

Engineering Report:

Lassen National Forest
Almanor Ranger District

Analysis of
National Forest System Road (NFSR)

30N07

for Motorized Mixed Use Designation

Forest: Lassen

District: Almanor

Road Number: 30N07

Road Name: Clover – Swain Mtn Road

Introduction: The 30N07 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Swain Mountain quadrangle.

NFSR 30N07 ML3 begins at the intersection with State Highway 44 in Section 13 of the Pegleg Mountain quadrangle, trends west and south through the Westwood Junction and an intersection with 30N10, traverses the northwest flank of Pegleg Mountain and an intersection with 30N23 at Lasco, then trends west and enters the Swain Mountain quadrangle where it intersects with 30N49 at the Swain Snowmobile Park where the road enters the Swain Mountain experimental Forest. 30N07 then traverses the experimental forest where it exits and intersects at its terminus with 32N10. The road length is approximately 17 miles in length.

The segment studied starts at approximate road mile 10.50 in Section 22 of Swain Mountain quadrangle at the intersection with 30N49 and intersects with 30N33 / 30N26A in the Swain Mountain Experimental Forest for a distance of approximately 1.00 miles to approximate road mile 11.50.

This entire road is currently managed by LNF as open only to highway-legal vehicles. The road segments analyzed were recommended in the LNF Travel Analysis (2008) for an engineering analysis of motorized mixed use. The purpose of this engineering analysis is to investigate the potentials, and associated risks, for operating/transporting both highway-legal vehicles (motor

vehicles, including the operators, that are licensed or certified for general operation on public roads within the State) and non-highway-legal vehicles (motor vehicles, including the operators, that are not licensed or certified for general operation on public roads within the State) on 30N07 / ML3. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent maintenance level two road network, of which a portion is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: 10.50 Ending Mile Post: 11.50

30N49 to 30N33 / 30N26A

Traffic Service Level: A B C D

Objective Maintenance Level: 1 2 3 4 5

Operational Maintenance Level: 1 2 3 4 5

Maintenance by: **Forest Service (FS)**

Non-Forest Service ROW or jurisdiction? Yes No

Any road use agreements, maintenance agreements, or other encumbrances?

Yes No

Description of agreements or encumbrances:

No agreements are documented.

Subject to Highway Safety Act? Yes No

Non-highway-legal vehicles currently permitted? Yes No

Would motorized mixed use be consistent with State and local laws? Yes
 No

Description of State California Vehicle Code and Forest Service Directives:

According to California Vehicle Code section 38026, *Designating Highways: Combined Use*, off-highway operators on a Combined Use highway must be in possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

Description of road management objectives (RMOs), existing use, and proposed use:

Road 30N07 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Almanor Ranger District, defensible fuel profile zones, experimental forest and recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

30N07 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

Most of the year it is currently managed as open only to highway legal traffic. The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act.

The proposed use for this segment of 30N07 / ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segment to connect adjacent ML2 roads into a loop for off highway motorized vehicle use.

General Considerations:

All motor vehicle operators need to be cognizant of the applicable state laws, and how they pertain to each age group, vehicle type, and national forest system road classification (see next bullet).

Through authorities delegated by the Secretary, the Forest Service may restrict or control use to meet road management objectives (36 CFR 212.5). The LNF currently manages this road as a highway, in accordance with the Highway Safety Act. The road is therefore subject to the provisions of the California Vehicle Code (CVC) for highways.

