No Project Alternative given the smaller number of OSV users on the trail system. However, the availability of groomed trails is not a prerequisite for OSV use or for trespass. As documented in Land Use Plans and Policies Table 3-2, intrusion into protected wilderness, administrative closure areas, and private property happens apart from

the OSV Program groomed trail system. Intentional wilderness trespass occurs in ungroomed snow conditions. Therefore, it is unlikely that willful trespass would be eliminated by eliminating groomed trails under the No Project Alternative.

<b>Table 9-1. Trailheads Not Plowed Under the No Project Alternative</b>	
<b>National Forest/Trailhead</b>	<b>Groomed Trail Mileage</b>
Klamath/Deer Mountain and Four Corners	135
Modoc/Doorknob	52
Shasta-Trinity/Pilgrim Creek	86
Lassen/Ashpan	35
Lassen/Bogard	80
Lassen/Swain Mountain and Chester Lake Almanor	60
Lassen/Fredonyer	80
Lassen/Morgan Summit	77
Lassen/Jonesville	70
Plumas/Bucks Lake and Big Creek	100
Plumas/Gold Lake	10
Plumas/La Porte	72
Tahoe/Bassets	82
Tahoe/Little Truckee Summit	138
Tahoe/China Wall	50
Sequoia/Big Meadow, Quail Flat, Cherry Gap, and Upper Woodward	30
Sequoia/Quaking Aspen, Holby, and Sugarloaf	100
Sequoia/Kern Plateau Westside and Eastside	85
<b>Total</b>	<b>1,342</b>
Notes: OSV Program trailheads which share facilities with sno-parks (Eldorado NF, Stanislaus, NF, and Sierra NF) or trailheads which access OSV Program groomed trails but are not maintained through the OSV Program (Inyo NF) would be plowed and remain accessible.	

Source: CDPR, OHMVR Division, 2010

While trailhead parking areas would no longer be plowed, the state highways adjacent to many of these trailheads would continue to be plowed by Caltrans, and therefore trailheads could continue to be used as access points to wilderness areas (e.g., Ashpan and Morgan Summit on Lassen NF). Trailheads which occur at sno-parks (Eldorado NF, Stanislaus NF, and Sierra NF) would continue to be plowed, and wilderness incursions happening from these access points could continue (see Land Use, Table 3-3). Swain Mountain (Lassen NF) access is a local road plowed by the county road department outside of the OSV Program, so the wilderness areas accessed from this trailhead could continue to be accessed. Kern Plateau Eastside trailhead (Sequoia NF) gets low snowfall and rarely needs plowing. Therefore wilderness incursions occurring from this access point would be largely unaffected by discontinued snow removal service. Local county and forest roads accessing the Deer Mountain (Klamath NF), Pilgrim Creek (Shasta-Trinity NF), and Bucks Lake (Plumas NF) would no longer be plowed by the OSV Program under this alternative, and therefore wilderness trespass originating from these areas (Land Use, Table 3-3) could be substantially reduced or eliminated.

Under the No Project Alternative, a substantial drop in OSV use in the Project Area would likely reduce the number of OSV trespass incidents from 2010 baseline levels. At 2010 baseline levels, the project impact of OSV trespass on wilderness, private property, and other administrative closure areas is considered less than significant, so this alternative would further reduce a less than significant impact. Without the OSV Program facilitating OSV recreation, the 4% average annual increase would not be realized. Therefore, the number of future OSV trespass incidents would likely be reduced by the No Project Alternative.

Air Quality, Energy, and Greenhouse Gases. With the OSV Program equipment not used and visitor use cut by two-thirds, there would be a corresponding decrease in air quality emissions from vehicle exhaust, less consumption of energy resources by reduced fuel use, and reduced GHG emissions. Under the No Project Alternative, the Project's less than significant impacts to air quality, energy use, and GHG would be further reduced.

Noise. With the OSV Program equipment not used and visitor use cut by two-thirds, there would be a corresponding decrease in noise from the vehicle engines. Under the No Project Alternative, the Project's less than significant noise impact would be further reduced.

Biological Resources. The potential for biological effects as described in Biology, Section 5.3, would be reduced by the No Project Alternative in proportion to the reduction in OSV use in the trail system area.

The USFS would continue to implement its management actions for northern spotted owl and northern goshawk which mitigates OSV impact on these raptors. The Project's less than significant impact on northern spotted owl and northern goshawk would be further reduced by less OSV use in the Project Area under the No Project Alternative.

The USFS would continue monitoring for California wolverine which is not known to occur in the Project Area. Management actions would continue to be unspecified unless wolverine presence is determined. With reduced OSV use in the Project Area, there is less potential for impact to the California wolverine if presence occurs. The Project's less than significant impact on California wolverine would be further reduced under the No Project Alternative.

Sierra Nevada red fox is known to occur in the Project Area and could be adversely affected by OSV use. USFS does not currently have specific management actions governing Sierra Nevada red fox but is undertaking new studies to determine its level of presence in the Project Area. Under the No Project Alternative, the USFS would still continue its evaluation of the Sierra Nevada red fox and implement new management actions as deemed appropriate. OSV use under the No Project Alternative would be reduced and the potential impact on the Sierra Nevada red fox would be reduced to below existing 2010 baseline levels. With USFS management actions in place the project impact on red fox would be less than significant. Therefore, under the No Project Alternative, the potential impact to Sierra Nevada red fox is less than significant.

The USFS would continue its management actions for special-status plant species. The CNPS 1B, CNPS 2, and FSS species not already monitored by USFS for OSV impacts during low-snow conditions could continue to be impacted by OSV activity. Reduced OSV use under the No Project Alternative reduces the potential for impacts to occur to these plant species. Project mitigation to protect special-status plant species through inventory, monitoring for OSV damage, and implementation of protective measures would not occur under the No Project Alternative.



Therefore, under the No Project Alternative, the potential impact to these plant species would be less than 2010 project baseline conditions, but the potential impact is significant given no management actions are in place to protect these plant species.

Sensitive aquatic resources are not known to be impacted by OSV use facilitated by the OSV Program. Under the No Project Alternative, OSV use would be reduced by one-half to two-thirds further reducing the potential for impact to aquatic resources. Since the potential impact to aquatic resources would be likely limited to occasional incidents with less OSV use, the potential impact under the No Project Alternative is considered less than significant.

