United States
Department of
Agriculture

Forest
Service

Pacific Southwest Region

San Bernardino
National Forest

October 2008

Environmental Assessment

Motorized Travel Management EA

San Bernardino National Forest

San Bernardino County, California
Riverside County, California

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TTY). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TTY). USDA is an equal opportunity provider and employer. Printed on recycled paper – October, 2008.

Table of Contents

Summary ..... **v**
Chapter 1 – Purpose and Need **1**
Document Structure 1
Background 1
Purpose and Need 4
Proposed Action 6
Principle Laws and Regulations that Influence the Scope of this EA 7
San Bernardino National Forest Plan Direction 7
Decision Framework 8
Public Involvement 8
Issues 8
Project Record 10
Chapter 2 – Alternatives **11**
Introduction 11
Alternatives Considered in Detail 11
Alternatives 13
Comparison of Alternatives 21
Chapter 3 – Affected Environment and Environmental Consequences **29**
Introduction 29
Air Quality 34
Biological Resources 38
Cultural Resources 94
Fire Risk 99
Recreation 100
Soil and Water 125
Transportation Facilities 154
Visual Resources 161
Chapter 4 – Consultation and Coordination **169**
Appendices **171**
Appendix A – Design Features 171
Appendix B – Present and Reasonably Foreseeable Future Actions 181
Appendix C – Literature Cited and References Used 183
Appendix D – Route Analysis Summary Report for Unauthorized Routes Proposed for Addition to the NFSTS 189
Appendix E – San Bernardino Travel Management Monitoring Plan 193
Appendix F – Law Enforcement 199
Appendix G – Maps 207

List of Tables

Table 1. List of Significant Issues v
Table 2. List of Alternatives Considered in Detail vi
Table 3. Alternative 1; Proposed Unauthorized Routes for Non-highway Legal Vehicles up to 50 inches Wide 14
Table 4. Alternative 1; Proposed Unauthorized Routes for Highway Legal Vehicles 14
Table 5. Alternative 1; Proposed Restoration of Unauthorized Routes 14
Table 6. Alternative 1; Proposed Reclassification of Routes for Non-highway Legal Vehicles up to 50 inches Wide 15

Table 7. Alternative 1; Proposed Decommissioning of Routes 16
Table 8. Proposed Reclassification of Routes For Highway Legal Vehicles Only 17
Table 9. Proposed Reclassification of Routes for Administrative Use Only 17
Table 10. Alternative 1; Proposed New Construction of Non-highway Legal Routes 18
Table 11. Alternative 3; Proposed Route Changes, by Mileage 19
Table 12. Alternative 4, Proposed Route Changes, by Mileage 20
Table 13. Summary Comparison of Alternatives 21
Table 14. Comparison of Alternatives by Environmental Effects 22
Table 15 Threatened, Endangered, Proposed and Candidate Wildlife Species 48
Table 16 Threatened, Endangered, Proposed and Candidate Plant Species 51
Table 17. Region 5 Sensitive Wildlife Species 53
Table 18. Mileage in Protected Activity Centers, Nest Stands and Home Range Cores for Spotted Owls, by Alternative 58
Table 19. Sensitive Plant Species 60
Table 20. Watch List Animals for SBNF 67
Table 21. San Bernardino National Forest Watch Plant Species 75
Table 22. MIS on the San Bernardino National Forest and So. Cal. Province 78
Table 23. Number of Historical Properties in or near the APE. 96
Table 24. Current Adopted Recreation Opportunity Spectrum (ROS)—Acres of NFS Lands 101
Table 25. Existing Non-highway Legal Vehicle Designation – Roads and Trails 103
Table 26. Roads and Trails under Forest 'Adopt-a-Trail' Maintenance Agreements 104
Table 27. San Bernardino NF Activity Participation and Primary Activity 108
Table 28. ROS Mileage Changes, by Alternative 109
Table 29. Route Change Mileage within a Wildland Urban Interface or Developed Area Interface Zone within 1/2 mile of Private Land 110
Table 30. Route Change Mileage Within 1/2 Mile of a Campground or Non Motorized Trail 110
Table 31. Vehicle Mileage Class Miles, all Action Alternatives 112
Table 32. Alternative 3 – Yellow Post Site Mileage Additions 113
Table 33. Miles of Motorized Route Changes Proposed to be Changed within One Mile of Existing Forest Wilderness Area Boundaries 114
Table 34. Proposed Miles of Route Deletions or Changes in Use within One Mile of Existing Wilderness 115
Table 35. Miles of Proposed Route Changes of Existing Use Within an IRA 115
Table 36. Miles of Proposed Route Elimination or Removal of Existing Public Use within an IRA 116
Table 37. Miles of Proposed Route Changes within Candidate Wild and Scenic River Corridors 117
Table 38. Alternative 3; Proposed Route Changes, by Mileage 120
Table 39. Alternative 4, Proposed Route Changes, by Mileage 121
Table 40. Foreseeable Future Proposals for Staging Areas 123
Table 41. Erosion Risk Ratings 134
Table 42. Stream Crossings 135
Table 43. Miles of Analyzed Non-highway Legal Route within 150 feet Streams 135
Table 44. California State 303(d) Listed Waterbodies adjacent to EA Routes, Numeric Action Analysis by Alternative 136
Table 45. Unauthorized Routes to be Added to the NFTS 138
Table 46. Miles of Routes, Number of Perennial and Intermittent Stream Crossings and Miles of Route within 150 feet of Perennial or Intermittent Streams Proposed for Administrative Use Only 140
Table 47. Soil and Water Effects Summary 153
Table 48. System Roads Analyzed for Mixed Use 156

Table 49. Design Features Common to All Action Alternatives 171

List of Figures

Figure 1: Vicinity Map..... 4
Figure 2. Map Legend, All Alternatives 207
Figure 3. SBNF Route Designation Map 1 – Alternative 1..... 207
Figure 4. SBNF Route Designation Map 2 – Alternative 1..... 207
Figure 5. SBNF Route Designation Map 3 – Alternative 1..... 207
Figure 6. SBNF Route Designation Map 4 – Alternative 1..... 207
Figure 7. SBNF Route Designation Map 5 – Alternative 1..... 207
Figure 8. SBNF Route Designation Map 6 – Alternative 1..... 207
Figure 9. SBNF Route Designation Map 7 – Alternative 1..... 207
Figure 10. SBNF Route Designation Map 8 – Alternative 1..... 207
Figure 11. SBNF Route Designation Map 9 – Alternative 1..... 207
Figure 12 SBNF Route Designation Map 1 – Alternative 3..... 207
Figure 13. SBNF Route Designation Map 2 – Alternative 3..... 207
Figure 14. SBNF Route Designation Map 3 – Alternative 3..... 207
Figure 15. SBNF Route Designation Map 4 – Alternative 3..... 207
Figure 16. SBNF Route Designation Map 5 – Alternative 3..... 207
Figure 17. SBNF Route Designation Map 6 – Alternative 3..... 207
Figure 18. SBNF Route Designation Map 7 – Alternative 3..... 207
Figure 19. SBNF Route Designation Map 8 – Alternative 3..... 207
Figure 20. SBNF Route Designation Map 9 – Alternative 3..... 207
Figure 21. SBNF Route Designation Map 1 – Alternative 4..... 207
Figure 22. SBNF Route Designation Map 2 – Alternative 4..... 207
Figure 23. SBNF Route Designation Map 3 – Alternative 4..... 207
Figure 24. SBNF Route Designation Map 4 – Alternative 4..... 207
Figure 25. SBNF Route Designation Map 5 – Alternative 4..... 207
Figure 26. SBNF Route Designation Map 6 – Alternative 4..... 207
Figure 27. SBNF Route Designation Map 7 – Alternative 4..... 208
Figure 28. SBNF Route Designation Map 8 – Alternative 4..... 208
Figure 29. SBNF Route Designation Map 9 – Alternative 4..... 208
Figure 30. Unclassified Route Restoration – Big Bear Area Index Map 208
Figure 31. Unclassified Route Restoration – Big Bear Area Map 1 208
Figure 32. Unclassified Route Restoration – Big Bear Area Map 2 208
Figure 33. Unclassified Route Restoration – Big Bear Area Map 3 208
Figure 34. Unclassified Route Restoration – Big Bear Area Map 4 208
Figure 35. Unclassified Route Restoration – Big Bear Area Map 5 208
Figure 36. Unclassified Route Restoration – Big Bear Area Map 6 208

Summary

Proposed Action

The San Bernardino National Forest (NF) proposes the following actions: 1. Add 8.4 miles of existing unauthorized routes to the current system of National Forest System (NFS) trails currently open to the public for motorized vehicle use and 0.3 miles of unauthorized routes to the NFS road system; 2. Add 0.5 miles to the current system of NFS trails through new construction; 3. Decommission 3.3 miles of existing routes in the current system of NFS motorized trails and 15.2 miles of routes in the NFS road system (i.e. removed from the National Forest Transportation System and stabilized/restored to a more natural state); 4. Restore 74.2 miles of unauthorized routes; 5. Allow non-highway legal vehicle use on approximately 30.4 miles of an existing NFS road where such use is currently prohibited or is currently permitted under a temporary designation; and 6. Prohibit highway legal vehicle access on 50.6 miles of an existing NFS road (non-highway legal vehicles are already prohibited on these roads; these roads would still be accessible to Forest Service fire and other administrative vehicles). Design features are included in Appendix A.

Due to public comments received during scoping, the Proposed Action analyzed in this EA had been modified from the Proposed Action that was originally scoped in several regards: 1) it eliminates the proposal to widen 2W01; 2) it eliminates the proposal to designate five staging areas for non-highway legal vehicles; 3) it eliminates the proposal to allow non-highway legal vehicles on the portion of 2N02 from the junction of 2N61Y to the Forest boundary. This Proposed Action also modified a short segment of the unauthorized route along the Cleghorn Ridge fuelbreak after analysis revealed that it is inside an Inventoried Roadless Area. Instead of being added to the non-highway legal motorized trail system, this segment of the Cleghorn fuelbreak will be restored.

Significant Issues

Internal and external scoping identified the following significant issues and these issues were used to develop the action alternatives. The significant issues include the following:

Table 1. List of Significant Issues

Issue Topic	Cause and Effect
1. Access to diversity of riding experiences for motorized travel	Additional options for motorized travel are needed to provide greater access and diversity of motorized riding experiences.
2. Access to dispersed camping	Inadequate access to dispersed camping sites.
3. Restrict access for motorized travel	Failure to restrict or eliminate motorized access on certain routes would create user conflicts and cause impacts to soil, wildlife and plant resources.

Alternatives Considered in Detail

The San Bernardino NF developed four alternatives: the no action, the proposed action and two other action alternatives generated in response to the significant issues listed above. The four alternatives considered in detail for this analysis are listed in Table 2 below. Complete details of the alternatives, including project design criteria, are found in Chapter 2 of this document.

Table 2. List of Alternatives Considered in Detail

Alternative 1: Proposed Action	The proposed action is a modification of the proposed action as described in the attachment to the scoping letter dated January 30, 2007: • **Adds 8.4 miles of unauthorized routes to the NFS motorized trail system** • **Adds 0.5 miles of new motorized trail construction** • **Decommissions 3.3 miles of current NFS motorized trails** • **Decommissioning 15.2 miles of current NFS roads** • **Adds 0.3 miles of unauthorized routes to the NFS roads system** • **Restores 74.2 miles of unauthorized routes** • **Adds non-highway legal vehicle use on 55.3 miles of existing NFS roads** where such use is currently prohibited or is currently permitted under a temporary designation • **Removes non-highway legal vehicle use on 24.9 miles of existing NFS roads** • **Removes 50.6 miles highway legal vehicle access on NFS roads** by reclassifying for administrative use only (note: these roads already prohibit non-highway legal vehicles)
Alternaitve 2: No Action Alternative	The no action alternative provides a baseline for comparing the other alternatives. Under the no action alternative, current management plans would continue to guide management of the project area. No changes would be made to the current National Forest Transportation System (NFTS). The Travel Management Rule would be implemented and the MVUM would be produced only to the extent of reflecting the currently designated system. Motor vehicle travel by the public would continue to be limited to designated routes, per the Forest Plan. The agency would take no affirmative action on any unauthorized routes and they would continue to have no status or authorization as NFTS facilities. • **Adds no new NFTS facilities** • **Removes no existing NFTS facilities** • **Restores no unauthorized routes** • **Temporary designations would not continue**

Alternative 3	Alternative 3 responds to the issue of access and motorized recreation opportunity, including access to dispersed camping. During scoping the San Bernardino NF received suggestions for additional routes and alternative routes that would better provide access and recreation opportunity. Alternative 3 incorporates many of those suggestions. • **Adds 8.2 Miles of unauthorized routes to the NFS motorized trails system** • **Adds 0.2 miles of new NFS motorized trail construction** • **Decommissions 14.2 miles of NFS roads** • **Adds 6.5 miles of unauthorized roads to the NFS road system** • **Restores 73.6 miles of unauthorized routes** • **Adds non-highway legal vehicle use on 55.3 miles of existing NFS roads** where such use is currently prohibited or is currently permitted under a temporary designation • **Removes 6.2 miles of non-highway vehicle use on existing NFS roads** • **Removes 41.0 miles highway legal vehicle access on NFS roads** by reclassifying for administrative use only (note: these roads already prohibit non-highway legal vehicles)
Alternative 4	Alternative 4 was developed in response to the significant issue of restricting access for motorized vehicles beyond what was provided by the proposed action. • **Adds 8.4 Miles of unauthorized routes to the NFS motorized trail system** • **Adds 0.5 miles of new motorized trail construction** • **Decommissions 3.3 miles of current NFS motorized trails** • **Decommissions 17.5 miles of current NFS roads** • **Adds 0.3 miles of unauthorized routes to the NFS road system** • **Restores 74.2 miles of unauthorized routes** • **Adds non-highway legal vehicle use on 51 miles of existing NFS roads** • **Removes non-highway legal vehicle use on 25 miles of existing NFS roads** • **Removes 50.6 miles highway legal vehicle access on NFS Roads** by reclassifying for administrative use only (note: these roads already prohibit non-highway legal vehicles)

Summary of Environmental Consequences

For a summary of environmental impacts refer to Table 14, Chapter 2.