State OHV Regulations: any motor vehicle must have a street-legal license plate to operate on highways. To operate on public lands, off of highways, motor vehicles must have either a street-legal license plate or a red sticker or a green sticker. For more information, see the CA State Parks Off-Highway Motor Vehicle Recreation site, available @ <http://ohv.parks.ca.gov/>

California has:

- requirements for ATV safety
- conditions for operating ATVs
- OHV equipment requirements
- OHV operation requirements

Summary of Findings:

Implementing mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 30N07 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 45 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road segments as open only to highway-legal vehicles will provide the lowest crash probability and severity. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

Factors Considered:

1. Operator considerations:

- Based on engineering judgment and experience/observation on other national forest management units, the LNF has an above average standard of road. The Lassen is not "typical" in its road system's adherence to maintenance levels. This road is an objective ML3 and an operational ML3. It provides forest commodity haul and fire suppression access which necessitates a high level ingress/egress access road for the DOT Class 8 (26,001 – 33,000 GVWR) trucks that use it.
- The objective level of this road is classified as a 3, and the operational level is a ML3. This provides for all-weather (during fire season May to October) fire staffing access and fire vehicle emergency access. The objective of the road is to provide access for commodity haul, wildlife management, emergency fire detection and suppression response.
- Allowing non-highway-legal vehicles to use the road segment can involve both non-highway-legal equipment and non-licensed operators, including children.
- In California, children under the age of 18 must take a prescribed safety course, be under direct supervision of an adult possessing appropriate safety certificate, or possess the appropriate safety certificate in order to operate an ATV. In addition, children under the age of 14 cannot operate an ATV without direct supervision by parent, guardian, or authorized adult.
- The Lassen National Forest currently manages this road as a highway, in accordance with the Highway Safety Act. The road is subject to the provisions of the California Vehicle Code (CVC) for highways.
- The current use on NFSR 30N07 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There is one reported motor vehicle crash on this road. The crash occurred on January 7, 2006 on a Saturday at 1240 hours. The vehicle was a snowmobile traveling at 45 mph which lost control and impacted a tree. The snowmobile then caught fire and burned entirely. The driver was transported to Banner Lassen Hospital and suffered a fractured left shoulder and bruises to hip and calf. The California Highway Patrol investigated this crash and determined that excess speed caused the motor vehicle to lose control and leave the roadway where it impacted a tree and burned-up.

3. Traffic volume and type:

Non-highway-legal vehicles:

< 12 inch tread width < 50 inch tread width >50 inch tread width

Highway-legal vehicles:

< 12 inch tread width < 50 inch tread width >50 inch tread width

Passenger cars Commercial vehicles Recreation vehicles (RV's)

4 civilian motor vehicles were observed along the 30N07 road during the field observation.

4. Speed - Anticipated average speed (85th percentile):

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 30N49
- 30N07D
- 30N31
- 30N77
- 30N26A
- 30N33

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 30N07 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, meadow, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.
- Grade is 0-2%.
- Pine and other conifer trees are ≤ 18 " and numerous.
- Emergency run-out is limited.

9. Risk without mitigation:

Crash probability: High Med Low

Crash severity: High Med Low

Crash probability was assessed based on:

- Traffic volume, dust, rates of speed, alignment, sight distance, traveled way surface and width.

Crash severity was assessed based on:

- Roadway geometry (including embankments), difference in vehicle sizes, difference in speeds of OHVs and full-size passenger vehicles.

Alternatives and Mitigation Measures:

Alternatives and mitigation measures are presented to assist with safe road management. They are to be considered, should the agency have the appropriate time, workload, and funding based on competing priorities.

For all situations, the following mitigation measures apply:

- Clear communication and education to the visitors on allowed uses, safe motor vehicle use, and natural resources (informational signing and kiosks, maps, website, etc.).
- Improved route identification and safety signing. Repair and replace devices as needed.
- Clear brush, especially along curves, to improve sight distance.
- Combine the appropriate enforcement measures with the allowed uses for the road.
- Coordinate with other agencies to improve enforcement consistency.
- Utilize a monitoring program to better determine the appropriate management strategy for the types of use, new technologies, changes in visitor demands, and resource protection measures.

In addition, these mitigation measures would apply to the following alternatives. Although the following alternatives are not comprehensive for the situation, they represent the most likely and/or practical options based on engineering judgment.

Alternative 1: Designate the road segments as “open to highway-legal vehicles only”. Manage the road in accordance with maintenance level 3 standards.