Hydrology and Water Quality. The No Project Alternative would eliminate 5,000 hours of annual snowcat operation in the Project Area and reduce OSV use by up to two-thirds resulting in less vehicle exhaust and fewer VOC emissions deposited on the snow pack. The low potential for soil compaction and soil erosion associated with the Project would be further reduced. The lack of restroom service could lead to water quality impacts from human waste deposited on the surface of the snow rather than into sanitary facilities. The Project's impact on hydrology and water quality is less than significant. Under the No Project Alternative, the impact on hydrology and water quality would be less than 2010 project baseline conditions and is therefore less than significant.

Recreation. As noted in Recreation Table 8-2, the OSV Program grooms 1,761 miles of the total 1,851 miles of groomed trail available for motorized recreation in the State of California. Only Eldorado, Stanislaus, and Inyo National Forests have trails groomed with non-state funds. By eliminating state funded trail grooming, the No Project Alternative would eliminate 95% of the groomed trail recreation opportunity in the state. OSV use and non-motorized use could continue in these areas, but given that plowed access would not be provided and trails not groomed, the number of visitors to the sites would be reduced by up to two-thirds. One-third of the survey respondents indicated that they would continue to use the trails if ungroomed. A smaller group (up to 5%) indicated that their use of the trails would increase if trails were not groomed.

As shown in Table 9-1, without plowing, 27 trailheads leading to 1,342 miles of trails (76% of OSV Program groomed trails) would no longer be accessible. The remaining 7 trailheads which double as sno-parks (Eldorado NF, Stanislaus NF, and Sierra NF) would still be accessible. The trailheads at Mammoth Lakes which are not state funded under the OSV Program would also continue to be accessible. OSV use on the trail systems accessed from these 27 unplowed trailheads would be dramatically reduced but not necessarily eliminated. The potentially significant impact of inadequate parking leading to unsafe parking conditions would not necessarily be reduced or eliminated as an unknown number of OSV recreationists would continue to access the trail systems where possible. Although plowed parking would not be available, visitors with vehicles that can handle the road conditions could drive as far as they could go and then park on the side of the road and unload the snowmobiles and begin riding from that point, which could lead to unsafe conditions. Thus, under the No Project Alternative, the potential for lack of adequate parking to adversely impact public safety remains a significant impact.

Patrols of the trail system areas by LEOs and FPOs are provided by each national forest. These patrols would continue under the No Project Alternative. Access to the area from unplowed roads and patrolling the trail system from ungroomed trails would make patrolling more difficult.

Search and rescue operations could also be slowed by unplowed and ungroomed conditions. This would be a potentially significant impact of the No Project Alternative.

At 2010 project baseline OSV levels, the potential for conflicts between motorized and non-motorized use on the trail systems was determined to be less than significant. The increase in OSV use over the 10-year program period was determined to be potentially significant and required could require increased law enforcement. Under the No Project Alternative, OSV use in the Project Area would be reduced by up to two-thirds and likely result in a reduced number of user conflicts. Thus, the less than significant 2010 baseline impact would be further reduced.

Under the No Project Alternative, the overall growth projected by the OSV Program would not be realized. Growth related impacts, such as increased motorized use conflicts, would not occur. Without the projected increase in OSV use levels, the potential need for increased law enforcement patrols would likely not occur. Thus the future demand for increased law enforcement to address recreation use conflicts and safety issues would be less than significant.

Under the No Project Alternative, restroom service and garbage collection at many of the trailheads would be discontinued. This could result in trash and sanitation issues at the trailheads or along the trail routes.

### **9.3 FUNDING OF RESTRICTED RIDING AREAS ONLY**

Under the Funding Restricting Riding Areas Only Alternative, the OHMVR Division would only fund trail grooming in areas where OSV use is restricted to designated routes by the land managers; no grooming would occur where off-trail riding is permissible. At least initially, this alternative would eliminate grooming at 24 of the 26 trail systems. Grooming would continue on two trails systems in the Giant Sequoia National Monument (Big Meadow/Quail Flat and Quaking Aspen/Sugarloaf) where off-trail riding is prohibited. Grooming could be expanded to other locations where the land manager has enacted riding restrictions. With only the trails in the Giant Sequoia National Monument groomed, this alternative would reduce the trail mileage groomed under the OSV Program from 1,761 to 130 miles.

The OSV Program would also only fund access road and trailhead plowing and services at those areas with trail grooming. Thus, the OSV program would only fund plowing for 0.8 miles of County Road 9 (serving Sugarloaf), in addition to parking lot plowing, restroom servicing, and warming hut maintenance for the seven trailheads serving these two trail systems (Big Meadow, Quail Flat, Upper Woodward, Cherry Gap, Quaking Aspen, Holby, and Sugarloaf). Direct access to seven trailheads plowed by Caltrans at the shared trailhead/sno-parks (Project Description, Table 2-6) would continue unaffected. This would preserve access to six of the 24 ungroomed trail systems under this project alternative. Direct access to 18 of the 24 ungroomed trail systems, provided by 20 trailheads currently plowed by the OSV Program, would no longer be plowed.

It is possible that funding from national forests and/or private sources, along with volunteer efforts, could be generated to preserve limited grooming in some trail locations. Given the extensive effort and funding required to maintain the groomed trails at current levels, however, it is assumed the great majority of trails would remain ungroomed. Thus, despite the potential for some of the trailheads to remain plowed and for some limited grooming from non-OSV program sources, visitor use of the trail systems no longer groomed via the OSV Program would likely drop by half and as much as two-thirds based on the visitor trailhead survey.

Land Use Plans and Policies. Similar to the No Project Alternative, the potential for inadvertent trespass into protected wilderness areas, closure areas, and private property at the 24 trail systems no longer groomed as part of the OSV Program would be reduced somewhat in proportion to the drop in OSV use. As discussed under that alternative, while most trailhead parking areas would no longer be plowed, the state highways adjacent to many of these trailheads would continue to be plowed by Caltrans. Ungroomed trail systems and parking along the highways could continue to provide access to wilderness and other closed areas (e.g., Ashpan and Morgan Summit on Lassen NF). Trailheads that occur at sno-parks (Eldorado NF, Stanislaus NF, and Sierra NF) would continue to be plowed, and wilderness incursions happening from these access points could continue (see Land Use, Table 3-3). Since County Road A-21 would continue to be plowed by the county road department outside of the OSV Program, the wilderness area accessed from the Swain Mountain (Lassen NF) trailhead could continue to be accessed. Kern Plateau Eastside trailhead (Sequoia NF) gets low snowfall and rarely needs plowing. Therefore access to the ungroomed trail system from this access point would be largely unaffected by discontinued snow removal service. Local county and forest roads accessing the Deer Mountain (Klamath NF), Pilgrim Creek (Shasta-Trinity NF), and Bucks Lake (Plumas NF) trail systems would no longer be plowed by the OSV Program under this alternative, and therefore wilderness trespass originating from these areas (Land Use, Table 3-3) could be substantially reduced or eliminated.