Chapter 1 – Purpose and Need

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

- **Chapter 1. Purpose and Need**: This chapter briefly describes the proposed action, the need for that action and other purposes to be achieved by the proposal. This section also details how the Forest Service informed the public of the proposed action and how the public responded.
- **Chapter 2. Alternatives**: This chapter provides a detailed description of the agency's proposed action as well as alternative actions that were developed in response to comments raised by the public during scoping. The end of the chapter includes a summary table comparing the proposed action and alternatives with respect to their environmental impacts.
- **Chapter 3. Affected Environment and Environmental Consequences**: This chapter describes the environmental impacts of the proposed action and alternatives.
- **Chapter 4. Consultation and Coordination**: This chapter provides a list of agencies consulted during the development of the environmental impact statement.
- **Appendices**: The appendices provide more detailed information to support the analyses presented in the environmental impact statement.

Additional documentation, including more detailed analyses of project area resources, may be found in the project planning record located at the San Bernardino National Forest Supervisor's office in San Bernardino, California.

Background

Over the past few decades, the availability and capability of motorized vehicles, particularly off-highway vehicles (OHVs) and sport utility vehicles (SUVs) has increased tremendously. Nationally, the number of off-highway vehicle (OHV) users has climbed sevenfold in the past 30 years, from approximately 5 million in 1972 to 36 million in 2000. California is experiencing the highest level of OHV use of any State in the nation. There were 786,914 ATVs and OHV motorcycles registered in 2004, up 330 percent since 1980. Annual sales of ATVs and OHV motorcycles in California were the highest in the U.S. for the last 5 years. Four-wheel drive vehicle sales in California also increased by 1500 percent to 3,046,866 from 1989 to 2002. Unmanaged recreation, including impacts from OHVs, is one of "Four Key Threats Facing the Nation's Forests and Grasslands (USDA FS, June 2004)."

On August 11, 2003, the Pacific Southwest Region of the Forest Service entered into a Memorandum of Intent (MOI) with the California Off-Highway Motor Vehicle Recreation Commission and the Off-Highway Motor Vehicle Recreation Division of the California Department of Parks and Recreation. That MOI set in motion a region-wide effort to "Designate OHV roads, trails and any specifically defined open areas for motorized vehicles on maps of the 19 National Forests in California by 2007."

On November 9, 2005, the Forest Service published final travel management regulations in the Federal Register (FR Vol. 70, No. 216-Nov. 9, 2005, pp 68264-68291). This final Travel

Management Rule requires designation of those roads, trails and areas that are open to motor vehicle use on National Forests. Only roads that are part of a National Forest Transportation System (NFTS) may be designated for motorized use. Designations are made by class of vehicle and, if appropriate, by time of year. The final rule prohibits the use of motor vehicles off designated NFS roads, NFS trails and areas, as well as use of motor vehicles on roads and trails that are not specifically designated for public use.

Prior to 1989 when the San Bernardino National Forest first designated a system of OHV routes, NFS lands were managed as open to cross-country motor vehicle travel, resulting in unplanned, unauthorized, roads and trails. Unauthorized routes generally are developed without environmental analysis or public involvement and do not have the same status as NFS roads and NFS trails included in the NFTS. Nevertheless, some unauthorized routes are well-sited, provide excellent opportunities for outdoor recreation by motorized and non-motorized users and would enhance the NFTS. Other unauthorized routes are poorly located and cause unacceptable impacts. Only NFS roads and NFS trails can be designated for motorized vehicle use. In order for an unauthorized route to be designated, it must first be added to the forest transportation system.

In 2005, the San Bernardino NF completed an inventory of unauthorized routes on NFS lands as described in the MOI and identified approximately 457 miles of unauthorized routes. Beginning in 2006, the San Bernardino NF used an interdisciplinary process and worked with the public to identify proposals for changes to the existing San Bernardino NF transportation system. Roads, trails and areas that are currently part of the San Bernardino NFTS and open to motorized vehicle travel would remain designated for such use except as described below under the proposed action. This proposal makes needed changes (vehicle restrictions, additional motorized trails, etc.) to San Bernardino NFS roads, NFS trails and areas on NFS lands in accordance with the Travel Management Rule (36 CFR Part 212).

In accordance with the Travel Management Rule, following a decision on this proposal, the San Bernardino NF will publish a Motor Vehicle Use Map (MVUM) identifying all NFTS roads, trails and areas that are designated for motor vehicle use. The MVUM shall specify the classes of vehicles and, if appropriate, the times of year for which use is designated. Unauthorized routes not included in this proposal are not precluded from future consideration for addition to the National Forest transportation system and inclusion in a MVUM. However, many miles of unauthorized routes will be restored through this project to protect natural resources. Future decisions associated with changes to the MVUM and the NFTS may trigger the need for additional environmental analysis, public involvement and documentation.

Travel Management on the San Bernardino National Forest

This proposal is just one project among many in our long-term goal of managing our transportation system in a sustainable and cost effective manner. Previous administrative decisions have helped determine the mileage of Forest Service system roads and trails available for motorized use and restricted the season of use. This has been accomplished through forest planning, vegetation management projects, watershed restoration projects, fuel treatment projects, trail construction projects, trail management decisions, OHV Management Plans, landscape analysis, watershed analysis and the Roads Analysis Process (RAP). All of these efforts have helped to identify and manage the current transportation system.

On the San Bernardino National Forest, there is a designated system for motor vehicle use and travel off of designated routes is already prohibited and enforced by Forest Order. The existing system designated for motorized vehicle use was reconfirmed, with public input, through the land management process and Record of Decision of April 2006. The San Bernardino National Forest

Revised Land Management Plan (hereinafter "Forest Plan" or "LMP") prohibits motor vehicle travel off designated National Forest System roads and trails and limited areas that are designated for vehicle use (USDA FS, 2006, Part 3, S35, pp 8-9).

Ongoing efforts include 1) efforts to reduce the impacts associated with non-system routes and 2) efforts to address impacts associated with the current NFTS. Implementation of this proposal and subsequent designation of motorized routes through publication of the Motor Vehicle Use Map (MVUM) are only one step in the overall management of the NFTS. A project to designate non-highway legal vehicle trails in the Baldy Mesa area had already been initiated prior to this action and will continue as a separate project to be completed in compliance with the Travel Management Rule.

In discussing our motorized travel system, it is important to distinguish between (1) the highway legal system, which is open to use by licensed highway-legal vehicles such as passenger cars, four wheel drive vehicles and highway-legal motorcycles; and (2) the non-highway legal system (sometimes referred to as the green sticker system) which can be used by motorized vehicles up to 50 inches wide with the appropriate registration sticker purchased from the State of California.

Scope of this Action

This proposal is narrowly focused on implementing Subpart A of the Travel Management Rule since the Forest is already in compliance with Subpart B (upon publication of the MVUM) as a result of its longstanding designated non-highway legal system. The responsible official is limited as to staff and funding and, by necessity, must limit the scope of any project to that which is within his or her means to accomplish. Through travel analysis and public input, the San Bernardino NF identified discrete actions for minor adjustments to the transportation system through addition of unauthorized routes, addition of non-highway legal access to highway legal roads and trails, new construction of non-highway legal route linkages of less than 0.5 miles in length, decommissioning of system routes, removal of public access from system routes and removal of non-highway legal access on system routes. Based on obligations under the settlement agreement developed through the Southern California Conservation Strategy, the scope of this action also includes restoration of unauthorized routes in the Big Bear area, most of which were created prior to the Forest's non-highway legal system designation in 1989.

The following are not affected by this decision and are outside the scope of the project: (1) licensed vehicle use of NFS maintenance level 4 and 5 roads subject to the Federal Highway Safety Act, as well as State and county roads; (2) snowmobiles; (3) aircraft; (4) watercraft; (5) non-motorized uses (e.g. hiking, equestrian); (6) search and rescue operations; (7) firefighting and other emergency incident operations; (8) law enforcement operations; (9) special events (event only trails); (10) authorized uses (e.g. livestock herding/ fence maintenance); (11) administrative access; (12) government contractors (e.g. construction and service contractors); (13) access by wheelchairs (motorized or non-motorized); (14) legal ingress and egress to private land; (15) the designation of inventoried roadless areas or proposed wilderness additions; (16) restoration of unauthorized routes, except for limited segments done in conjunction with changes to the system or where existing analysis can be incorporated from previous project efforts. The Forest will continue to target areas of unauthorized routes for restoration subject to separate project level analysis and available funding; (17) the project area currently being studied under the Baldy Mesa Recreation Trails Project Environmental Assessment (EA) and (18) significant changes to Forest Plan land use allocations. The Baldy Mesa project is outside the scope of this action because the project was already underway when this action was initiated and will be completed separately in full compliance with the Travel Management Rule.

Project Location:

The San Bernardino National Forest Route Designation and Travel Management Project area consists of all National Forest System lands within the San Bernardino National Forest boundary. The San Bernardino National Forest is located in San Bernardino County and Riverside County, California (see figure 1, Vicinity Map for the project area location).

Figure 1: Vicinity Map

Purpose and Need

A Roads Analysis Process (RAP) was conducted with the 2006 Forest Plan and informed this process. The RAP is online at http://www.fs.fed.us/r5/scfpr/projects/lmp/read.htm. Based upon travel analysis by the interdisciplinary team and public input, the San Bernardino National Forest has developed the proposed action based on the following needs to implement Subparts A and B of the Travel Management Rule:

1. There is a need for a quality non-highway legal motorized recreation opportunity. Travel analysis has shown that some gaps exist in the non-highway legal vehicle network that could benefit from additional linkages and loop opportunities. The Forest Plan cites a need to create more easy-to-moderate day use trails and trail loops and linkages (LMP, Pt. 2, p. 35) and establishes a strategy of adding unclassified roads to the NFTS when site-specific roads analysis determines there is a public need (LMP, Pt. 2, TRANS1, p. 149). It is also Forest Plan strategy to develop motorized trails that address the needs of off-highway vehicle enthusiasts in conjunction with the designation of low-maintenance standard roads (LMP, Pt.2, TRANS1, p. 149). Travel analysis has also shown that some current non-highway legal vehicle routes

are unnecessary because they are short, isolated segments with no linkage to the greater non-highway legal system and they have little or no potential of ever providing a linkage.

2. There is a need for access to designated yellow post dispersed camping sites that are currently accessed by roads that are not included in the National Forest Transportation System (NFTS). Motorized access to several yellow post sites will become prohibited if their access roads are not part of the NFTS.
3. There is a need for restoration of soils and vegetation damaged by off highway vehicle use in the Big Bear area. The Forest is obligated under a settlement agreement developed in the Southern California Conservation Strategy to address resource impacts caused by off highway vehicle use in the Big Bear Area.
4. There is a need for a reduced National Forest Transportation System on the San Bernardino National Forest. The current cost of maintenance and administration exceeds the average annual road maintenance budget. Travel analysis showed that some routes are not providing a public benefit. One of the Forest Plan strategies for transportation management is to decommission NFTS roads and trails that the Forest has determined to be unnecessary (LMP, Pt. 2, p. 149). Strategies also include removing public use while maintaining access for fire suppression and authorized permittees.
5. There is a need for improved vehicle safety on routes 1N34, 3N53 and 3N22. Storm runoff severely damaged the portion of 1N34 west of Day Canyon and the steep topography will not allow it to be reconstructed to safety standards for even high clearance vehicles. Route 3N53 parallels a railroad track and raises significant safety concerns of conflicts between trains and non-highway legal vehicles. Non-highway legal vehicle use on 3N53, as well as on the segment of 3N22 between Summit parking area and Highway 138, encourages users to cross Highway 138, thus creating a safety hazard on the highway.
6. There is a need for socially compatible non-highway legal vehicle use in the vicinity of Lake Arrowhead where noise and other user conflicts have become a problem. The Forest Plan notes that there are noise conflicts between national forest non-highway legal vehicle use and adjacent landowners in the Arrowhead Place and sets a program emphasis of improving the NFTS route system there (LMP, Pt. 2, p9. 46-47). Previous complaints from residential owners and comments during scoping for this project focused on needs for management changes on 3W12, 3W13, 2N95 and 2N96.
7. There is a need for protection of cultural resources on 3W13. Motorized travel is causing damage to an archaeological resource on 3W13.
8. There is a need for improved access by equestrian users to National Forest land in the Garner Valley Place. Improved public access is a desired condition for the Garner Valley Place in the Forest Plan (LMP, Pt. 2, p. 67).

In meeting these needs the proposed action must also achieve the following purposes:

A. Avoid impacts to cultural resources.

B. Provide for public safety.

C. Provide for a diversity of recreational opportunities.

D. Assure adequate access to public and private lands.

E. Provide for adequate maintenance and administration of designations based on availability of resources and funding to do so. Future road and trail budgets are expected to decrease from current levels.

F. Minimize damage to soil, vegetation and other forest resources.

G. Avoid harassment of wildlife and significant disruption of wildlife habitat.

H. Minimize conflicts between motor vehicles and existing or proposed recreational uses of NFS lands.

I. Minimize conflicts among different classes of motor vehicle uses of NFS lands or neighboring Federal lands.

J. Assure compatibility of motor vehicle use with existing conditions in populated areas, taking into account sound, emissions, etc.

K. Maintain valid existing rights of use and access (rights-of-way).

L. Constrain the proposal to that which is within the capability of the Forest to analyze given: 1. The national schedule for regions to publish their Forest Motor Vehicle Use Maps. For the San Bernardino National Forest the publication deadline is approximately March 2009. 2. Available funding (road and trail management budgets). 3. Available resources (resource data and staff time).

M. Comply with Goals and Standards in the San Bernardino National Forest Land Management Plan (USDA FS, 2006) (Goal 3.1, Part 1 pp. 34-35; Goal 5.1 p. 39; Strategy TRANS 1, Part 2, p. 149; WL1, Part 2, p. 126; Standard S34, Part 3, p. 8; S35, Part 3, pp. 8-9; S50, Part 3, p. 11).