- Maintain all roadway signing to MUTCD standards.
- Consider designing new road-parallel trails, a new trailhead, and/or a new camping area to provide better opportunities for non-highway-legal motor vehicle traffic to access the area and the adjacent maintenance level 2 roads.
- Approximate Implementation Cost: \$ 0
- Expected risk:

Crash probability: High Med Low

Crash severity: High Med Low

Alternative 2: Designate the road segments as “open to all motor vehicles”, including highway-legal and non-highway-legal vehicles.

- Recognize that this situation would involve different allowed uses and would complicate communication and enforcement.
- Improve education and enforcement communication to explain the complexities of various allowed uses on the road.
- Install appropriate signs of a type approved by the Department of Transportation on and along the highway to identify and communicate the potential hazards related to motorized mixed use.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: \$ 3500 per segment
- Expected risk:

Crash probability: High Med Low

Crash severity: High Med Low

Final Comments:

Signing on national forest system roads should conform to the standards presented in the FS sign and poster guidelines (available @ http://fsweb.wo.fs.fed.us/eng/roads_trails/signs_05/index.htm).

In addition, roads managed under the highway safety act, including the study segments here, must comply with the standards in the MUTCD (available @ <http://mutcd.fhwa.dot.gov/>).

According to the Sign and Poster Guidelines for the Forest Service (2005):

The following priorities are to be used to minimize the potential conflicts of mixed use:

- Provide separate facilities.
- Separate use periods. Roads may be designated for separate use periods such as season, weekday/weekend, or day/night. Notify the public of the locations, effective dates, times, and duration that the roads may or may not be used. Provide appropriate signs as shown in Chapter 3A.
- Manage concurrent use.

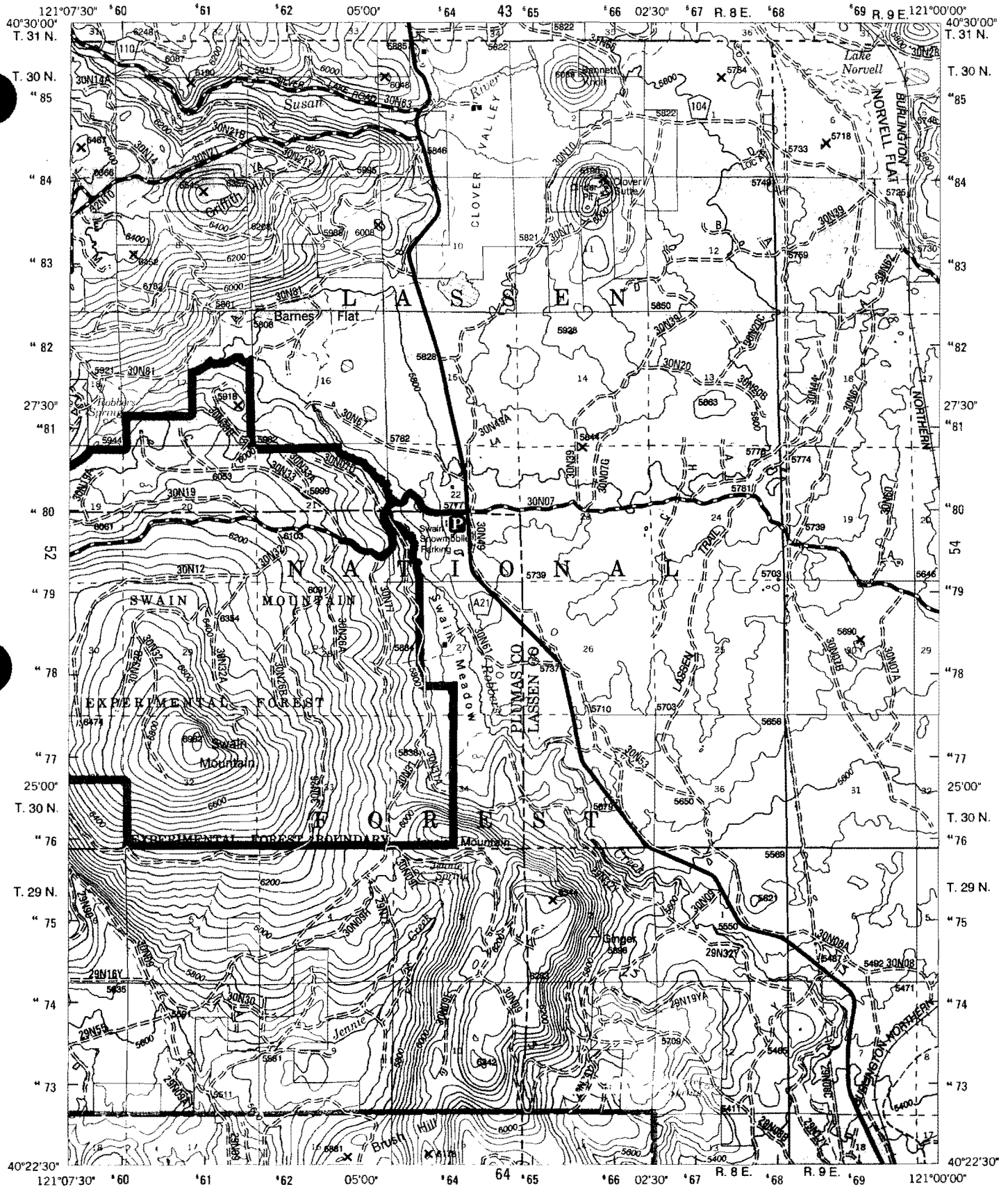
Upon designation and prior to allowing any mixed use, the Forest