Since some ungroomed trail systems would remain accessible and used by OSVs, without groomed trails to demarcate authorized routes, and if national forests decrease in patrols on the ungroomed trails, it is assumed that inadvertent trespass into closed areas would increase in some areas. Furthermore, trespass in known hot spots typically occurs as a willful violation of OSV boundaries, and OSV trespass occurs independent of the groomed trail system (see Land Use Table 3-2). Thus, eliminating state funding of groomed trails where off-trail riding is permitted by the land manager would not necessarily prevent OSV users intent on trespass from entering closed areas. Trespass into closed areas from the 24 trail systems no longer groomed would therefore likely be reduced but not eliminated due to overall reductions in OSV use.

OSV riders who prefer groomed trails would be redirected away from the 24 trail locations no longer groomed toward the remaining two groomed trail systems on the Giant Sequoia National Monument. As a result, annual OSV use in the Giant Sequoia National Monument could be dramatically increased and lead to increased OSV trespass into closed areas. The Big Meadow/Quail Flat and Quaking Aspen/Sugarloaf trails in the monument are two of the lesser used trails in the OSV Program groomed trail system (see Sequoia National Forest in Table 2-8). This redirection of OSV riders would likely create a need for increased law enforcement patrols and public outreach to enforce trail riding restrictions. Mitigation Measure LU-1 would need to be implemented to ensure incursions would remain at a less than significant level.

The Winter Trailhead Survey (Appendix A, Table 5), found the average one-way trip distance of OSV recreationists to be about 100 miles, with many survey respondents coming from Northern California population centers such as Stockton, Sacramento, Chico, and the San Francisco Bay Area. Given that the distance of these two trail systems from the point of origin of many of the OSV recreationists is well over 100 miles, it is assumed that a great many OSV recreationists would not travel to Giant Sequoia National Monument. They may attempt to access ungroomed trail systems closer to home, or they may simply curtail OSV recreation until closer groomed, accessible trail systems become available.

Air Quality and Noise. OSV use would continue at the non-groomed trail systems, but at reduced levels similar to the No Project alternative. Exhaust emissions and noise from OSV use would be reduced in proportion to the drop in OSV use. OSV ridership in the Giant Sequoia National Monument may increase due to the lack of other available groomed trail sites. Those trail systems would likely require somewhat increased grooming, as discussed in Section 8.3.3.1. This would result in increased air quality and noise emissions. The noise increases would be confined to the established trail route, which is based on an existing road network. The increased air emissions from the OSVs and grooming equipment would still be less when compared to overall increases expected under the proposed Project.

Biology. The likely drop in OSV use at the 24 non-groomed trail locations under this alternative would likely reduce the potential impacts to special-status plants and wildlife species similar to the No Project alternative. Biological monitoring required by the OHMVR Division as part of the OSV Program would not occur at these locations. OSV ridership in the Giant Sequoia National Monument would likely increase. OSV use in the Giant Sequoia National Monument is limited to designated routes which occur over existing paved roads and gravel-base or dirt roads used in summer as OHV trails and for other motorized access. As such, there would be little to no potential for trampling of vegetation and sensitive aquatic habitats by OSV use. Wildlife impacts would not be significantly increased by the increase in OSV ridership given the restriction on OSV use to an established road network. This alternative could require increased monitoring and law enforcement patrols (see Mitigation Measure LU-1) to enforce riding restrictions and ensure the protection of biological resources.

Hydrology and Water Quality. Under this alternative, OSV use would continue at the 24 trail systems no longer groomed but likely at a reduced level. The potential impacts to water quality from erosion or vehicle exhaust on the snow pack would be less than the proposed Project and similar to the No Project alternative. OSV visitor use in the Giant Sequoia National Monument would likely increase. Use would be restricted to a trail system over an existing road network, and therefore there would be little potential for soil erosion impacts. The amount of exhaust emissions on the snow pack would be increased in proportion to the increase in OSV use of the trails. The nine trailheads (7 program and 2 non-program) serving Big Meadow/Quail Flat and Quaking Aspen/Sugarloaf trails generate 87 passenger vehicles on a maximum day (Table 8-3) which corresponds to roughly 8,000 seasonal OSV use days. The increase in ridership at the monument is unlikely to reach Yellowstone levels which at almost 48,000 OSV use days (Section 6.3.3) was determined to have a less than significant impact on water quality.

Recreation. This alternative would eliminate all but 130 miles of the 1,761 miles of groomed trail in the OSV Program. As a point of OHMVR Division policy, expansion of the state-funded groomed trail system in the future would be limited to those areas where off-trail riding is prohibited. This alternative would result in the loss of groomed trail access similar to the No Project Alternative. Those riders who spend the majority of their time riding off-trail in ungroomed conditions are least likely to be affected by this alternative, although a majority of trailheads would no longer be plowed or maintained. Ungroomed trails could slow an emergency response to a search and rescue call. Beginning riders and those who prefer groomed trails would have their opportunities for public trail recreation drastically reduced from 24 trail systems statewide to two trail systems only, both located on the Giant Sequoia National Monument and thus far away from many OSV recreationists. Likewise, non-motorized users of the groomed trail system would also have reduced opportunities. The recreation impacts at the 24 trail system locations no longer groomed would be similar to the No Project Alternative. The recreation

impacts at the two remaining trail systems, Big Meadow/Quail Flat and Quaking Aspen/Sugarloaf, would likely be immediately increased due to an increase in OSV ridership similar to those impacts described under the 10-year program growth (Section 8.3.3).