N. Maintaining administrative access for fire suppression emergencies and authorized permittees.

Proposed Action

The proposed action consists of the following elements. Each element satisfies one or more of the needs from the Purpose and Need section above and these are indicated in parentheses.

a. Add 0.3 miles of unauthorized routes as NFS roads. (Need 8)

b. Decommission 15.2 miles of NFS roads. (Need 4, 7)

c. Add 8.4 miles of unauthorized routes as NFS motorized trails. (Need 1, 7)

d. Add 0.5 miles of new motorized trail construction. (Need 1, 6)

e. Decommission 3.3 miles of NFS motorized trails. (Need 4, 6)

f. Add non-highway legal vehicle use on 55.3 miles of existing NFS road where such use is currently prohibited. (Need 1)

g. Remove non-highway legal vehicle use on 24.9 miles of NFS road where such use is currently permitted. (Need 1, 5, 6)

h. Prohibit highway legal vehicle access on 50.6 miles of NFS road. These roads would remain on the NFS road system and be maintained for administrative use, including use by designated permit holders where applicable and use by emergency vehicles for fire suppression. (Need 4, 5, 6)

i. Restore 74.2 miles of unauthorized routes. These routes would be closed and restored to natural habitats using a variety of methods, including subsoiling (a decompaction technique) with equipment, disguising with slash, reseeding, planting and placement of barriers such as boulders or fencing. (Need 3)

Principle Laws and Regulations that Influence the Scope of this EA

The National Environmental Policy Act of 1969 (NEPA) requires that all major Federal actions significantly affecting the human environment be analyzed to determine the magnitude and intensity of those impacts and that the results be shared with the public and the public given opportunity to comment. The regulations implementing NEPA further require that to the fullest extent possible, agencies shall prepare environmental assessments concurrently with and integrated with environmental analyses and related surveys and studies required by the Endangered Species Act of 1973, the National Historic Preservation Act of 1966 and other environmental review laws and executive orders. Principle among these are the Multiple Use and Sustained Yield Act of 1960, the National Forest Management Act of 1976 as expressed through the San Bernardino National Forest Land Management Plan, the Clean Air Act of 1955, the Clean Water Act of 1948 and the Forest and Rangeland Renewable Resources Planning Act of 1974.

Roadless Area Conservation: On September 19, 2006, the U.S. District Court, Northern District of California set aside the 2005 State Petitions Rule and re-instated the 2001 Roadless Rule ((36 CFR 294, Subpart B (66 FR 3272, Jan. 12, 2001)).

Travel Management Rule (36 CFR 212, 251, 261 and 295): The San Bernardino NF Travel Management Environmental Assessment (EA) is designed specifically to implement the requirements of the November 5, 2005 Rule for Travel Management.

San Bernardino National Forest Plan Direction

The Forest Plan identifies the following land use zones in order to identify appropriate types of use for each part of the forest:

DAI: Developed Area Interface

BC: Back Country

BCMUR: Back Country Motorized Use Restricted

BCNM: Back Country Non-Motorized

CB: Critical Biological

W: Wilderness (also includes recommended Wilderness)

For the following motorized vehicle activities, the Forest Plan has identified whether it can be allowed or not in each land use zone (LMP Part 2, pp2-3, Table 2.4.1):

- Public Motorized Use on Forest System Roads – Suitable in DAI and BC; Not Suitable in BCMUR, BCNM, CB or W.
- Authorized Motorized Use – Suitable in DAI, BC, and BCMUR; Only allowed by specific exception in BCNM, CB and W.
- Off-Highway Vehicle Use on Forest System Roads and Trails – Allowed on designated trails only in DAI and BC; Not Suitable in BCMUR, BCNM, CB and W.

- Public Motorized Use off Forest System Roads and Trails – Suitable in designated open areas only in DAI and BC; Not Suitable in BCMUR, BCNM, CB and W.

A change to a road or trail designation that conflicted with its land use zone would require an amendment to the Forest Plan. An amendment to the Forest Plan is outside the scope of this project.

Other laws, regulations and policy that relate to specific resources are addressed in the resource sections of Chapter 3 and in each resource specialist report.

Decision Framework

The responsible official will decide whether to adopt and implement the proposed action, an alternative to the proposed action, some combination of the action alternatives, take no action to make changes to the existing San Bernardino National Forest Transportation System or decide if preparation of an environmental impact statement is required according to applicable law, regulation and policy.

Responsible Official

The Forest Supervisor for the San Bernardino National Forest will be the deciding official. The Forest Supervisor will sign the decision.

Public Involvement

The proposal was first listed in the San Bernardino National Forest Schedule of Proposed Actions on October 1, 2006. A scoping letter dated January 30, 2007 was sent to approximately 900 individuals, permit holder organizations, agencies and Tribes who have shown an interest in the San Bernardino National Forest route inventory or land management actions. The letter requested comments on the proposed action be made between January 30 and February 23, 2007. The comment period was extended on February 22, 2007, by 15 days to March 9, 2007. Comments were also accepted after the end of the comment period. During the scoping phase, 185 written letters and emails and 8 verbal comments were received.

A detailed description of the proposed action and maps were posted on the San Bernardino National Forest website on February 6, 2007 at www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml.

Four open house meetings were held for the public to learn more about the project and see detailed maps of the proposed routes. Meetings were held in San Bernardino (February 15, 2007), Hesperia (February 20), Idyllwild (February 21) and Running Springs (February 22). The public house meetings were announced in the scoping letter and 89 people attended the meetings.

Using the comments received during the 40-day public scoping period, the interdisciplinary team (IDT) determined whether the comments were significant or non-significant issues. This list of issues is addressed in the following section.

Issues

Comments from the public and other agencies were used to formulate issues concerning the proposed action. An issue is a matter of public concern regarding the proposed action and its environmental impacts. The Forest Service separated the issues into two groups: significant and non-significant. Significant issues were defined as those directly or indirectly caused by

implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)…" A list of non-significant issues and reasons why they were found non-significant may be found in the project record located at the San Bernardino National Forest Supervisor's Office.

Significant Issues

The proposed action was modified in this EA to address some of the significant issues expressed in public comments received during scoping. The proposed action (alternative 1) does not include the addition of new staging areas because they are outside the scope of this project. Due to the potential for resource impacts in the Deep Creek area and the interest of the motorized recreation community to maintain this as a 20-inch motorcycle trail, the project will not evaluate widening of 2W01. Safety and land use concerns raised during scoping eliminated the addition of a non-highway legal designation to 2N02 from its junction with 2N61Y to the San Bernardino National Forest boundary (approximately 1.7 miles).

Issue 1. Access to a diversity of riding experiences for motorized travel

Concerns were raised that restricting motorized access severely impacts motorized recreation opportunities. Additional options for motorized travel are needed to provide greater access and diversity of motorized riding experiences.

Issue 2. Access to dispersed camping

The proposed action would limit motorized users access to dispersed camping sites by decommissioning or closing public access to some short spur roads and by restoring unauthorized spur routes.

Issue 3. Restricting access for motorized travel

The proposal does not reduce or eliminate motorized access on certain routes and this would create user conflicts and cause impacts to soil and water, wildlife and plant resources.

Non-significant Issues

There were several issues raised by the public that did not rise to the level of significant issues. These include the following proposals that were raised in numerous comments. However, they are outside the scope of this project because they would require an amendment to the Forest Plan, and thus they cannot be considered.

1. Designate highway legal vehicle access on 2N61Y to Heartbreak Ridge and Pontiac Sluice in the Onyx Peak area. This route is in an area that is proposed for wilderness in the Forest Plan. The Forest Plan requires that such areas be managed as if it is wilderness, and this precludes designating street legal access on 2N61Y. An amendment to the Forest Plan is outside the scope of this project. Thus, this project is making no changes to the current management of 2N61Y.

2. Designate 3N69A (Rock Garden spur off of the Gold Mountain Trail) for highway legal vehicle use. Under the Forest Plan, the short spur to 3N69A, popularly known as the "Rock Garden", is zoned as Back Country Non-motorized, so it is not open for highway legal vehicles.

An amendment to the Forest Plan is outside the scope of this project. Thus, this project is making no changes to the current management of 3N69A. Furthermore, there is no change to the management of 3N69 (Gold Mountain Trail) which is currently designated for street legal use.

3. Designate non-highway legal vehicle use on the entire unauthorized route X2W47 along the Cleghorn Ridge Trail, instead of just portions of it. Portions of X2W47 are being analyzed for non-highway legal designation. However, the portions of X2W47 that are proposed for rehabilitation are zoned as Back Country Non-motorized in the Forest Plan, so they are not eligible for consideration as non-highway legal routes. An amendment to the Forest Plan is outside the scope of this project.

Project Record

This EA incorporates by reference the Project Record (40 CFR 1502.21). The Project Record contains draft specialist reports and other technical documentation used to support the analysis and conclusions in this EA. Relying on Specialist Reports and the Project Record helps implement the Council on Environmental Quality (CEQ) Regulations' provision that agencies should reduce NEPA paperwork (40 CFR 1500.4), that EAs shall be analytic rather than encyclopedic and that EAs shall be kept concise and no longer than absolutely necessary (40 CFR 1502.2). The objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated, without repeating detailed analysis and background information available elsewhere.

The Project Record is available for public inspection at the San Bernardino Supervisor's Office.

Chapter 2 – Alternatives

Introduction

This chapter describes and compares the alternatives considered for the San Bernardino National Forest Travel Management EA. It describes both alternatives considered in detail and those eliminated from detailed study. The end of this chapter presents the alternatives in tabular format so that the alternatives and their environmental impacts can be readily compared.

Based on the issues identified through public comment on the proposed action, the Forest Service developed two alternative proposals that achieve the purpose and need differently than the proposed action. In addition, the Forest Service is required to analyze a no action alternative. The proposed action, alternatives and no action alternative are described in detail below.

The chapter is divided into four parts:

- Part 1 describes how the alternatives were developed.
- Part 2 presents the alternatives considered in detail.
- Part 3 presents the alternatives that were considered, but eliminated from detailed analysis. It includes the rationale for eliminating these alternatives.
- Part 4 compares the alternatives based on their environmental consequences and includes a comparative display of the projected effects of the alternatives.

How the Alternatives were Developed

The three action alternatives represent a wide range of perspectives designed to address the issues as described in the purpose and need (Chapter 1).

Alternatives Considered in Detail

Three action alternatives (alternatives 1, 3, 4) and a no action alternative (alternative 2) are analyzed in detail in this EA. The no action alternative serves as a baseline for comparison among the alternatives and is required by the implementing regulations of the National Environmental Policy Act (NEPA).

The planning area for the alternatives includes National Forest System lands on the San Bernardino National Forest. It does not include any private, State or other Federal lands.

Each alternative assumes that other adjacent Federal lands, such as those administered by the Bureau of Land Management, will be managed according to existing management plans and applicable Federal laws. Each alternative also assumes that private lands will meet applicable State and Federal land use regulations.

Design Features and Mitigation Measures

All action alternatives incorporate design features and mitigation measures found in Appendix A.

Monitoring

All action alternatives will adhere to the Travel Management Monitoring Plan in Appendix E. The Forest has an existing OHV monitoring program that would be applied under alternative 2. The monitoring plan in Appendix E for all action alternatives would incorporate additional

monitoring requirements into the existing San Bernardino National Forest monitoring program. Monitoring is critical for evaluating the effectiveness of management decisions and the accuracy of analysis assumptions and conclusions. Monitoring of road and trail conditions is required and must meet regional and national standards. If monitoring determines additional resource damage is occurring, steps to prevent further damage must be taken. The Forest will follow its guidelines on adaptive mitigation for recreation uses in the Forest Plan (USDA FS, 2006, Appendix D). Actions such as fencing or other barriers for perimeter control, limiting periods of visitor use or enacting Forest Orders to administratively close a road or trail due to resource damage can be done without additional NEPA analysis. If the mitigations are not effective or are not possible, road or trail closures and decommissioning may be required and would require additional NEPA analysis.

Descriptions of the Alternatives

This section describes each of the four alternatives considered in detail. The alternatives are described in several parts:

1. **Changes to class of vehicles allowed on the existing road system**. Motor vehicle operation on National Forest System roads is subject to both Federal and State laws and regulations. National Forest System (NFS) roads maintained by the San Bernardino NF to accommodate standard four wheel passenger cars are subject to the Federal Highway Safety Act and are considered highways for purposes of National Forest transportation management and the California Vehicle Code (CVC) Division 16.5. These roads are currently open to highway legal vehicles only and the alternatives include several proposals to allow mixed use (highway legal and non-highway vehicle types allowed on the same road) on them, accompanied by findings of a qualified engineer. NFS roads maintained for high clearance vehicles are generally not suitable for standard four wheel passenger vehicles. As such, they are not subject to the Federal Highway Safety Act, are considered roughly graded roads for purposes of the CVC Division 16.5 and the alternatives include several proposals to designate mixed use on them. The class of vehicle allowed on motorized NFS trails would be based on existing trail width and design features based on management objectives for each trail.
2. **Roads and trails to be added to or removed from the National Forest System**. Each alternative includes lists of roads and trails that are proposed for addition to or removal from the NFTS. Each of these roads and trails is identified by a unique road number or route ID. All proposed route additions have an assigned maintenance level based on specific road or trail management objectives. All proposed routes will receive the appropriate level of routine maintenance such as brushing, signing, cleaning, clearing debris, etc. Each unauthorized road or trail proposed for addition is site-specifically addressed in the resource specialist reports where site specific reviews by resource specialists are documented. Resource specialists reviewed all proposed routes to determine site-specific impacts. For some routes and areas, no work beyond routine maintenance is needed. For others, additional work is needed to bring the route or area up to a safe and environmentally sustainable condition. Where specific actions are identified for a given road or trail, such actions must be completed prior to designation of the road or trail for public motorized use.
3. **Restoration of specified unauthorized routes**. These routes would be closed and restored to natural habitats using a variety of methods. These routes would be closed to vehicle travel only and restored to natural condition by using a combination of methods, including subsoiling (a decompaction technique) with equipment, disguising with slash, reseeding, planting and placement of barriers such as boulders or fencing. Use by hikers will continue to

be permitted in the long term, but short-term educational measures such as signing will discourage foot traffic in order to promote recovery. The type of method would depend on the topological, geological and natural resource conditions present for each unauthorized route.

4. **New construction**. New routes would be constructed for non-highway legal use up to 50 inches wide and added to the NFTS to create necessary linkages or allow for rerouting of trails that are impacting sensitive resource areas. Per Forest Plan, S5, "All freshly cut live or recently dead conifer stumps will be treated with a registered fungicide to prevent the establishment of annosus root disease."