Supervisor is responsible for appropriately signing and mapping the route such that the dual traffic use is clear to all users.

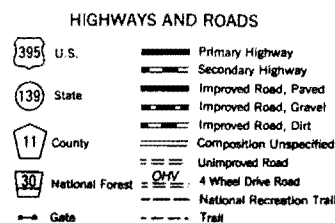
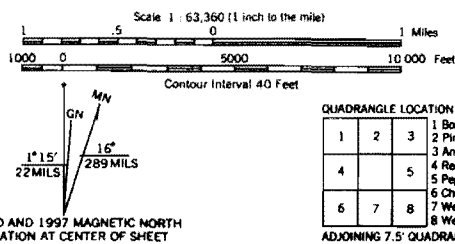
Maps & Photos:

REPORT OF INCIDENT TO OTHER THAN EMPLOYEES

1. Unit Region 5	2. Sub-Unit Lassen 06	3. District, JCC Other, Eagle Lake 58	4. Case Number 7938239																							
5. Classification of Injured or Property Owner (Check One) <input checked="" type="checkbox"/> Visitor <input type="checkbox"/> Permittee/Personnel <input type="checkbox"/> Contractor/Personnel																										
TIME & PLACE OF INCIDENT	6. Date (mm/dd/yyyy) 01/07/2006	7. Time 1240	9. Exact location where incident occurred (example: campground intersection route or trail) Approx. 2.88 East of County Road A21 on FS Road 30N07																							
	8. Day of Week (Day & Code) 7 Saturday																									
PERSONAL INJURY DATA Fill out data for each person injured. (Omit if no injury involved)	10. Name of Injured (Last, First, MI) DeLos Santos, Lydea E		13. Permanent Address 7665 Kilarney Ln. #109 Citrus Heights, CA 95610																							
	11. Sex (Check one) <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female	12. Age (to nearest birthday) 19																								
	14. Extent of Injuries (check one) <input checked="" type="checkbox"/> Not requiring Hospitalization <input type="checkbox"/> Death <input type="checkbox"/> Severe (formal admission to hospital)		15. Hospital (name & location) Banner Lassen Medical Center Susanville, CA																							
	16. Description of Injury (describe exact nature of injury - compound fracture of upper left arm) Fractured Left Shoulder and bruises to her left hip and left calf.																									
PROPERTY DAMAGE DATA \$350 (or more)	17. Owner (name and address) Claude Sherman. 8873 Water Song Roseville, CA 95747		18. Person Causing Damage (name and address) Lydea E. DeLosSantos(Injured)																							
	19. Property Description and Extent of Damages 2004 Polaris Snowmobile		20. Estimated Damages (to nearest \$100) @\$ 6,000.00 (total loss)																							
DESCRIPTION OF INCIDENT	21. Describe Fully (use reverse or additional sheet if necessary. Investigation report may be attached) See Attached CHP Report																									
WITNESS	22. IMPORTANT: Secure the names and addresses of all witnesses, bystanders or persons in the immediate area who may have seen the incident or heard any statement made by the injured.																									
	Name	Relationship	Address																							
INCIDENT CAUSE AND CONDITIONS (Click appropriate block block for each element)	23. Type of Incident		25. Agency of Acciden																							