#### **9.4 REDIRECTION OF GROOMING FUNDS**

The 2002 BCP allocates up to one million dollars from the OHV Trust Fund for winter trail maintenance, including grooming, plowing, and restroom service, that directly supports OHV winter recreation. None of the OSV Program funds are used to provide law enforcement, public education, or biotic resource inventories and monitoring, all of which are identified in the EIR analysis as needed mitigation and could require additional funding (Land Use Section 3.3.4, Biology Section 5.3.4, and Recreation Section 8.3.4). These three responsibilities are primarily funded and staffed as needed by the USFS (Project Description, Section 2.5) with some periodic funding provided by the OHV Trust Fund through the Grants Program. Under the Redirection of Grooming Funds Alternative, a portion of funds allocated by the 2002 BCP for grooming (the primary funded activity of the OSV Program) would be redirected to fund the needed law enforcement, public outreach, and biotic resource monitoring measures specified in the EIR while keeping total funding for the OSV Program under the 2002 BCP million dollar cap. This alternative would have the benefit of securing funds for EIR mitigation within the 2002 BCP budget cap. However, given that resource monitoring, public education, and law enforcement activities are not specific activities authorized for funding under the BCP, an amendment would be required for the OSV Program to fund these activities through the BCP funding allocation. Under this project alternative, grooming frequency throughout the Project Area would be reduced to free up funding for law enforcement and resource monitoring. Plowing would remain unchanged in order to preserve access to all trailheads. This alternative would not necessarily stop grooming but would substantially reduce the frequency of grooming, leaving trail conditions rough. These conditions could result in reduced OSV use on the project trails throughout the Project Area.

Land Use Plans and Policies. Under this alternative OSV use would continue but likely be reduced. Incidents of OSV trespass may be somewhat reduced by few numbers of riders on the trail system. However, given that trespass is also known to occur outside of the groomed trail systems of the Project Area (see Land Use Plans and Policies, Section 3.3.3) it is likely that trespass will still occur even with rougher trail conditions. Law enforcement measures and public outreach as required for the Project would be provided for under this alternative without increased funding through a modified BCP to allow law enforcement expenditures. The impact of this alternative would be similar to the Project. Mitigation Measure LU-1 would be implemented, thus the impact from OSV trespass would remain less than significant.

Air Quality and Noise. Hours of grooming equipment operation would be reduced by this alternative resulting in reduced air quality emissions and noise throughout the Project Area. Reduced grooming could result in reduced OSV use of the trail systems. Based on the Winter Trailhead Visitor Survey (Appendix A), half of the respondents indicated that they were less likely to use the trail system and trailhead if trail grooming was not provided. A reduction in trail grooming rather than elimination of trail grooming may not affect overall OSV use levels. To the degree that OSV use is reduced, this project alternative would result in less air quality emissions. Ambient noise levels at trail sites would also be somewhat reduced by this alternative to the degree that OSV use is reduced. The project noise impact is less than significant and therefore the noise impact under this alternative would remain less than significant.

Biology. Since project grooming would not result in direct biological impacts, reducing or eliminating grooming would not reduce biological effects of the project. Reduction in OSV use that may occur as a result of reduced grooming could reduce potential adverse biological effects similar to the No Project Alternative described above. Under this alternative, a portion of grooming funds would be allocated for biotic resource inventories, monitoring, and implementation of management actions required in Measures BIO-1 through BIO-5 once the BCP was amended. The effects of this alternative on biological resources would be the same as for the Project or slightly less to the degree that OSV recreation is reduced by less frequent grooming of the trails. The impact of this alternative on biological resources would be less than significant.

Hydrology. This alternative would slightly reduce VOC emissions on the snowpack due to reduced grooming equipment operations and a presumed reduction in OSV use. The impact would remain less than significant. The alternative may slightly reduce the potential for soil erosion by reducing OSV use and the potential for OSVs to cross bare soil. The project level impact is not significant, and therefore this alternative would further reduce a less than significant impact.

Recreation. Redirection of funds from grooming would create less favorable riding conditions and would likely result in less OSV use by riders who spend the majority of time on the groomed trail system (Appendix A). Rough trail conditions create an uneven snow surface, which could lead to increased safety hazards for trail riders. Ungroomed trails can slow an emergency response to a search and rescue call. Less OSV use would reduce the demand for parking. For trailheads experiencing excessive parking demand, this alternative would reduce the demand and relieve overcrowded conditions. Safety impacts associated with crowded parking conditions of the Project were determined to be less than significant with mitigation over the 10-year project life. With reduced parking demand under this alternative, the less than significant public safety impacts would be somewhat diminished.

## **9.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

CEQA requires that the EIR analysis of project alternatives identify an “environmentally superior” alternative. If the environmentally superior alternative is the “No Project” alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives. Funding groomed trails in restricted riding areas only would limit OSV use associated with the OSV Program to groomed trails, which are established travel routes with a paved or dirt and gravel road base. This substantially reduces the potential for impact to biological resources and inadvertent wilderness trespass associated with the OSV Program as a whole. Off-trail OSV use would continue in national forests but likely at reduced levels and therefore environmental effects from OSV use in these areas would likely be reduced. For these reasons, Funding Restricted Riding Areas Only is considered the environmentally superior alternative that can partially meet the project objectives.

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## **10.0 CEQA REQUIRED ASSESSMENTS**

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### **10.1 POTENTIALLY UNAVOIDABLE SIGNIFICANT IMPACTS**

There are no significant unavoidable impacts associated with the OSV Program, Program Years 2010-2020. Potentially significant impacts of the OSV Program, are identified in Chapters 3.0 through 8.0 of this EIR along with mitigation measures that would reduce or avoid these impacts. All project impacts can be reduced to a less than significant level with mitigation.

### **10.2 IRREVERSIBLE ENVIRONMENTAL CHANGES**

CEQA requires that an EIR assess whether a Project will result in significant irreversible changes in the environment. The CEQA Guidelines describe three distinct categories of irreversible changes that should be considered, as further detailed below.

#### **10.2.1 Changes in Land Use which Commit Future Generations**

The Project would not involve any changes in land use, or permanent changes in the character of the Project Area. All project sites occur in national forests, in areas open to OHV vehicle recreation. No new facilities are proposed for construction. The direct effects of compaction and moving of snow involved in plowing and grooming activities would be a seasonal temporary physical change in the environment. The increase in winter recreational access facilitated by the Project would not be an irreversible change.