Alternatives

Alternative 1 – Proposed Action

The original proposed action as described in the scoping letter will not be studied in detail. Based on public comments, the proposed action was modified. The modifications made for this alternative make an effort to address the concerns expressed by the public about the proposal during scoping. Modifications include:

- The proposed action does not propose the addition of new staging areas because they were outside the scope of this project. The scope of this project is limited to travel routes only.
- The proposed action does not propose widening of 2W01 to accommodate 50-inch non-highway legal vehicles. Due to the potential for resource impacts in the Deep Creek area and the interest of the motorized recreation community to maintain this as a 20-inch motorcycle trail, the project will not evaluate widening of 2W01.
- The proposed action does not propose to add non-highway legal designation to 2N02 from its junction with 2N61Y to the San Bernardino National Forest boundary (approximately 1.7 miles). This route raises safety and land use concerns by connecting the forest non-highway legal system to adjoining private land and a county road.
- Analysis revealed that a very short segment of the unauthorized Cleghorn Ridge fuelbreak route is in an Inventoried Roadless Area (IRA), so it was excluded from the proposed action (and all action alternatives). It will be restored instead. The remainder of the unauthorized Cleghorn Ridge fuelbreak route outside of the IRA is still included in all action alternatives.
- Analysis revealed that a short connecter (0.1 mile or less) between 2N25 and 2N27Y is an unauthorized route so it is now proposed for restoration instead of adding non-highway legal vehicle use. Designating it would have resulted it in blind curve intersections with system routes and would not have resulted in a useful connection since there is already a legal connection between these two system routes in the immediate vicinity.

Specifically, the Forest Service proposes to make the following changes to the transportation system. Detailed maps are available in Appendix G and on the project website at http://www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml.

Unauthorized Routes (URs)

Adding unauthorized routes for non-highway legal vehicles up to 50 inches wide

The following URs would be added into the National Forest System for use by motorized non-highway legal vehicles up to 50 inches wide.

Table 3. Alternative 1; Proposed Unauthorized Routes for Non-highway Legal Vehicles up to 50 inches Wide

District	Route Identifier	Approximate Mileage
Front Country	Cleghorn Ridge fuelbreak (along 2N47)	3.88
Mountaintop	Pilot Rock Ridge route (along 2N33)	3.99
	U2000 (Connection between 3N03 and 3N07Y) (would also be highway legal)	0.11
	U6905 (Reroutes portion of 3W13 south of 3N34 to avoid archaeological impacts)	0.27
San Jacinto	None	0.00
TOTAL		**8.25**

Adding unauthorized routes for highway legal vehicles

The following unauthorized routes would be added into the NFTS for use by highway legal vehicles.

Table 4. Alternative 1; Proposed Unauthorized Routes for Highway Legal Vehicles

District	Route Identifier	Approximate Mileage
Front Country	None	0.00
Mountaintop	None	0.00
San Jacinto	U2938	0.30
TOTAL		**0.30**

Restoration of unauthorized routes

The following unauthorized routes would be closed and restored to natural habitats using a variety of methods. These routes would be closed to vehicle travel only and restored to natural condition by using a combination of methods, including subsoiling (a decompaction technique) with equipment, disguising with slash, reseeding, planting and placement of barriers such as boulders or fencing. Use by hikers will continue to be permitted. The type of method would depend on the topological, geological and natural resource conditions present for each unauthorized route.

Table 5. Alternative 1; Proposed Restoration of Unauthorized Routes

District	Route Identifier	Approximate Mileage
Front Country	Portions of X2W47 (Cleghorn Ridge fuelbreak)	2.12
Mountaintop	Routes identified in a legal settlement agreement through the Southern California Conservation Strategy where field surveys are already complete (S. Baldwin Ridge, Arrastre/ Union Flat, Broom Flats, Holcomb Valley, Cactus Flats, Sugarloaf) (see unclassified routes marked for restoration - Appendix G, Figs. 30-36, and Maps 6 & 7 for all alternatives)	72.08
San Jacinto	None	0.00
TOTAL		**74.20**

Forest System Routes

Reclassification for non-highway legal vehicles up to 50 inches wide

The following Forest System roads would be reclassified to allow motorized use by non-highway legal vehicles up to 50 inches wide (also known as "mixed use").

Table 6. Alternative 1; Proposed Reclassification of Routes for Non-highway Legal Vehicles up to 50 inches Wide

District	Route Identifier	Approximate Mileage
Front Country	None	0.00
Mountaintop	3N03 between east end of Cactus Flats loop to 3N03F (through Lone Valley)	2.48
	3N03, south of 3N03F (Cactus Flats - currently a temporary designation)	3.39
	2N02 (Cactus Flats - currently a temporary designation)	3.59
	2N71Y (Cactus Flats - currently a temporary designation)	1.33
	2N69Y (Cactus Flats - currently a temporary designation)	0.21
	2N61Y (Cactus Flats - currently a temporary designation)	3.31
	2N89Y (Cactus Flats - currently a temporary designation)	0.25
	2N01 (Cactus Flats - currently a temporary designation)	0.64
	2N31Y (Crab Flats)	0.57
	3N14 between 3N59 and Forest boundary	1.76
	3N14 between Big Pines and 4N16	5.22
	3N14 (portion that is currently a temporary designation between 3N59 and 4N16)	2.25
	3N16 between Big Pines and 3N17	3.37
	3N16 (currently a temporary designation between Crab Flats and Big Pine Flats)	8.17
	4N16 beween 3N17 and Forest boundary	0.55
	4N16 (currently a temporary designation between 3N14 and 3N17)	1.33
	3N56	0.20
	3N59A (currently a temporary designation)	1.86
	2N25 (Rouse Meadow Road)	1.19
	2N75 (Ash Meadows Road)	1.55
	3N34 (portion south of 3N34X)	1.78
	2N90 to Tip Top	1.68
San Jacinto	4S06 (Indian Creek Road)	6.20
	4S19 (Angelus Hill, aka Poppet Divide Road)	2.58
TOTAL		**55.25**

Decommissioning

The following NFTS roads and motorized trails would be decommissioned (removed from the NFTS and stabilized or restored to a more natural state).

Table 7. Alternative 1; Proposed Decommissioning of Routes

District	Route Identifier	Approximate Mileage
Front Country	None	0.00
Mountaintop	3N95 (currently no public access)	3.43
	3N98 (portion south of 3N99 junction – currently no public access)	2.25
	3N99 (portion south of 3N98 junction – currently no public access)	1.33
	3N14D	0.43
	Admin 1 and Admin 2 trails (east of North Shore Work Center)	0.53
	2N25Y (Rouse Meadow)	0.62
	3W12 south end	1.32
	3W13 south of 2N28Y	0.70
	3W12 north end to 3N34	0.34
	3W13, south of 3N34	0.43
	2N26 (North Shore Lake Arrowhead)	0.97
	2N26A	0.14
	3N11 (portion north of 3N17)	1.09
	2N64Y	0.96
	2N20Y (Sugarloaf)	0.42
	2N60Y (Sugarloaf)	0.45
	2N14Y (Sugarloaf)	1.07
	2N15Y (Sugarloaf)	0.79
	2N19Y	0.58
	3N96	0.60
San Jacinto	None	0.00
TOTAL		**18.49**

Reclassification for highway legal vehicles only

The following NFTS routes would be reclassified to no longer permit motorized use by non-highway legal vehicles up to 50 inches wide, but would remain available for use by highway legal vehicles.

Table 8. Proposed Reclassification of Routes For Highway Legal Vehicles Only

District	Route Identifier	Approximate Mileage
Front Country	3N22 from Summit staging area to Hwy 138	0.47
	3N53 (along railroad)	3.59
	2N30 (to Marshall Peak)	2.90
	2N40 (Cloudland truck trail to Marshall Peak)	6.39
Mountaintop	3N10 (John Bull Trail)	5.44
	2N28Y (from 2N29Y west to Bampf Rd.)	0.47
	4,000 foot road (2N59, 2N43, 2N42/2N03, 2N13Y, 2N63) (already managed as highway legal only)	5.67
San Jacinto	None	0.00
TOTAL		**24.93**

Reclassification to prohibit highway legal vehicles

These roads will be gated and closed to the public to prohibit access by highway legal vehicles (non-highway legal vehicles are already prohibited). They will be maintained only on an as needed basis to a level that can be driven by FS high clearance vehicles for erosion control and drainage.

Table 9. Proposed Reclassification of Routes for Administrative Use Only

District	Route Identifier	Approximate Mileage
Front Country	3N66 (Little Horsethief)	1.16
	3N66A	1.11
	1N35, ½ mi. west of Cucamonga Crossing to Forest boundary	0.42
	1N34 east of Day Canyon	7.73
	2N87	3.07
	2N49A	1.40
Mountaintop	2N47A	1.35
	2N12X (Green Valley to Crab Flats)	0.54
	2N12 (portion, to Crab Flats)	0.63
	3N03D	0.66
	3N59B (Lion Canyon)	2.66
	3N41 (Little Pine Flats)	0.45
	2N06Y	0.56
	2N09C (Holcomb Valley)	1.65
	2N07	0.65
	3N38B	1.00
	2N61B	1.67
	1N03	1.30
	1N04A	0.78
	2N92	1.25
	2N48Y (Sugarloaf)	0.96
	2N48YA (Sugarloaf)	0.30

District	Route Identifier	Approximate Mileage
	2N27A	0.43
	2N77	0.92
	2N46Y	1.33
	2N93A	0.37
	2N96 (north of North Shore Campground)	1.09
	3W12	0.44
	2N18Y (Sugarloaf)	0.81
	3N54	4.46
	3N87	1.31
	3N88	6.79
	3N88A	0.30
	3N88B	1.07
San Jacinto	None	0.00
TOTAL		**50.63**

New construction

The following routes would be constructed for non-highway legal use up to 50 inches wide and added to the NFTS to create necessary linkages.

Table 10. Alternative 1; Proposed New Construction of Non-highway Legal Routes

District	Route Identifier	Approximate Mileage
Front Country	None	0.00
Mountaintop	Connection between 3W12 and 3W13	0.05
	Bypass difficult curve on 3W14 near sewage treatment plant for consistency with designation as an easy route	0.17
	Administrative use only link between North Shore Work Center and 2N25	0.23
San Jacinto	None	0.00
Total		**0.45**

Alternative 2 – No Action

Under this alternative the agency will take no affirmative action (no change from current management or direction). The use of all unauthorized routes will continue to be illegal and no changes will be made to the current NFTS. The no action alternative is a proposal to ‘do nothing’ and maintain the ‘status quo’. The Travel Management Rule would be implemented by publishing a Motor Vehicle Use Map (MVUM) reflecting the currently designated motorized travel system. No unauthorized routes would be restored. Temporary mixed use designations would not continue.

Alternative 3

In response to Issue #1 for greater access to diverse riding experiences than allowed by the proposed action, alternative 3 proposes the same changes to the NFTS as the proposed action

(alternative 1) except for the following modifications which were raised during scoping and are consistent with Forest Plan zoning:

- Do not reclassify portions of 1N34 and 1N35 for administrative use only.
- Do not decommission 3N11.
- Do not decommission 3W12 and 3W13 (just south of 3N34).
- Do not make changes to the following routes northeast of Lake Arrowhead: do not decommission 3W12, 3W13 and 2N95; do not make 2N96 administrative use only; and do not remove non-highway legal use on 2N28Y. Also no construction of access connecter to Forest Service North Shore Work Center and no construction of connecter between 3W12 and 3W13.
- Do not remove non-highway legal use on 2N30 and 2N40 (Marshall Peak).
- Do not remove non-highway legal use on 3N10 (John Bull trail).
- Do not remove non-highway legal use on 3N53 (along railroad).
- Highway-legal access to designated dispersed camping sites (5.6 miles).
  In response to Issue #2 and Need #2 regarding access to dispersed camping, alternative 3 would designate motorized access on short spur routes to designated dispersed camping sites. Although the SBNF is open to dispersed camping with some restrictions, there is a system of designated dispersed camping sites, commonly called "yellow post sites", to which the SBNF directs visitors who seek a dispersed camping experience. These remote sites are equipped with a fire ring for safety but no other amenities. Due to a past management oversight, the spur roads accessing these sites off the NFTS system roads were not designated and added to the system, so alternative 3 would correct this by adding the spurs to the system. Most of these spurs are less than 0.1 miles and the longest is 0.5 miles. The total distance of all yellow post spurs in alternative 3 is 5.6 miles. Because all these spurs connect to highway legal roads, they will be designated highway legal as well. They are listed below by site name and number.

Yellow Post Site Names/Numbers - Alternative 3

- Coon Creek 1-19
- South Shore Big Bear 26-30
- Clark's Ranch 1
- Fawnskin 1, 2, 4, 5, 6, 7, 31, 33, 34
- Thomas Hunting Grounds 1
- Keller Peak 1-10
- Fuller Ridge 1
- Black Mountain 1, 3, 4, 5
- Seven Pines 1
- Hall Decker 1
- Santa Rosa Campground 1
- Santa Rosa Springs 1
- Santa Rosa yellow post
- Toro Camp 1, 2
- Southridge 1-3
- Apple Canyon 1-3
- South Lake Hemet 1
- Thomas Mountain 2-7
- Thomas Mountain Lookout 3
- Tool Box Springs 1-5
- Goff Flat 1

Mileage totals by category are as follows:

Table 11. Alternative 3; Proposed Route Changes, by Mileage

Add non-highway legal use on existing highway legal routes	55.25
Decommission	14.24
Make administrative use only	40.96
New construction	0.17

Add unauthorized routes to system	14.71
Restore unauthorized routes	73.58
Remove non-highway legal use from highway legal routes	6.14

Alternative 4

Alternative 4 was developed in response to the significant issue of restricting access for motorized vehicles beyond what was provided by the proposed action. Alternative 4 proposes the same changes to the NFTS as the proposed action (alternative 1) except for the following modifications which were raised during scoping and are consistent with Forest Plan zoning:

- Decommission 1N39A between Highway 38 and Fish Creek (1.5 miles).
- Decommission 1N05A after the Aspen Grove trailhead (0.8 miles).
- Do not add non-highway legal use to 2N90A (to Tip Top Mountain).
- Do not add non-highway legal use to 4S19 (San Jacinto District).