	A. Accident <input checked="" type="checkbox"/>	B. Assault <input type="checkbox"/>	C. Homicide <input type="checkbox"/>	D. Malicious Act <input type="checkbox"/>	E. Natural Catastrophe <input type="checkbox"/>	F. Exposure <input type="checkbox"/>	G. Other (Specify) <input type="checkbox"/>	A. Wild Animal/Reptile <input type="checkbox"/>	B. Domesticated Animal <input type="checkbox"/>	C. Power Hand Tool <input type="checkbox"/>	D. Manual Hand Tool <input type="checkbox"/>	E. Bicycle <input type="checkbox"/>	F. Falling Tree/Limb <input type="checkbox"/>	G. Fire Arms <input type="checkbox"/>	H. Heavy Equipment <input type="checkbox"/>	I. Motor Vehicle, wheeled <input type="checkbox"/>	J. Snowmobile <input checked="" type="checkbox"/>	K. Watercraft <input type="checkbox"/>	L. Ski Lift <input type="checkbox"/>	M. Water <input type="checkbox"/>	N. Rock <input type="checkbox"/>	O. Snow <input type="checkbox"/>	P. Work-Play Surface <input type="checkbox"/>	Q. Lightening <input type="checkbox"/>	R. Other (Specify) <input type="checkbox"/>	
	24. Location		26. Activity time of incident																							
	A. Developed Site <input type="checkbox"/>	B. Undeveloped Site <input type="checkbox"/>	C. Administrative Site <input type="checkbox"/>	D. Special Use Area <input type="checkbox"/>	E. Contractor's Area <input type="checkbox"/>	F. FS Road System <input checked="" type="checkbox"/>	G. FS Trail System <input type="checkbox"/>	A. Camping <input type="checkbox"/>	B. Picnicking <input type="checkbox"/>	C. Hiking <input type="checkbox"/>	D. Mountain Climbing <input type="checkbox"/>	E. Other Forest Work <input type="checkbox"/>	F. Travelling thru NF <input type="checkbox"/>	G. Sight-seeing in NF <input type="checkbox"/>	H. Hunting, Fishing <input type="checkbox"/>	I. Boating, Canoeing Floating <input type="checkbox"/>	J. Swimming <input type="checkbox"/>	K. Other water Sport <input type="checkbox"/>	L. Snow Skiing <input type="checkbox"/>	M. Snow Mobiling <input checked="" type="checkbox"/>	N. Other Winter Sport <input type="checkbox"/>	O. Cycling <input type="checkbox"/>	P. Logging <input type="checkbox"/>	Q. Operating <input type="checkbox"/>	R. Horseback Riding <input type="checkbox"/>	S. Other (specify) <input type="checkbox"/>
	27. Prepared By (print or type): M. Welsh			28. Signature	29. Title LEO	30. Date 01/19/2006																				



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and MOS/NOAA
Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27) Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.



QUADRANGLE LOCATION

1	2	3	1 Bogard Buttes
4	5	4 Red Cinder	2 Pine Creek Valley
6	7	5 Pagleg Mountain	3 Antelope Mountain
8	8	6 Chastar	4 Red Cinder
		7 Westwood West	5 Pagleg Mountain
		8 Westwood East	6 Chastar

ADJOINING 7.5' QUADRANGLES

Tim Dedrick

Sept. 11, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date