#### **10.2.2 Irreversible Damage from Environmental Accidents**

The proposed Project would not involve the use or transport of hazardous materials in substantial quantities, nor any other potential for environmental accidents. Some OSV users may refuel their equipment at trailhead parking lots, which may result in occasional spills of small amounts of fuel. Such occurrences would be infrequent and any resulting damage would be minor and not irreversible.

#### **10.2.3 Consumption of Natural Resources**

Examples of consumption of non-renewable resources include increased energy consumption, conversion of agricultural lands to urban uses, and loss of access to mining reserves. The Project would not involve the conversion of agricultural land or the loss of access to important mineral reserves. The proposed Project would irretrievably commit non-renewable fossil fuel resources by the State of California to provide statewide winter trail recreation in national forests. Winter trail recreation itself requires consumption of fossil fuel energy for the transport of trail visitors to the Project Area and for the OSV recreation occurring on the trails. This is addressed in Air Quality, Energy, and Greenhouse Gases, Section 4.3.3. Through the Off-Highway Motor Vehicle Recreation Act of 2003, the Legislature has recognized the popularity of OHV recreation and charged the OHMVR Division with supporting both motorized recreation and motorized off-highway access to nonmotorized recreation. Considering this statutory mandate to support OHV recreation, the Project would not result in energy consumption that is inefficient, wasteful, or unnecessary as identified in CEQA Appendix F. Therefore, the project effect on energy resources is considered less than significant.

### 10.3 GROWTH INDUCEMENT

A project is considered to be growth-inducing if it fosters economic or population growth beyond the boundaries of the project site by, for example, the extension of urban services or transportation infrastructure to an underserved area, or by the removal of major constraints to development. At 2010 baseline conditions, the proposed Project involves funding of plowing, trail grooming, and trailhead maintenance services which already occur as part of the established OSV Program. The Project does not involve the provision of new infrastructure nor remove any existing constraints to development. The recreational opportunities represent a continuation of historic and existing operations and would not in themselves attract new residents or employees or provide infrastructure needed to support developmental growth. Thus, project operations at 2010 baseline levels are not growth inducing.

The OSV Program direct operations could expand over the next 10 years to include expanded trailhead parking, increased grooming operations at existing trail sites, and new trail system locations. Opening the Four Trees trailhead in the Bucks Lake area in Plumas National Forest. The trailhead already exists but is seasonally closed during winter months. Plowing the access road and trailhead parking lot would allow Bucks Lake to be accessed from the west in addition to the current access points from the east (Map 6A). Opening this trailhead would facilitate greater access to Bucks Lake and could increase winter visitor use of the Bucks Lake trail system by providing 20 additional parking spaces needed for the trail system visitors. This could generate an increase of 920 passenger vehicles and 1,840 OSVs per season. Likewise, expanding the China Wall trailhead to provide 30 additional spaces for vehicles could generate an increase of 1,380 passenger vehicles and 2,760 OSVs per season. Opening the Four Trees trailhead and expanding the China Wall trailhead for winter use would not introduce new infrastructure and would not facilitate new developmental growth.

Growth in grooming equipment operations by up to 500 hours at existing trail sites may occur over the 10-year program. The grooming program operates close to its maximum need based on typical snow conditions. An increase in system wide grooming operations by 500 hours amounts to two days of extra grooming at each trail site during a season. The increased equipment operation does not introduce new infrastructure and is not growth inducing.

The OHMVR Division has identified three new trail site locations for possible future inclusion in the OSV Program. A trailhead currently exists at one of these locations (Lake Davis); new trailheads could be developed at the other two locations (State Route 4 and Bass Lake) to include vehicle parking and restrooms. Plowed access is already provided at Lake Davis and Bass Lake. New plowed access would be required for State Route 4. Expanding the OSV Program to new locations would not facilitate developmental growth and land use changes in the surrounding area. However, establishing new trail systems would increase recreation opportunity and increase the number of wintertime visitors to the project area. While not directly growth inducing, this could have an indirect economic benefit to local communities.

The Project would indirectly support OSV use of the groomed trail systems. Historical growth rates in the number of OSV registered with the California DMV suggest that OSV use throughout the Project Area could continue to increase by 48% over the 10-year period of the Project. Annual OSV use of groomed trails in the Project Area could increase from 159,000 (Project Description, Table 2-8) to 235,000. This increased use would be dispersed throughout the 26 OSV Program trail systems and throughout the 14-week winter season (mid-December



through March). Developmental growth such as new businesses or residences is unlikely to develop as a result of increased OSV use on project trails given the dispersed nature of the visitor increase and the short-term seasonal nature of the OSV visitors to the Project Area.

## 10.4 CUMULATIVE IMPACTS

Section 15130(a) of the CEQA Guidelines requires a discussion of the cumulative impacts of a project “when the project’s incremental effect is cumulatively considerable.” Cumulatively considerable, as defined in Section 15065(a)(3) “means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

CEQA Guidelines Section 15355 defines cumulative impact as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” The Guidelines further state that “the cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects.” Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The Project Area comprises 26 trail systems and 34 trailheads in 11 national forests. Other activities permissible within the national forests such as timber harvesting, mining, recreation, and grazing could contribute toward cumulative effects of the Project. All activities occurring within the forest are managed in accordance with LRMP policies adopted for each national forest. Many of the activities occurring in national forests do not overlap with the winter recreation activity proposed by the OSV Program; they occur in geographically separate areas of the forest and occur in different seasons.

Each national forest maintains a Schedule of Proposed Actions (SOPA) which provides a public listing of proposals that will begin or are undergoing environmental analysis and documentation. The SOPA includes proposals whose decisions are expected to be documented in a Decision Memo, Decision Notice, or Record of Decision, pursuant to NEPA and agency direction. A list of projects from the current SOPA report of each national forest that could physically affect the environment and contribute to cumulative project impacts is presented in Appendix G. The majority of actions listed fall into the following categories: timber management (commercial thinning); vegetation management and habitat enhancements; fuel reductions (prescribed burns, pile burning, and fuel breaks); road and trail management (construction, decommissioning, re-routes, repairs); erosion control at stream crossings, culverts, and road cuts; recreation facilities (day use areas, campgrounds, trailhead improvements, OHV special events); utility line maintenance; and mining operations (gravel and gold).

Cumulative impact analyses are provided for each environmental discipline in their respective EIR chapters. The EIR has determined that the OSV Program, Program Years 2010-2020 project would not result in any incremental effect that is cumulatively significant when considered with other projects.