Mileage totals by category are as follows:

Table 12. Alternative 4, Proposed Route Changes, by Mileage

Add non-highway legal use on existing highway legal routes	50.99
Decommission	20.81
Make administrative use only	50.63
New construction	0.45
Add unauthorized routes to system	8.75
Restore unauthorized routes	74.20
Remove non-highway legal use from highway legal routes	24.94

Comparison of Alternatives

Chapter 3 describes the environmental consequences of the alternatives in detail. This section of Chapter 2 compares the alternatives by summarizing key differences between the alternatives in the following tables.

Table 13. Summary Comparison of Alternatives

Item		Alt. 1	Alt. 2	Alt. 3	Alt. 4
Cross-Country Travel		Prohibited	Prohibited	Prohibited	Prohibited
Seasonal Restrictions		No new seasonal restrictions	No new seasonal restrictions	No new seasonal restrictions	No new seasonal restrictions
Prohibiting highway legal vehicles on NFS roads (administrative use only)		50.6 miles	0 miles	41.0 miles	50.6 miles
Restoration of unauthorized routes		74.2 miles	0 miles	73.6 miles	74.2 miles
Changes to Vehicle Class	Adding non-highway legal use to NFS roads	55.3 miles[1]	0 miles	55.3 miles[1]	51.0 miles[1]
	Removing non-highway legal use on NFS roads	24.9 miles	0 miles	6.2 miles	25.0 miles
	Net change – non-highway legal use on NFS roads	**30.4 miles**	**0 miles**	**49.1 miles**	**26.0 miles**
Roads Added or Removed from National Forest System	Unauthorized routes added as NFS roads	0.3 miles	0 miles	6.5 miles	0.3 miles
	Decommissioning of NFS roads	15.2 miles	0 miles	14.2 miles	17.5 miles
	Net change – NFS roads	**-14.9 miles**	**0 miles**	**-7.7 miles**	**-17.2 miles**
Trails & Areas Added or Removed from National Forest System	Unauthorized routes added as motorized trails	8.4 miles	0 miles	8.2 miles	8.4 miles
	Decommissioning of NFS motorized trails	3.3 miles	0 miles	0 miles	3.3 miles
	Construction of new motorized trails	0.5 miles	0 miles	0.2 miles	0.5 miles
	Net change- NFS motorized trails	**5.6 miles**	**0 miles**	**8.4 miles**	**5.6 miles**
	Open Areas Added	None	None	None	None

[1] 26.1 miles have been managed as non-highway legal use since 1989.

Summary Comparison of Alternatives by Environmental Effects

Table 14. Comparison of Alternatives by Environmental Effects

Issue: Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Soil and Water				
Surface Water Quality: Miles of routes added to NFS system (net change)	8.2 miles	0 miles	14.7 miles	8.7 miles
Surface Water Quality: Miles designated for public use within 150 feet of perennial streams	0.3 miles	2.9 miles	0.4 miles	0.3 miles
Surface Water Quality: Miles designated for public use within 150 feet of intermittent streams	6.1 miles	11.1 miles	6.2 miles	6.1 miles
Surface Water Quality: Miles proposed for decommissioning	18.5 miles	0 miles	14.2 miles	20.8 miles
Erosion Rate: Acres to be closed to motorized public use on severe erosion risk soils	4955 acres	2993 acres	4447 acres	5028 acres
Wetland and Meadow Hydrology: Miles designated for public use within Rouse Meadows, Route 2N25Y	0 miles	0.6 miles	0 miles	0 miles
Stream Channel Stability: Number of intermittent stream crossings to be closed to the public	98 streams	49 streams	87 streams	98 streams

Issue: Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Plants				
Threatened and Endangered Species: Extent of effect	No effect/ beneficial effect	No effect	No effect/ beneficial effect	No effect/ beneficial effect
Sensitive Species: Extent of effect	May affect individuals but not likely to lead in a trend toward Federal listing	No effect	May affect individuals but not likely to lead in a trend toward Federal listing	May affect individuals but not likely to lead in a trend toward Federal listing
Wildlife				
Threatened and Endangered Species: Extent of effect	No effect/ beneficial effect	No effect	No effect/ beneficial effect	No effect/ beneficial effect
Sensitive Species: Extent of effect	May affect individuals but not likely to lead in a trend toward Federal listing	No effect	May affect individuals but not likely to lead in a trend toward Federal listing	May affect individuals but not likely to lead in a trend toward Federal listing
Management Indicator Species: Extent of effect	No measurable effect on MIS populations or habitat	No effect	No measurable effect on MIS populations or habitat	No measurable effect on MIS populations or habitat
Cultural Resources				
Cultural Resources: Degree to which the integrity of historic property values are diminished	No adverse effect, with Standard Resource Protection Measures. Beneficial effects from decommission-ing and restoration.	No beneficial effects	Adverse effect from not rerouting 3W12 & 3W13. Beneficial effects from decommissioning and restoration.	No adverse effect, with Standard Resource Protection Measures. Beneficial effects from decommissioning and restoration.
Number of Historical Properties in or adjacent to the Area of Potential Effect	138 properties	0 properties	145 properties	138 properties
Number of Historical Properties protected	131 properties	0 properties	128 properties	131 properties

Issue: Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Recreation				
Quality and Diversity: Mileage Net Change – Dual Sport Motorcycle	-59.8 miles	0 miles	-40.3 miles	-62.1 miles
Quality and Diversity: Mileage Net Change – Passenger Car	-68.5 miles	0 miles	-48.4 miles	-70.8 miles
Quality and Diversity: Mileage Net Change – non-highway legal 4WD	30.6 miles	0 miles	49.5 miles	26.4 miles
Quality and Diversity: Mileage Net Change – non-highway legal ATV	39.4 miles	0 miles	57.6 miles	35.1 miles
Quality and Diversity: Mileage Net Change – non-highway legal Motorcycle	39.4 miles	0 miles	57.6 miles	35.1 miles
Quality and Diversity: Mileage Net Change – Highway Licenced 4WD	-68.5 miles	0 miles	-48.4 miles	-70.8 miles
Dispersed Camping: Quality of Access (miles)	0 miles	0 miles	5.6 miles	0 miles
Noise: Route Mileage Change within ½ mile of Private Land	-23.0 miles	0 miles	-19.2 miles	-23.1 miles
Noise: Route Mileage Change within ½ mile of Campground or Non-motorized Trail	-32.3 miles	0 miles	-23.6 miles	-34.6 miles
Special Areas: Proposed Route Mileage *Additions* Within One Mile of Existing Wilderness	17.3 miles	0 miles	17.6 miles	15.6 miles
Special Areas: Route Mileage *Deletions or Changes in Use* within one mile of Existing Wilderness Areas	22.7 miles	0 miles	18.0 miles	25.0 miles

Issue: Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Special Areas: Route Mileage Changes of Existing Use Within an IRA	3.9 miles	0 miles	3.9 miles	3.9 miles
Special Areas: Route Mileage Elimination or Removal of Existing Use within an IRA	-15.7 miles	0 miles	-15.3 miles	-15.7 miles
Special Areas: Route Mileage Change within Candidate Wild River Corridor	0 miles	0 miles	0 miles	0.9 miles
Special Areas: Route Mileage Change Within Candidate Recreational River Corridor	3.3 miles	0 miles	3.5 miles	4.6 miles

Alternatives Considered and Eliminated from Detailed Study

Alternatives Considered but Eliminated from Detailed Study: The following proposals from public scoping comments were considered by the IDT in light of the significant issues of allowing either greater or lesser access for motorized vehicles, but they were eliminated from detailed study for the reasons stated below.

- Add continuous non-highway legal loops on the San Jacinto Ranger District. The IDT analyzed opportunities for additional continuous non-highway legal loops on this district. However, issues with private land and county roads in the Bautista Canyon area constrained development of any options. Resource issues prevented consideration of a loop off of Angeles Hill because it is contrary to Forest Plan desired conditions.
- Add non-highway legal use on: 3N93 (4 wheel drive ATV only), 3N08, 3N10 (entire length), 3N02, 3N61, 3N16 (entire length), 3N14 (from Hanna Flat going north to Apple Valley), 3N12 staging area to go up to Butler peak on 3N12 and 3N17. These additions would lead non-highway legal vehicle traffic into areas that historically have created resource damage and user conflicts.
- Maintain current use on 2N26 and 2N26A, instead of decommissioning them. A good portion of 2N26 and 2N26A was decommissioned when 3W13 was constructed. This road is rarely used and overgrown with brush.
- Maintain current use on 2N87 instead of designating it for administrative use only. 2N87 has been gated and used for administrative purposes for over 15 years. This route leads into Lost Lake Recreation Area (day use only). If the road was reopened, it would lead motorized vehicles into a riparian zone that is closed to motor vehicles, contrary to Forest Plan desired conditions.

- Maintain non-highway legal use on 2N59, 2N13X, 2N42, 2N03 and 2N63 (i.e. the "4,000 foot road"). Although these sections of road were designated for non-highway legal use in 1989, the San Bernardino National Forest has not allowed non-highway legal vehicles to operate on them. Without feasible connections to the rest of the non-highway legal system, these sections of road should be designated highway legal only, consistent with their current management status.
- Designate the "4,000 foot road" as administrative use only or decommissioning it. This highway legal route is currently used by the public for highway legal access and there is no valid reason to remove highway legal access.
- Remove existing non-highway legal designation in the Cactus Flats area. The non-highway legal trail system and non-highway legal road system has proven to be a viable and valuable non-highway legal transportation system for public access. There is no valid reason to change designations.
- Add non-highway legal designation on 2N83 from Green Valley to 2N12. This would allow non-highway legal vehicles to ride from county roads onto the forest. This has great potential to create conflicts with Green Valley Lake residents and to create adverse law enforcement issues.
- Designate 2N83 as administrative use only (currently highway legal only) and gate it to stop the current illegal use by non-highway legal vehicles. Gating 2N83 would leave no highway legal access on the north side of the Green Valley Lake community. Illegal use can be addressed by law enforcement and OHV patrols.
- Add non-highway legal designation on 2N13, 2N13D (to Crafts Peak) and 2N13B to access Butler Peak. This would lead non-highway legal traffic onto a county road (3N14) on the east side of 2N13. It would lead non-highway legal traffic onto Green Valley Lake Road (also a county road) on the west side of 2N13, which is illegal in San Bernardino County. No staging areas are available for safe access.
- Add non-highway legal designation on 3N93 and 2N06X. Designating 3N93 for non-highway legal use would create a dead end at the intersection of 3N14/3N93.
- Add non-highway legal vehicle trail connecters from 3N10 east to 2N02, continuing east to 3N61 (Jacoby Canyon) to the junction with Highway 18, crossing the highway and connecting to 3N03 in Cactus Flats. The IDT team was unable to identify a safe crossing for Highway 18.
- Maintain current use on 3N03D instead of designating administrative use only. This road has been limited to administrative access since 1993 and it leads into the Bighorn Wilderness Area.
- Maintain current use on 2N47A (west of Lake Silverwood), instead of designating administrative use only. 2N47A leads to the water tank that feeds the water system used by Silverwood Lake State Park. The road dead ends at the water tank and does not connect to 2N49, so it is more appropriate as administrative access.
- Remove current highway legal designation on 3N93 between 3N16 and 3N14 (Holcomb Creek trail). This is a designated maintenance level 2 road that is used by thousands of motorists each year. Removing highway legal use would not meet the purpose and need of this project.

- Close 1W17 (Redonda Ridge). This is a challenging non-highway legal route (rated "most difficult") that is enjoyed by skilled OHV enthusiasts. There is no valid reason to change its designation.
- Designate 3N16 as highway legal only, instead of changing temporary non-highway legal designation to a permanent non-highway legal designation. 3N16 has been in use under a temporary non-highway legal designation without significant issues, user conflicts or resource conflicts.
- Add non-highway legal designation from Banff Drive to 2N28Y in Lake Arrowhead. This proposal would bring non-highway legal traffic into a residential neighborhood and onto a county road that is not legal for non-highway legal use. Also, there is no staging area for safe access.
- Maintain current use on 2N25Y instead of decommissioning it. 2N25Y was closed for fire suppression repair after the Willow Fire in 1999. It is not in active use and has already returned to a more natural condition. There are sensitive botanical resources that will benefit from decommissioning, including *Ivesia argyrocoma* (sensitive), *Castilleja lasiorhyncha* (sensitive), *Phacelia mohavensis* (watch list) and *Syntrichopappus lemmonii* (watch list).
- Utilize an unauthorized route in Horsethief Flat to create a small loop for highway legal vehicles. Decommission the remainder of 3N03A that extends to the wilderness boundary. This was initially studied as part of alternative 3 until analysis revealed that the unauthorized route is in an Inventoried Roadless Area.

Chapter 3 – Affected Environment and Environmental Consequences

Introduction

This chapter summarizes the physical, biological, social and economic environments that are affected by the proposed action and alternatives and the effects on that environment that would result from implementation of any of the alternatives. This chapter also presents the scientific and analytical basis for comparison of the alternatives presented in Chapter 2 Alternatives.

The affected environment section under each resource topic describes the existing or baseline, condition against which environmental effects were evaluated and from which progress toward the desired condition can be measured. Environmental consequences form the scientific and analytical basis for comparison of alternatives, including the proposed action, through compliance with standards set forth in the 2006 San Bernardino National Forest Land Management Plan (Forest Plan) and a summary of monitoring required by the National Environmental Policy Act of 1969 (NEPA) and National Forest Management Act of 1976 (see Appendix E). The environmental consequences discussion centers on direct, indirect and cumulative effects, along with applicable mitigation measures. Effects can be neutral, beneficial or adverse. These terms are defined as follows:

- **Direct effects** are caused by the action and occur at the same place and time as the action.
- **Indirect effects** are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable.
- **Cumulative effects** are those that result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions.

Analysis Process

The environmental consequences presented in Chapter 3 address the impacts of the actions proposed under each alternative for the San Bernardino National Forest. This effects analysis was done at the forest scale (the scale of the proposed action as discussed in Ch.1). However, the effects findings in this chapter are based on site-specific analyses of each road and trail proposed for addition to the National Forest Transportation System, each road and trail proposed for decommissioning or removal of public use and any changes in vehicle class or season of use for existing NFS roads, trails and areas. Each affected road and trail proposed in the alternatives has been reviewed by resource specialists and their findings documented in the each specialist report. Details on analysis of unauthorized routes proposed for addition to the NFTS is summarized in Appendix D.

Cumulative Effects

According to the Council on Environmental Quality (CEQ) NEPA regulations, “cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7).

The cumulative effects analysis area is described under each resource, but in most cases includes the entire San Bernardino National Forest including private and other public lands that lie within the Forest boundary. Past activities are considered part of the existing condition and are discussed in the affected environment (existing conditions) and environmental consequences section under each resource.

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond) and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions and one can not reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, public scoping for this project did not identify any public interest or need for detailed information on individual past actions. Finally, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." For these reasons, the analysis of past actions in this section is based on current environmental conditions.

Appendix B lists present and reasonably foreseeable future actions potentially contributing to cumulative effects.

Affected Environment Overview

There are many aspects of the affected environment that are shared by all resources. In order to avoid repeating these shared elements of the affected environment in each resource section the following general elements of the affected environment are provided.

Unmanaged OHV use has resulted in unplanned roads and trails, erosion, watershed and habitat degradation and impacts to cultural resource sites and to threatened, endangered and sensitive species. On some NFS lands, managed in the past (prior to 1989) as open to cross-country motor vehicle travel, repeated use has resulted in unplanned, unauthorized, roads and trails. These routes generally developed without environmental analysis or public involvement and do not have the same status as NFS roads and NFS trails included in the forest transportation system.

In 1989, the San Bernardino National Forest designated a system of non-highway legal roads and trails through its Forest Plan and associated Environmental Impact Statement (USDA FS, 1989). This was enforced by Forest Order. In 2006, the San Bernardino National Forest Plan Record of Decision (USDA FS, 2006) was implemented which again reaffirmed the designated system and prohibited travel off of existing routes.

Assumptions and Limitations

The following assumptions and limitations were applied in the effects analysis in each section:

1. No NEPA decision is necessary to continue use of the NFTS (i.e. non-highway legal and transportation) as currently managed under the no action alternative. These decisions were made previously.
2. User created roads, trails and areas are not NFTS facilities. They are unauthorized. Proposals to add these to the NFTS require a NEPA decision.
3. Temporary roads, trails and areas built to support emergency operations or temporarily authorized in association with contracts, permits or leases are not intended for public use. They are not NFTS facilities (e.g. they are unauthorized for public use). Any proposal to add these temporary roads to the NFTS will require a NEPA decision.
4. Any unauthorized routes not included in the proposed action are not precluded from consideration for addition to the NFTS in future travel management actions. It is currently illegal for motorized vehicles to use unauthorized routes or to travel cross-country on the San Bernardino National Forest under the current Forest Plan and Forest Orders. Once a decision is signed based on this EA and a Motor Vehicle Use Map (MVUM) is published, such travel will be illegal under the Travel Management Rule. Unauthorized routes can be signed as off limits, blocked, disguised, etc. without a NEPA analysis as long as the management action has no environmental impacts. Decompaction, recontouring or other restoration measures that may have impacts would require future site-specific NEPA analysis.
5. The agency will continue to make changes to the NFTS on an 'as needed basis'. It will also continue to make decisions about temporary roads or trails on an 'as needed' basis associated with contract, permit, lease or other written authorization.
6. Any activity associated with contract, permit, lease or other written authorization is exempt from designation under the Travel Management Rule (36 CFR 212.51 (a) (8)) and should not be part of the proposal (i.e. fuelwood permits, motorized SUP permits, etc.). Such actions are subject to separate NEPA analysis.
7. "Designation" is an administrative act which does not trigger NEPA. Designation technically occurs with printing of the Motor Vehicle Use Map (MVUM). NEPA is not required for printing a map.
8. For travel management, the Federal action triggering NEPA, is any change to current restrictions or prohibitions regarding motorized travel by the public. For example: prohibiting cross-country travel, changing management - changing vehicle class or season of use and any additions or deletions of facilities (roads, trails or areas) to the National Forest Transportation System (NFTS).
9. Previous decisions on the NFTS do not need to be revisited to implement the Travel Management Rule (TMR) or the Motor Vehicle Use Map (MVUM). That is, the NFTS contains existing facilities (roads and trails) that either underwent NEPA or predate NEPA. Allowing continued motorized use of the facilities in the NFTS in accordance with existing laws and regulations, does not require NEPA.
10. Dispersed recreation activities (i.e. activities which occur after the motor vehicle stops such as: camping, hunting, fishing, hiking etc.) are not part of the scope of the proposed action. The action and the analysis focus on motor vehicle use.
11. Travel analysis is a pre-NEPA planning exercise for transportation planning which informs travel management. Until new directives are published, the agency continues to follow existing policy related to transportation planning and analysis. For example, some roads analysis process requirements in FSM 7700 and 7710 are still applicable.

12. Setting road maintenance levels and changing maintenance levels are administrative and not subject to NEPA. However, changes in allowed vehicle class, season of use, access and proposals to maintain or reconstruct facilities are subject to NEPA.
13. The system will be maintained to standard and all additions or changes to the NFTS will meet standards prior to availability for public use.
14. Although use on individual routes may increase or decrease as a result of these actions, overall system use on motorized roads and trails will not significantly change.

Resource Reports

Each section in this chapter provides a summary of the project-specific reports, assessments and input prepared by Forest Service specialists, which are incorporated by reference in this Environmental Assessment (EA). The following reports and memoranda are incorporated by reference: Botanical Biological Evaluation, Botany Report and Noxious Weed Risk Assessment; Biological Assessment / Biological Evaluation (BA/BE) for Fish and Wildlife; Management Indicator Species (MIS) Report; Soils and Water Report; Recreation and Visuals Report; Air Resource Report; and the Heritage Resources Report. These reports or memoranda are part of the project record on file at the Forest Supervisor's Office in San Bernardino, California. Copies of these reports are available upon request by contacting Richard Thornburgh, Project Leader, at 909-382-2642. The can also be viewed online at the project website: http://www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml.

Law Enforcement

Law enforcement authority and jurisdiction, cooperation, implementation and tracking, implementation strategy, assumptions and measures of success are discussed in detail in Appendix F. The combination of a designated non-highway legal system with effective agency law enforcement and OHV volunteer patrols has been highly successful on the San Bernardino National Forest. The majority of the unauthorized routes on the forest were created prior to the designation of the system and with the restoration of 74 miles of unauthorized routes in this action, there will be even fewer opportunities for illegal use.

Enforcement Assumptions:

- Enforcement of the laws and regulations related to travel management will be enforced equally in authority and weight as with all other Federal laws and regulations.
- As with any change in a regulation on NFS lands, there is usually a transitional period for the public to understand the changes. It is anticipated there will be a higher number of violations to the Travel Management Rule the first few years and the number of violations will decline as the users understand and comply with the rules. It is assumed all users will comply within 6 months to 1 year.
- Law enforcement officer (LEO) and agency personnel's presence and enforcement actions will positively affect non-motorized recreation users' behaviors and attitudes.
- The Travel Management Rule and associated motor vehicle use map clearly define the designated routes; therefore, making violations to the rule unequivocal.
- Once the motor use vehicle map is published, the implementation of the established dedicated network of roads, trails and areas with signs and user education programs, will reduce the number of violations.

- Forest Protection Officer (FPOs) spend a large percentage of their time on travel management issues and depending on the Forest the estimate range from 30 to 50 percent. LEOs spend approximately 10 to 20 percent of their time on enforcement of off-highway vehicle issues.
- The proposal to provide additional facilities to the NFTS through some action alternatives in popular, key areas will help relieve pressure to travel off of designated routes.

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

NEPA at 40 CFR 1502.25(a) directs agencies to prepare environmental analyses concurrently with and integrated with other environmental review laws and executive orders. Each resource section includes a list of applicable laws, regulations, policies and Executive Orders that are relevant to that resource. Surveys, analyses and findings required by those laws are addressed in those sections.

National Forest Management Act

The Forest Service is complying with the provisions of this law.

2005 Travel Management Rule 36 CFR 212

The Forest Service is complying with the provisions of this law.

Air Quality

This section evaluates how air resources will be affected by the Motorized Travel Management project. It summarizes the Air Quality Report which is available in the project record and incorporated here by reference.

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

Direction relevant to the proposed action as it affects air resources includes the following. Detailed discussion is available in the Air Specialist Report.

- Federal Clean Air Act
- Regional Haze Rule (1990 Clean Air Act Amendments) 40 CFR Part 51
- General Conformity Rule (1990 Clean Air Act Amendments) (Section 176 (c) of the Clean Air Act (part 51, subpart W and part 93, subpart B))
- California Clean Air Act (H&S §§ 39660 et seq.)
- CARB Off-Road Recreational Vehicle Emissions Standards Rulemaking
- South Coast Air Quality Management District Rules
- Mojave Desert Air Quality Management District Rules
- San Bernardino National Forest Plan Direction (Air 1 and Air 2)

Analysis Area – Spatial and Temporal Boundaries

The project is located within the South Coast and Mojave Desert Air Quality Management Districts (SCAQMD and MDAQMD). Air districts are the local authority and primary agency for managing pollutant emitting activities within their boundaries. The SCAQMD extends across Orange County, most of Los Angeles County and the western portions of San Bernardino and Riverside counties. The Mojave Desert Air Quality Management District covers the northern portion of eastern San Bernardino County and the eastern portion of Riverside County.

Short-term effects are based on a one year duration and long-term effects are based on 20 years.

Methodology for Analysis of Alternatives

For purposes of meeting Federal requirements, impact significance is related to Federal conformity with the U.S. EPA-approved State Implementation Plan (SIP) and with the national ambient air quality standards (NAAQS). Air quality impacts would be considered significant if they are expected to cause or contribute to an air quality violation in a nonattainment or maintenance area. However, if total direct and indirect project emissions fall below designated Applicability threshold levels established under the Conformity Rule, no adverse change in attainment status is expected. For purposes of meeting State requirements, Air Quality Management District (AQMD) thresholds of significance for project emissions serve the same purpose as the Federal applicability thresholds.

Existing Condition

The South Coast Air Quality Management district is officially defined as bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino and San Jacinto Mountains to the north and east. It includes all of Orange County and portions of Los Angeles, Riverside and San Bernardino counties. The Mojave Desert Air Basin includes the eastern half of Kern County, the northern part of Los Angeles County, most of San Bernardino County except for the southwest corner and the eastern edge of Riverside County. It is separated from the South Coast Air Basin by the San Gabriel and San Bernardino Mountains (Austin and Gouze, 2001).

The population density, topography and climate of the South Coast AQMD make it an area of high air pollution potential. The coastal area of the District (known as the South Coast Air Basin) is characterized by a Mediterranean climate with dry summers, wet winter and mild seasonal changes. Temperatures are normally mild with rare extremes above 100°F or below freezing. The climate in the eastern portion of the Air District (known as the Salton Sea Air Basin) is classified as continental desert (SCAQMD, 2007). The Salton Sea Air Basin is separated from the South Coast Air Basin by the San Jacinto Mountains and from the Mojave Desert Air Basin to the east by the Little San Bernardino Mountains. The desert portion of the District is characterized by hot, dry summers, mild winters, frequent gusty winds, with annual rainfall averaging 2 to 5 inches per year. During the summer months, temperatures can reach 110 degrees F. The rainfall pattern for the entire SCAQMD is seasonal with most rain falling between November and April. The SSAB portion of the District is also affected by the southwest monsoon, which drives tropical moisture into the desert in the form of thunderstorms.

The coastal region of the Air District contains the densest urban area in the western U.S. (CARBd, 2006). Air quality in the coastal zone is driven almost entirely by local emissions and air quality problems are exacerbated by high population density, topography and local meteorological conditions (Austin and Gouze, 2001). During late spring, summer and early fall, light winds, low mixing heights and sunshine combine to produce conditions favorable for the production of ozone (Orange County, 2006). In the winter, the greatest pollution problems are carbon monoxide and oxides of nitrogen because of extremely low level inversions and air stagnation during the night and early morning hours (Orange County, 2006). Elevated PM_{10} and $PM_{2.5}$ concentrations can occur throughout the year, but are most common in the fall and winter months (SCAQMD, 2007). Prevailing winds that travel west to east transport pollutants from the heavily populated coastal zone through the Banning pass into the Coachella Valley (SCAQMD, 2007).

The Mojave Desert Air Quality Management District covers a large part of California's high desert. The MDAQMD is classified as hot desert, with very cold temperatures during the winter months to very hot temperatures (over 100°F) during the summer. The district averages between three and seven inches of precipitation per year, with most of the rainfall occurring between November and April (MDAQMD, 2007). The area is sparsely populated, with military bases, highways and railroad facilities, cement manufacturing and mineral processing as the main local sources of air pollutants. Prevailing winds in the MDAB are out of the west and southwest. Air quality in the district is heavily impacted by transport from the South Coast and the San Joaquin air basins (CARBd, 2006).

Within the South Coast AQMD, a majority of the pollution is derived from the nearby urban areas. The largest source of carbon monoxide (CO), nitrogen oxides (NO_x) and reactive organics gases (ROG) in the South Coast Air Basin are on-road motor vehicles (CARB, 2005). Major sources of particulates (PM_{10} and $PM_{2.5}$) include miscellaneous processes that include activities

such as construction, dust from paved and unpaved roads, fugitive dust, automobiles, waste burning, fuel combustion, cooking, industrial processes and agricultural activities.

SCAQMD emissions from recreational off-road vehicles range from .02 to 1.13 percent, a very small portion of total criteria pollutant emissions in the District. Travel on unpaved roads accounts for 3.7 percent of PM_{10} emissions and 1 percent of $PM_{2.5}$ emissions respectively, while travel on paved roads accounts for 44 percent of PM_{10} and 18 percent of $PM_{2.5}$.

Recreational off-road vehicles in the Mojave Desert Air Basin account for 15 percent of VOC and 6 percent of CO emissions, while also producing .084 to 1.52 percent of NO_x, SO_x, PM_{10} and $PM_{2.5}$. Travel on unpaved roads accounts for 38.6 percent of PM_{10} emissions and 22.9 percent of $PM_{2.5}$ emissions, while travel on paved roads accounts for 8.3 percent of PM_{10} and 4.5 percent of $PM_{2.5}$.

The project area is nonattainment for both State and Federal ambient air quality standards for several criteria air pollutants.