## 10.5 IMPACTS FOUND TO BE NOT SIGNIFICANT

The following environmental topics were determined to be not significant and are therefore not discussed in detail in this EIR.

### 10.5.1 Aesthetics

**Visual Character.** Trail grooming, road plowing, and routine maintenance activities at the Project sites, and off-trail OSV use indirectly facilitated by the Project, would result in a negligible and temporary change in the visual character of the Project Area as compared to undisturbed snow. Plowing would occur only within the existing footprint of paved access roads and parking lots. All groomed trails are existing native surface roads designated for wintertime OSV use in the respective forest plans. Minor brush clearing would occur only if needed within the existing trail alignments. Groomed trails are not visually prominent within the overall expansive snow-covered visual setting, and are often obscured from view by the landform or vegetation. OSV tracks, even in areas of more concentrated off-trail open area use, are also a negligible and temporary change in visual character as compared to undisturbed snow.

**Scenic Vistas.** Given the negligible impact on the visual character of the Project sites, no officially designated or protected scenic vistas would be threatened by the Project. Many trails have scenic vista points, but trail grooming would not significantly impact these views.

Several of the highways that provide access to project trailheads are officially designated State Scenic Highways. Additionally, several routes are designated as National Scenic Byways by the U.S. Department of Transportation, Federal Highway Administration or National Forest Byways by the U.S. Department of Agriculture, Forest Service. Table 10-1 shows the State and federally designated scenic highways located near trails and their approximate distance from the project trail system.

<b>Project Trailhead</b>	<b>Route/ Designation</b>	<b>Distance To Project</b>
Klamath NF Deer Mountain trail system	Highway 97/ National Scenic Byway	Majority of trail system occurs within a 4-mile distance from Hwy 97.
Modoc NF Medicine Lake trail system and Doorknob trailhead	SR 139 Emigrant Trail/ National Forest Byway	Trailhead and trail system occurs beyond 10 miles of SR 139.
Shasta-Trinity NF Pilgrim Creek trail system	SR 89/ National Forest Byway	Majority of trail system occurs beyond 5 miles of SR 89.
Lassen NF Ashpan, Bogard, Fredonyer, Morgan Summit, and Swain Mountain snowmobile areas	State Routes 89, 44, and 36/ National Forest Byway	Trailheads are on the scenic byway. Majority of Ashpan and Morgan Summit trails are within 4 miles of SR 89. Bogard, Swain Mountain and Fredonyer trails are dispersed 10 miles from SR 44 and SR 36.
Plumas NF Bucks Lake and La Porte trail systems	SR 70 Feather River/ National Forest Byway	Bucks Lake trail system is 5 miles from SR 70. La Porte trail system is 15 miles from SR 70.
Tahoe NF Bassets trail system	SR 49/ State Scenic Highway,	The trails occur within a 4-mile distance of SR 49.

<b>Table 10-1. Designated Scenic Highways Located Near Project Trails</b>		
<b>Project Trailhead</b>	<b>Route/ Designation</b>	<b>Distance To Project</b>
	National Forest Byway	
Eldorado NF Silver Bear trail system and Iron Mountain trailhead	State Route (SR) 88 Carson Pass/ State Scenic Highway, National Forest Byway	Trailhead has entrances on SR 88. Majority of trail system occurs within a 4-mile distance from SR 88.
Stanislaus NF Lake Alpine trail system	SR 4 Ebbetts Pass/ State Scenic Highway and National Scenic Byway	Trailheads are on the scenic highway. The trails occur within a 4-mile distance from SR 4.
Inyo NF Mammoth/June Lake trail systems and Shady Rest trailhead	Hwy 395/ State Scenic Highway	Majority of trail systems occur within a 4-mile distance from Hwy 395.
Sierra NF Huntington Lake/Kaiser Pass and Tamarack Ridge trail systems and trailheads	SR 168/ National Forest Byway	Trailheads are on the scenic byway. The trails occur within a 4-mile distance from SR 168.
Sequoia NF Big Meadow/Quail Flat trail system	SR 180 Kings Canyon/ National Forest Byway	Majority of trail system occurs within a 4-mile distance of SR 180.

Source: Caltrans 2009; FHWA 2009

Groomed project trails and open riding areas may be visible from some vantage points along scenic highways. Groomed trails are not visually prominent within the overall expansive snow-covered visual setting, and are often obscured from view by the landform or vegetation. OSV tracks, even in areas of more concentrated off-trail open area use, are also a negligible and temporary change in visual character as compared to undisturbed snow. No rock outcroppings or historic buildings would be threatened by the Project. Additionally, project activities are not within the scope of activities controlled by State Scenic Highway corridor protection programs.

Light and Glare. There is currently no lighting at the project trailhead parking lots or trails and no lighting is proposed by the Project. Snow plowing and grooming typically occur at night, and the vehicles are operated with lights. Vehicle lights illuminate the immediate path of the vehicle and do not create ambient lighting conditions. OSVs are equipped with headlamps and trails are accessible at night, and an estimated 29 percent of OSV use occurs at night (see Project Description, Table 2-7). Light from OSVs ridden at night could be visible from longer distances in clearings, but is mostly hidden by trees and landforms.

The direct and indirect impacts of the project related to aesthetics would be less than significant.

### **10.5.2 Agriculture and Forest Resources**

The Project is located on national forest lands in alpine mountainous areas. There is no farmland within or near the Project Area. Neither the project sites nor the surrounding lands contain any farmland, any lands under Williamson Act contracts, or any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the Farmland Mapping and Monitoring Program. The Project would have no impact on agricultural resources. The Project Area occurs

within national forests. The Project does not involve removal of timber resources or loss in forest land or conversion of forest land to non-forest use.

### 10.5.3 Cultural Resources

Sensitive cultural resources sites are known to exist in proximity to the Project in the Modoc, Shasta-Trinity, and Sequoia National Forests. Certain portions of the Project occur in areas, such as the Medicine Lake Highlands area of Modoc National Forest, which are sacred to Native American tribes. Additionally, there may be previously undiscovered historical, archaeological, or paleontological resources, or human remains, within or near the project sites. However, trail grooming would occur only if and when there is a minimum of 12 inches of snow cover (and in certain national forests, a minimum of 18 or 24 inches) and would not disturb the underlying soils. The locations of known cultural resources sites are considered by the national forests in their designation of OSV trails and open riding areas. The USFS has determined that the OSV Program activities would not have an adverse affect upon cultural resources. No cultural resources are known by the USFS to be impacted by OSV use of Program trails and associated riding areas. The Project continues OSV use in existing areas. No new cultural resource area would be exposed to OSV use. The Project would have a less than significant impact on cultural resources.