Effects Common to All Alternatives

Off highway vehicles emit criteria pollutants such as nitrogen oxides, sulfur oxides, carbon monoxide and volatile organic compounds (VOCs) (Ouren and others, 2007). Both NO_x and VOCs are the precursors for the nonattainment pollutant O_3. OHV exhaust and travel on unpaved roads and trails emits particulate matter. Inhalable coarse particles (PM_{10}) are emitted directly from the source; such as soot from engine exhaust, windblown dusts from bare soil and reentrained dust from vehicle travel on unpaved roads. Fine particles ($PM_{2.5}$) are associated with the products of engine exhaust including the reaction of NO_x and SO_2 with ammonia and diesel soot (South Coast AQMD, 2007). Inhalable particulate matter poses a serious health hazard, since it can be deposited in the lungs and can cause permanent damage by interfering with the body's mechanism for clearing the respiratory tract or by acting as a carrier of a toxic substance (South Coast AQMD, 2007). Dust from OHV can directly reduce plant photosynthesis near roads and trails by coating needles and leaves (Ouren et al., 2007). $PM_{2.5}$ is the major cause of reduced visibility in Southern California, including in National Forest Class I wilderness areas (U.S. EPA, 2007). The non-highway legal travel routes lie to the south and east of the Cucamonga, to the north of the San Gorgonio and west of the San Jacinto Class I Wilderness Areas.

Both the no action and the action alternatives will release PM_{10}/$PM_{2.5}$ into the environment from recreational vehicle travel on forest roads and trails, as well as road and trail system restoration and maintenance projects. Tailpipe emissions from motorized equipment will produce criteria pollutants such as carbon monoxide, as well as the precursor gases for ozone and $PM_{2.5}$.

Direct and Indirect Effects

The number of vehicle visits to the San Bernardino National Forest ranges from a minimum of 32,000 to a maximum of 35,000 per year. The average trip length per visit is estimated at 42 miles. The number of vehicle miles traveled (VMT) on the Forest ranges from approximately 1,344,000 to 1,470,000 miles annually. Street legal and 4-wheel drive vehicles account for 31 percent, motorcycles for 29 percent, ATVs for 25 percent and other vehicle types for 15 percent of annual visits. The number of annual vehicle visits is expected to remain constant for all alternatives; however, there may be some alterations to use patterns due to changes in road and trail status.

Two possible air quality scenarios exist for the action alternatives. The first scenario envisions that the total number of vehicle miles traveled annually for recreational use would be responsive

to the number of trail miles that are open to the public. The annual VMT may decrease in proportion to the number of trail miles removed from the system through targeted closures or through restoration. Vehicle and entrained fugitive dust emissions would in turn be expected to decrease.

The second potential outcome is that the total annual number of vehicle miles traveled remains unaltered despite any system changes, since users may instead choose to reroute onto remaining roads and trails. There is not enough information available at the present time to determine which outcome is the most likely. Therefore, both possible scenarios will be evaluated for their air quality effects.

Annual criteria pollutant emissions would decrease for all of the action alternatives if VMT decreased (alternatives 1A, 3 and 4) and would continue unchanged if the annual VMT remained static (as in alternative 2). In no instance, however, would emissions be expected to increase for either the Mojave Desert or the South Coast Air Districts.

Under each of the action alternatives, selected routes (both roads and unauthorized trails) would be closed to vehicle travel and restored to a natural condition using a combination of techniques such as soil decompaction with heavy equipment, reseeding, planting and placement of barriers including boulders, fencing and slash. The use of heavy equipment and worker vehicles will produce exhaust emissions, while travel on unpaved roads will produce fugitive dust. Approximately 70 percent of the routes would be rehabilitated using mobile equipment, while the remainder would be protected by barriers and allowed to revegetate naturally. Seventeen miles will be treated during the first year, with approximately 5 miles undergoing restoration each year thereafter. Emissions produced during the restoration and revegetation phase would be localized and temporary in nature. Over time, a net air quality benefit could occur due to route closure and restoration projects. Long-term declines in fugitive dust emissions would be expected as vegetation reclaims formerly exposed roads and trail surfaces.

Cumulative Effects

Potential cumulative impacts of the proposed project in conjunction with other present or reasonably foreseeable probable actions are the focus of this section The actions analyzed for potential cumulative impacts includes all proposed activities occurring to forest roads and trails considered under the San Bernardino National Forest Route Designation program. The project is expected to have limited cumulative impacts to air quality. Overall, vehicle and fugitive dust emissions are expected to remain stable or decrease. Road and trail restoration will create localized, temporary increases in fugitive dust and emissions from motorized equipment. However, once the restoration projects are complete, fugitive dust emissions from vehicle travel on unauthorized routes will decrease.

Conclusions

The project demonstrates conformity with the State Implementation Plan under the Federal Clean Air Act (CAA) and does not exceed either the SCAQMD or the MDAQMD daily project emissions significance thresholds for any alternative.

No adverse change in attainment status is expected to occur as a result of this project.

Biological Resources

This section summarizes and incorporates by reference the biological assessment/evaluation (BA/BE), wildlife and botany reports, management indicator species (MIS) evaluations and the noxious weed risk assessment (project record).

Methodology

Data regarding biological and botanical resources on the project area were obtained through review of existing records and thorough field investigations. Direct and Indirect effects are assessed together in both the short-term (within 1 year) and the long-term (approximately 20 years). Cumulative effects are assessed only in the long-term (approximately 20 years) based on Appendix B. The spatial boundary of these analyses is the Forest, unless otherwise indicated.

Species Considered and Species Accounts

Each section contains the current list of special-status species considered during the surveys and in the analysis of potential effects. Only those species with known occurrences or considered to have a high likelihood of occurrence within the project areas are discussed in depth in this analysis. Species Accounts for the current San Bernardino National Forest (SBNF) Threatened, Endangered, Proposed, Candidate, Sensitive and Watch (TEPCSW) lists are contained in the SBNF Land Management Plan (LMP) from 2006 (USDA Forest Service 2006) http://www.fs.fed.us/r5/scfpr/projects/lmp/read.htm.

Pre-field Reviews

Pre-field reviews were conducted to determine which TEPCSW species are known from the project area or have suitable habitat present and potentially occur. Data regarding biological and botanical resources within and near the project areas were obtained through literature review, existing reports and field investigations.

Sensitive biological and botanical resources present or potentially present were identified through a literature review using the following sources: California Department of Fish and Game (CDFG) (1988, 1990a, 1990b and 2001), California Natural Diversity Data Base (CNDDB), United States Forest Service records and the California Native Plant Society (CNPS) (2001). Consultations with other sources (e.g., other literature pertinent to the project area and local experts) are described below where applicable.

Botanical Methods and Surveys

Botanical field studies for this project were focused on the relatively small fraction of the action alternatives where ground disturbing impacts beyond those occurring under existing conditions would be expected. Therefore, botanical field studies were generally limited to proposed new construction and designation of currently unclassified routes.

Potential short-term ground disturbing impacts associated with proposed decommissioning of classified routes and restoration of unclassified routes are expected to be avoided or minimized through application of design features described below. The majority of the unclassified routes proposed for restoration were initially mapped and surveyed by Mountain District botany staff during the winter of 1998 and 1999. Follow-up surveys of these unclassified routes were performed by Mountaintop Ranger District botany staff in 2000 and 2001. The summer of 2001 was an exceptional field season for the detection of the target rare plants and it is unlikely that occurrences in and adjacent to these routes were missed. However, since 7 years have passed

since these surveys were performed, avoidance and minimization will be achieved through at implementation.

Targeted field surveys were performed by Mountaintop District Botanist Scott Eliason during the Summer of 2007 and San Jacinto District Botanist Tracy Tennant during the Summer of 2007. These surveys were performed to specifically address the 'new construction' and 'designation of unclassified routes' action categories of the proposed action and alternatives. The botanical surveys were floristic in nature and were performed during the times of year when target species would be most detectable. Woody perennials were detectable but few plant species were observed in bloom. Annuals and short-lived perennials had low to no detectability. Because the 2007 rainfall year was the driest on record throughout the SBNF, it is likely that focal plant species went undetected. No specific vegetation mapping was done in association with this project.

Wildlife Methods and Surveys

Fish and wildlife field studies for this project were focused on the relatively small fraction of the action alternatives where ground disturbing impacts beyond those occurring under existing conditions would be expected. Therefore, botanical field visits were generally limited to proposed new construction and designation of currently unclassified routes.

Wildlife species detected during field surveys by sight, calls, tracks, scat or other sign were recorded. In addition to species actually observed, expected wildlife usage of the site was determined according to known habitat preferences of regional wildlife species and knowledge of their relative distributions in the area.

The main focus of the faunal species surveys was to identify habitat suitability for special-status wildlife within the project area in order to predict those species with a higher probability of occurrence within the project area. Because a species was not detected does not mean that the species does not occur within the project area. Surveys or wildlife species have the inherent limitation that absence is difficult or impossible to determine. This is especially true for wildlife species with a nocturnal pattern of activity or otherwise difficult to detect.

Affected Environment

Historic logging, mining, grazing, settlement, water development and motorized recreation beginning in the latter half of the 19th century and continuing through the mid-20th century created many of the Forest Transportation System roads on the San Bernardino National Forest. The modern network of Forest roads formally became the designated Transportation System with the 1989 Forest Plan.

Fire suppression activities, especially the creation of fuelbreaks, has led to the establishment of many miles of user-created routes along these paths of reduced resistance to motorized travel. In a much broader sense, fire suppression over the past century has led to altered vegetation conditions across the National Forest lands, which increases susceptibility to disease and a tendency toward larger and more catastrophic wildfires.

Drought-related mortality: The montane conifer forests of the SBNF were heavily logged in the late 1800 and early 1900s. The resulting dense and mostly even-aged stands of trees became established during the era of fire suppression and finally experienced widespread mortality during the drought years of 2001 to 2004. Dense stands of trees are more susceptible to drought stress and stressed trees are more susceptible to boring insects (*e.g.* "bark beetles") and root pathogens. Surveys in southern California in 2003 found fir engraver beetles, pine engravers (*Ips*), California flatheaded borers, Jeffrey pine beetle and western pine beetle in the SBNF. Approximately

500,000 acres of insect-related mortality were mapped in 2003 over the SBNF. By March of 2004, there was a 1 percent increase and by June, there was a 6 percent increase.

By 2003, images of widespread tree mortality in and around mountain communities of southern California, combined with the huge wildfires that year resulted in national-scale attention by the public, congress and the administration. The Healthy Forest Initiative was ratified as the Healthy Forests and Restoration Act and significant funds to treat hazardous fuels followed. Many fuels reduction and forest health projects were planned and implemented and many more are being planned for the future, with widespread past, present and future impacts to the same species affected by this project.

The Forest Plan was revised in 2006 and the transportation system from the 1989 Plan was carried forward. The 2006 Forest Plan and associated Forest Orders also prohibited motorized vehicle travel off of system roads and motorized trails.

Despite this prohibition, unauthorized motorized vehicle travel off of system roads and motorized trails continues to be the greatest threat to wildlife and botanical resources on the SBNF.

Private Land Development has caused past and ongoing destruction of habitats of all of the species that would be affected by the action alternatives. Most of this cumulative habitat loss is within the mountain communities of the San Bernardino and San Jacinto mountains. While massive losses of habitat have resulted at the urban interfaces at the base of these mountains, the species affected are not generally the same as those affected by the action alternatives.

Multiple large wildfires in and near the project area and associated suppression activities, have impacted many of the sensitive species that would be affected by the action alternatives. These fires include Willow, Grand Prix, Old, Heart/Millard, Runway, Blue Cut, Butler 2, Slide, Grass Valley and Esperanza. Effects to Sensitive species included crushing and uprooting of plants through the construction of dozer lines and increased off-route travel following loss of protective vegetation cover.

The Forest Transportation System is shown on project maps. Road densities on the SBNF range from extremely high (greater than 10 miles per square mile) to roadless. The vegetation and wildlife of the Forest are generally described in the Place descriptions in the Land Management Plan and are incorporated herein by reference. The scope of this project includes such a wide range of habitats and habitat conditions; they will not be reiterated here.

Summary of Effects

A general discussion of the effects of roads, trails and unauthorized routes is included in the 2005 Forest Plan EIS and is incorporated in the BA/BE, available in the project record. Project-specific effects from the BA/BE are presented below (USDA FS, 2005).

Federally-Listed Species

Plants*:* Threatened and endangered (T&E) plant species are known to occur in scattered locations adjacent to routes included in each of the alternatives. Designated and proposed critical plant habitats are also present adjacent to routes included in each of the action alternatives. No proposed or candidate plant species are known or expected to occur in or near the project area. Despite proximity of threatened and endangered plant occurrences and critical habitat, no impacts beyond those which occur under the existing conditions (environmental baseline) are expected. All project-related effects to Threatened and Endangered plant species will be wholly beneficial

and have been addressed under previous consultation under section 7 of the Endangered Species Act.

Animals: Threatened and endangered wildlife species are known to occur in or near the areas planned for various actions in the route designation project. Designated and proposed critical habitats are also present. No proposed or candidate wildlife species are known or expected to occur in or near the project area. Despite the proximity of threatened or endangered wildlife species and critical habitat, impacts beyond those which occur under the existing conditions are expected to be wholly beneficial.

Despite proximity of threatened and endangered occurrences and critical habitat, no impacts beyond those which occur under the existing conditions (environmental baseline) are expected. Improvements to the NFTS, designation of administrative use on potentially damaging roads, decommissioning and restoration of unauthorized routes will help protect the species and their habitat.

Consultation: Formal consultation with U.S. Fish and Wildlife Service under section 7 of the Endangered Species Act is not required.

Forest Service Sensitive Species

Plants*:* Numerous sensitive plant species are known from lands adjacent to routes included in each of the alternatives. Despite proximity of sensitive plant occurrences, only minimal impacts beyond those which occur under the existing conditions (environmental baseline) are expected. The determination of effects for sensitive plant species is “may affect individuals but not likely to lead in a trend toward Federal listing”.

Animals: Numerous sensitive animals are known or have potential to be from lands adjacent to routes included in each of the alternatives. Despite proximity of sensitive species occurrences, only minimal impacts beyond those which occur under the existing conditions (environmental baseline) are expected. The determination of effects for sensitive animal species is “may affect individuals but not likely to lead in a trend toward Federal listing”.

San Bernardino NF Watch Species

Plants: Numerous San Bernardino NF watch list plant species are known from lands adjacent to routes included in each of the alternatives. Despite proximity of watch list plant occurrences, only minimal impacts beyond those which occur under the existing conditions (environmental baseline) are expected. No threat to the viability or overall distribution of any of these species would be expected to be caused by any of the alternatives.