### 10.5.4 Geology and Soils

Seismicity and Landslides. The Project activities comprise maintenance of existing winter trail facilities through snow removal on paved access roads and trailhead parking areas, grooming along established trail routes, and restroom cleaning and garbage collection. Project activities support recreational use of the winter trail system. Trail sites within the Project Area are not located in known earthquake fault rupture zones. Many trails within the Project Area could be subject to strong seismic shaking from a seismic event on a regional fault line. Seismic related ground failure is unlikely given the nature of the underlying soil types present throughout the Project Area. Project trails could have segments subject to falling rock and landslides. The project trails designated for grooming have been in use for winter recreation for many years. Trails are maintained during the summer months for OHV use and additional trail maintenance occurs to remove possible obstructions from down trees or rock debris in order to protect the safety of trail groomers and OSV users. Trail use is limited to the winter season when soil is covered with snow and would not impact soils or contribute to or be impacted by landslides. No new structures are proposed which would be subject to seismic shaking or expose people to new risks from seismic shaking.

Soil Erosion. See Hydrology, Section 6.3.2.

Unstable Geologic Unit or Soil. The Project does not involve soil disturbance of any type or new construction. Trail grooming and subsequent OSV use of trails would not create unstable geologic conditions.

Expansive Soil. The Project involves snow plowing on paved roads, snow grooming on trails for OSV use, and facility maintenance such as servicing restrooms and warming huts. The Project does not involve any new construction. Expansive soils, if present, in the Project Area would be covered in snow and undisturbed by the Project.

Soils Incompatible for Septic Use. No septic tanks or wastewater service systems are proposed as part of the Project.

### **10.5.5 Hazards and Hazardous Materials**

Emergency Plans. The Project would not affect implementation of or physically interfere with any adopted emergency response or evacuation plan. Groomed trails facilitate access by forest rangers, fire fighters and others in search and rescue operations and evacuations. Project impacts on transportation are discussed in section 10.5.9 Transportation below.

Wildland Fire. Project plowing, grooming and maintenance activities, and any additional OSV use facilitated by the Project, would occur in winter with snow covering the ground, when wildland fires are highly unlikely.

Flooding. The Project does not involve the development of housing or any structures within a 100-year flood hazard area. Portions of project trails traverse areas subject to inundation during large storm events, and OSV users may access off-trail open areas subject to inundation. However, OSV use would occur during winter when flooding is less likely and is not likely to occur during periods of heavy rainfall or snowmelt, and potential inundation.

Seiche and Tsunami. The resonant oscillation of water in an enclosed water body, often generated by an earthquake, is a seiche. A tsunami is a series of waves created when a body of water is rapidly displaced on a massive scale. Earthquakes, landslides, and snow avalanches have the potential to generate tsunamis in larger water bodies in the Project Area. The occurrence of a landslide or avalanche, or of an earthquake producing the necessary frequency of oscillation that results in seiche, within a water body of sufficient size at a time when OSV users are present is remote. There would be no impact on the Project from seiches or tsunamis.

Avalanches. Locations of identified foreseeable significant avalanche hazard are considered by the USFS in the designation of OSV trails and OSV open riding areas. The increase in OSV use, and range of access indirectly facilitated by the Project, may indirectly expose a greater number of recreationists to avalanche hazard, which is a voluntary risk inherent in the sport.

Hazardous Materials. The routine transport and use of hazardous materials involved in the Project would be limited to the small quantities of operating fuel in the fuel tanks of the snow plows and grooming vehicles, and common janitorial supplies used in the cleaning of vault toilets. Snowcats and snowplows would be refueled at existing fueling stations and not at the project site, and thus would not pose a risk of fuel spills. The Project may facilitate an increase in OSV use, and some of the additional OSV users may refuel their snowmobiles in the trailhead parking lots, potentially resulting in occasional small fuel spills, but such spills would be in amounts that would not pose a significant hazard to the public or the environment.

The Project would not involve the disposal of hazardous materials, emit hazardous emissions, or involve the handling of hazardous materials within one-quarter mile of an existing or proposed school.

There are no sites identified on the Cortese list or the Department of Toxic Substance Control's (DTSC) Hazardous Waste and Substances Site List within the Project Area (DTSC 2008).

Project impacts related to hazards and hazardous materials would be less than significant.

### 10.5.6 Mineral Resources

The proposed Project involves snow plowing on paved roads and parking areas, grooming snow covered recreation trails, and maintenance of supporting facilities (restrooms, warming huts) in national forests. No soil disturbance would occur. The Project would not result in the loss of availability of known mineral resources of regional or local importance as the Project does not involve the removal of material from the area. Nor does the Project result in the establishment of land uses that would preclude mineral extraction in the event that important mineral resources are considered for removal in the future. Potential deposits would not be covered or modified by the proposed project activities.

### 10.5.7 Population and Housing

The Project would not involve the construction of new homes or businesses and thus would not directly result in population growth. As explained in Section 10.3 Growth Inducement, the Project would also not indirectly result in additional population or housing. There is no housing and there are no people residing in the Project Area; the Project would not involve the displacement of housing or people. The Project would have no impact on population and housing.

### 10.5.8 Public Services

Fire Protection. Fire protection in the national forests is provided by USFS staff and the California Department of Forestry and Fire Protection. The Project activities and the indirect increase in OSV use indirectly facilitated by the Project would occur in winter in snow conditions when fire hazard is extremely low. The Project would not directly or indirectly result in an increased risk of fire or in an increased demand for fire protection or need for additional fire protection facilities, equipment, or personnel.

Police. USFS law enforcement officers and forest protection officers provide police service in national forests. These officers enforce trail use and open area access restrictions, as well as providing general law enforcement. The Project would indirectly facilitate increased OSV use levels through 2020 necessitating the need for increased law enforcement personnel. This is further discussed in Recreation, Section 8.3.4.

Schools, Parks, and Other Public Facilities. The Project would not directly or indirectly result in an increase in the resident population of the area and thus would not generate any need for new or altered school, park, or other public facilities related to population growth. The USFS, as well as the County, has indicated that the estimated increase in OSV use facilitated by the Project would not generate a need for additional facilities, the construction of which could potentially cause environmental impacts. The Project would have no impact related to schools, parks, and other public facilities.

### 10.5.9 Transportation

Traffic Circulation and Congestion. Project trailheads are accessed directly from state highways, county roads, or USFS roads. The Project would indirectly facilitate increased OSV use through 2020, resulting in a corresponding increase in vehicle trips dispersed over the highways and local roads providing access to project trailheads. Additionally, project-related vehicles would frequently be towing trailers, carrying considerable weight, and thus may travel more slowly.

OSV use occurs in winter throughout a 14-week season (mid-December through March) with heaviest use occurring on weekends and holidays. Therefore, vehicle traffic generated by the Project would not be expected to substantially contribute to weekday peak period congestion. The addition of project traffic to local roads and highways during the peak use periods on winter weekends and holidays may result in some reduction in travel speeds, increased demand for passing to maintain travel speeds, and increased time spent and a greater number of vehicles caught behind slow moving vehicles and left-turning vehicles. However, given the dispersal of vehicle trips over the road network, the Project does not result in traffic congestion or conflict with traffic management plans for state highways or county roads.

Air Traffic. The Project would have no impacts related to air traffic.

Design Hazards. The Project does not involve new roads or introduce design features that would create traffic hazards.

Emergency Access. The increase in traffic, turning movements into and out of trailhead parking lots, and occasional unauthorized spillover parking along the edges of roads and highways, would not result in a significant impact on emergency access or evacuation.

Public Transit, Bicycle, and Pedestrian Facilities. There are no plans, policies, or programs supporting public transit, bicycle, and pedestrian facilities that pertain to the Project. The Project would have no impact with respect to these methods of transportation.

#### **10.5.10 Utilities**

Stormwater Drainage. The Project would not involve the expansion of trailhead parking lots or the trail system, and would not result in an increase in the volume of stormwater runoff discharged or any changes in existing stormwater drainage facilities or measures.

Water. No water is supplied at project trailheads. The proposed Project activities would not involve the use of any water. The Project would have no direct or indirect impact on water supply, or on water treatment, conveyance, or distribution facilities.

Wastewater. The increase in OSV use which would occur over the 10-year life of the Project would result in increased sewage waste generated by OSV users and collected at trailhead vault toilets. The collection and disposal of wastewater from vault toilets at trailheads would be funded in part as part of the Project. Wastewater would be pumped from vault toilets and transported to local treatment and disposal facilities. These facilities would be expected to have sufficient remaining capacity to accommodate the minor amount of waste that would be indirectly generated by the Project.

Solid Waste. The estimated increase in OSV use which would occur over the 10-year life of the Project would result in increased solid waste generated by OSV activities and collected at trailhead receptacles. Garbage collection at trailheads would be funded as part of the Project. The collected waste would be disposed of at area landfills and recycling facilities. The capacity through 2020 of each of the transfer stations and recycling facilities, and the remaining permitted capacity of each of the landfills, would be expected to be sufficient to accommodate the minor amount of waste that would be indirectly generated by the Project.

Project impacts on all utilities would be less than significant.

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## **11.2 PERSONS CONSULTED**

### Butte County Public Works

Cindy Jones, Administrative Analyst

### California Highway Patrol

Craig Muehleisen

Jeff Holt

### California Association of 4-Wheel Drive Clubs

Amy Granat, Northern Regional Director

John Stewart, Southern Regional Director

### Plumas County Public Works

Marty Byrne, Assistant Director

### Sierra County Public Works

Bryan Davey, Transportation Planner

### U.S. Forest Service

Regional Office, Kathy Mick, Regional Trails Program Manager

Regional Office, Diana Craig, Regional Wildlife Ecologist

Regional Office, Keaton Norquist, Presidential Management Fellow

Eldorado National Forest, Roger Ross, Resource Officer

Eldorado National Forest, Jason Nedlo, Special Projects Manager

Eldorado National Forest, Debra Tatman, Geospatial Services Program Manager

Inyo National Forest, Rick Laborde, Wilderness Steward

Inyo National Forest, Lisa Walker, OSV Program Manager

Inyo National Forest, Daniel Yarborough, GIS Coordinator

Inyo National Forest, Michele Slaton, Natural Resource Specialist, GIS Assistant

Klamath National Forest, Jim Stout, Resource Officer

Klamath National Forest, Elaina Graham, GIS Coordinator

Lassen National Forest, Chris Obrien, Public Services Staff Officer

Lassen National Forest, Jennifer Sieracki, Resource Information (GIS) Specialist

Modoc National Forest, Jon Stansfield

Modoc National Forest, Anthony Hewitt, Geographer

Plumas National Forest, Susan Barron, Forest IWEB/SUDS Coordinator

Plumas National Forest, Ralph Martinez, GIS Coordinator

Sequoia National Forest, Nolan Fritz, Recreation Manager

Sequoia National Forest, Chris Sanders, Assistant Forest Recreation Officer

Sequoia National Forest, Heidi Hosler, GIS Coordinator

Sierra National Forest, Robbin Ekman, Recreation Officer

Shasta National Forest, Ed Hatakeda, Recreation Forester

Shasta National Forest, Val Hall, Recreation Technician

Stanislaus National Forest, Sue Warren, Route Designation ID Team Leader

Stanislaus National Forest, Lonnie Allison

Stanislaus National Forest, Carly Gibson, GIS Coordinator  
Tahoe National Forest, David Michael, Trails and OHV Program Manager  
Tahoe National Forest, John Babin, GIS Coordinator

### **11.3 REPORT PREPARERS**

#### **California Department of Parks and Recreation, OHMVR Division**

Terry Harper, Park Maintenance Chief III	1725 23 <sup>rd</sup> Street, Suite 200
Connie Latham, Associate Park and Recreation Specialist	Sacramento, CA 95816

#### **TRA Environmental Sciences, Inc.**

Paula Hartman, President	545 Middlefield Road,
Kate Werner, Senior Project Manager	Suite 200
Christopher Dugan, Analyst	Menlo Park, CA 94025
Sara Jones, Biologist, GIS Analyst	(650) 327-0429
Christina Lau, Analyst	
Tom Reid, Senior Technical Analyst	