Animals: A number of watch list species are known from the project area and its vicinity. Although there will be some minor impacts from activities associated with the various alternatives, there is no threat to the viability or overall distribution of any of these species from the proposed project.

Management Indicator Species (MIS)

The analysis of effects of the alternatives on MIS species does not indicate a significant concern for any MIS potentially affected by the route designation project. The conservation measures incorporated into project design will effectively reduce potential impacts to the MIS present in the project area. The scope of this project is too small relative to the landscape to have a measurable effect on MIS populations or their habitat across the San Bernardino NF. The project will have no measurable effect on the MIS populations or habitat at the Province scale.

Environmental Effects (by Alternative)

Impacts of Alternative 2 (No Action) – Common to General and Special Status Plants and Animals

Under the no action alternative, habitat conditions within the project area would remain the same as under current conditions for the foreseeable future. Under the no action alternative, wildlife and plant species in the project area will experience no changes in levels and types of disturbance with regard to individuals, populations and habitats other than increases in use from anticipated larger numbers of users over time.

Under this alternative, the long-term adverse effects of construction and route designation would not occur, nor would the short-term adverse effects to plants and animals that would be caused by route rehab and decommissioning. However, the many adverse effects to plants and animals that would be remedied under each of the action alternatives through route restoration, decommissioning and reclassification would not occur and no progress would be made toward the desired conditions with regard to unauthorized routes, off-route vehicle travel and unmanaged recreation in general.

Impacts of Alternatives 1, 3 and 4 – Common to General and Special Status Plants and Animals

This is a discussion of general types of direct and indirect impacts that may result from this project for all animals and plants that are present in the project area. Native species in the project area would be impacted in two general ways: through habitat loss or degradation and through direct and indirect impacts to individual plants and animals. Species and habitats would also benefit from some elements of the action alternatives.

General Effects to Plants and Wildlife by Action Category

Addition of non-highway legal use to existing routes open to highway legal vehicles

This action category would designate system routes currently open only to highway legal vehicles adding use by non-highway vehicles .

Plants: No effects relative to existing conditions are expected. (BA/BE at pg 21, project record).

Wildlife: Designating existing system routes as legal for non-highway legal vehicles will increase the amount of use these routes receive. This will increase the potential for road kill. In addition, it could result in some additional avoidance of the roadway due to noise and potential for harassment. Where hunting or illegal shooting is common, some species (deer, predators, etc.) will avoid roads where this occurs. In open areas with long sight distance, the area avoided can be quite large (up to ¼ mile). Where there is good cover either provided by vegetation or topography, this distance can be much smaller (BA/BE at pg. 21, project record).

Remove non-highway legal use from existing routes

Plants: No direct effects relative to existing conditions are expected, based on the assumptions described above. Indirectly, prohibiting motorized vehicle travel on these specific existing routes is expected to have beneficial effects on plant species and general vegetation. The routes proposed for this reclassification are included because they do not contribute to an efficient manageable NFTS. For example, non-highway legal use of the John Bull Trail (3N10) is currently allowed, but this route is isolated from other motorized routes and there is limited

available area for trailering and staging. This creates a situation where motorized recreation users are more likely to seek access to this route from other parts of the NFTS by traveling cross-country via unauthorized routes. Prohibiting motorized vehicle travel on routes that are inefficient and difficult to manage is expected to benefit plants and general vegetation to the extent that off-route travel and parking are reduced.

Wildlife: Removing non-highway legal use from a roadway and making it only for highway legal vehicles will reduce road kill, disturbance and harassment as described above. Prohibiting motorized vehicle use on the John Bull Trail will also benefit wildlife because it will not act as an attraction for motorized recreation users trying to get to it cross-country from legal routes to the west or east.

Reclassify existing routes as administrative (or permit holder) use only

This action category would designate routes currently open to public motorized vehicle travel as administrative or permit holder use only. This designation closes the road to public use, but leaves the road in place and maintained for administrative (*e.g.* Forest Service) and/or permit holder (*e.g.* utility company) uses. Some of the roads that are being designated as administrative or permit holder use only are already functioning in that way but have not been formally designated as such.

Plants: Net beneficial effects are expected. Removing authorized public use from these roads is expected to reduce the frequency and extent of unauthorized travel off of these roads. This is based on the premise that restricting access to the road, along which points of departure are used to venture off the designated route, will reduce the frequency and extent of use of these points of departure. Gateing or otherwise blocking these roads to public access may have small-scale and short-term impacts to plants, such as uprooting, crushing or trampling.

This designation will likely result in patrols and general field presence along these routes becoming less frequent than under current conditions, which would reduce enforcement and monitoring along the road. However these adverse effects are expected to be outweighed by the benefits of the designation. In several cases these roads are already gated and this designation would have no effects compared with existing conditions.

Because these roads will remain in place and will be subject to some level ongoing use and maintenance, all other ongoing effects to botanical resources along these roads will remain the same as under existing conditions.

Wildlife: Removing public use from system roads is expected to reduce the amount of road kill, disturbance and harassment of wildlife. It should also reduce the amount of unauthorized off route travel and subsequent effects on animals and their habitat.

Construct and designate new routes

This action category would entail new construction of road segments and classification of these routes as new additions to both the highway legal and non-highway legal systems. For alternatives 1 and 4, this action category is limited to three short segments totaling approximately ½ mile. These sections are: 1) a bypass of a section of route 3W14, 2) a connector between 3W12 and 3W13 and 3) a connector to the North Shore OHV work center. The latter two are part of a suite of actions aimed at providing a holistic solution to the problematic non-highway legal system near Lake Arrowhead's north shore and are not included under alternative 3.

Plants: Net adverse effects of direct vegetation and plant habitat loss would be long-term but small in scale. Route alignment would be planned and implemented to avoid impacts to special

status plant species (Appendix A, design feature B-1). The extent to which construction of these segments would improve the trail system and reduce tendencies to leave designated routes would be beneficial to general botanical resources long-term. However, this upside is impossible to predict and measure in advance and this action would rely on monitoring for an eventual evaluation. The adverse effects to plants from this action class are substantially offset by action categories f and g (decommissioning and restoration).

Wildlife: This activity will result in a loss of habitat and an increase in long-term wildlife impacts associated with the presence of a road. Since the amount of this activity being proposed is so small, the impacts are relatively minor. The areas where this work is proposed are heavily impacted at the present time and the road construction proposed at the North Shore OHV Work Center facilitates a significant amount of road and trail decommissioning and administrative use designation. The combined effect of this work will benefit wildlife.

Open and designate unauthorized routes

This action category would open unauthorized routes to highway legal or to both highway legal and non-highway legal travel, depending on adjacent use. Uses on these routes would presumably increase relative to the existing levels of unauthorized travel as a result of a combination of signage, mapping and maintenance. Under alternatives 1 and 4, this category would be limited to four short segments and two long composite segments for a total of 8.75 miles. Alternative 3 would exclude one of these (3W13 to 3N34 connector) and adds additional segments under this category.

The segments included under all alternatives are:

Cleghorn Ridge: Multiple segments that parallel 3N24 and 2N47. These routes are burned in and well used and the topography along the ridge is such that opportunities for off-route exploration and the formation of additional unauthorized trails is minimal. This designation would be expected to provide a benefit to general vegetation and wildlife because the associated maintenance of these routes would reduce erosion problems that are currently fairly serious. Maintenance, including likely construction of rolling dips and lead-outs, would have localized adverse effects on adjacent general vegetation.

Pilot Rock Ridge: Multiple Segments that parallel 2N33. These routes are burned in and well used and the topography along the ridge is such that opportunities for off-route exploration and the formation of additional unauthorized trails are limited. This designation would provide a benefit to general vegetation and wildlife because the associated maintenance of these routes would reduce erosion problems that are currently fairly serious. Maintenance, including likely construction of rolling dips and lead-outs, would have localized adverse effects on adjacent general vegetation.

Garner Valley: This short spur off of Forest Road 6S05 is well established and frequently used by a variety of visitors (e.g. permit holders, equestrians, hikers, shooters, mountain bikers). As mapped, classifying this route would have no effect on general vegetation. However, the route accesses a larger network of unauthorized routes around Quinn Flat. According to San Jacinto Ranger District recreation staff (Ladley, 2008), there would be no practical way to block this newly-designated route at its terminus in order to prevent unauthorized motorized vehicle access to Quinn Flat. But also according to San Jacinto Ranger District staff (Ladley and Kramer, 2008), the unauthorized routes on Quinn Flat that could be accessed via this proposed route are not in or adjacent to rare plant habitat or sensitive vegetation and furthermore motorists who use these well-established unauthorized routes tend to stay on these routes and do not tend to drive off these routes (*ie*, route proliferation is not perceived to be a threat at this site).

Cactus Flats and Rose Mine: These two short connectors off of 3N03 and 2N02, respectively, are well established and well used. No effects to botanical resources would be expected from these designations.

Willow Creek: This proposed designation of an existing unauthorized route connecting 3W13 to 3N34 will substantially improve the situation for wildlife and riparian vegetation at Willow Creek. A trail segment that immediately parallels the very important riparian area would be eliminated as part of this proposal. This will make the situation better for a variety of riparian dependent species.

In general for this action category, there are expected to be benefits related to patrol, maintenance and monitoring as well as possible benefits of increased compliance on a more functional road and trail system.

Decommission existing classified routes

This activity will benefit plants and animals significantly in the long-term. There may be some short-term adverse effects from ground disturbance required to decommission the road or trail. Native plants and wildlife will return to the area and this can be accelerated through restoration techniques. Newly-available habitat will become occupied and impacts associated with off-route vehicle travel will be reduced.

Restore unauthorized routes

Restoration of unauthorized routes will also benefit plants and animals significantly and long-term. In addition to restoring the ground occupied by the unauthorized trail or road, there will also be off-site benefits from reduced erosion. Once restored, they will not be the attractant for additional off-route travel. User created unauthorized routes result in additional routes being formed. This is a vicious cycle which has severe landscape-scale and localized consequences for plants and animals. Portions of the San Bernardino National Forest where this has happened the most (North of Big Bear Lake and West of Idyllwild) create areas with severely reduced wildlife habitat quality. This is both from the habitat loss and the amount of wildlife disturbance that results from high road and trail density.

Additional Impacts under Alternative 3, Common to General and Special Status Plants and Animals:

Designate unauthorized access routes to existing yellow post (dispersed primitive camping) sites. These yellow post camping sites all have at least one unauthorized route leading to them. Some of them have multiple roads leading to and around the campsite. Identifying the best route and designating it (Appendix A, design feature YP-1) will benefit plants and animals by keeping use on one route.

The other seven transportation actions proposed under alternative 1 (and excluded under alternative 3) are designed to reduce management problems with the current NFTS. None of these exclusions would have effects to plants or animals relative to the existing environment as they are essentially no action. All of the exclusions under alternative 3 would remove net benefits to plants and animals relative to alternative 1.

Additional Impacts under Alternative 4, Common to General and Special Status Plants and Animals

Alternative 4 has the following differences relative to alternative 1.

Decommission 1N39A and 1N05A. These two decommissionings are beyond those proposed under alternative 1 and may add minor short-term adverse affects to plants and animals but would also add long-term beneficial effects for general plants and animals.

Exclude adding non-highway legal use on 2N90A and 4S19. Neither of these exclusions would have effects to plants relative to the existing environmental conditions. Neither of these exclusions would affect plants relative to alternative 1. Not adding non-highway legal use to these routes would reduce potential road kill and disturbance somewhat. There is a concern in both locations regarding users using spurs that would not be designated and in the potential for additional user created roads and trails forming. In the case of 4S19, there are some important springs and coast live oak woodlands that would need to be carefully monitored to provide protection. This area has been a deer management emphasis area for years and if vehicles are not carefully controlled, they could become a substantial problem for deer.

Effects for Threatened, Endangered and Proposed Species - Animals

Table 15 contains the current Threatened, Endangered or Proposed (TEP) wildlife species for the SBNF. The species in this table were all considered during this evaluation of potential effects for this project.

The following discussions focus on TEP animals known to occur in the vicinity of project area or those that have a high likelihood of occurrence based on proximity to the project area. The discussion also discusses critical habitat were activities overlap.

Southwest willow flycatcher habitat is present near some of the proposed project areas as well as designated critical habitat. The crossing of Holcomb Creek between Crab Creek and Big Pine Flat is designated critical habitat. The designation of 3N16 as open for non-highway legal vehicles will not result in any change to southwestern willow flycatcher designated critical habitat at Holcomb Creek. This area has been open to non-highway legal vehicles for some time under temporary designation and is already heavily impacted by the road and high public recreational use. Habitat right at the crossing is marginal for flycatcher breeding. There is already a heavily used stream crossing with recreation use at this location and permanent designation for non-highway legal use will not have additional impacts on this crossing.

Yellow post access routes in the upper Santa Ana/Coon Creek area are adjacent to Southwest willow flycatcher critical habitat, but this designation was improperly mapped and is actually too dry to support this species.

Officially removing non-highway legal use from the Coxey Creek area will potentially improve the situation for southwestern willow flycatcher. Although this area has not been surveyed, there is a considerable amount of suitable habitat present. This route was closed years ago because of severe resource damage and the inability to manage vehicles. 3N95 paralleled and crossed Coxey Creek multiple times with major negative impacts.

Proposed changes at the Junction of 3N34, 3W12 and 2N26 will benefit riparian habitat and potential southwestern willow flycatcher habitat by moving designated non-highway legal routes away from Willow Creek.

Arroyo toad habitat is adjacent to some of the proposed activities around Cleghorn Ridge, Silverwood Lake and Little Horsethief Creek. Proposed activities are approximately ½ mile away from the suitable breeding habitat and not in highly suitable upland habitat areas. The measures that are proposed in these areas will not impact new ground and will reduce sedimentation to suitable and occupied habitat. Formally designating 3N66 and 3N66A as administrative use only will formalize this designation which is already gated to prevent human disturbance of breeding

habitat in Little Horsethief Creek. Making 1N35 west of Cucamonga Creek administrative use only will be beneficial for the arroyo toad by reducing traffic on the road and the potential for crushing any toads that could potentially be there.

Shay Creek stickleback are present in Sugarloaf Pond and the road to Sugarloaf which is already gated to protect Sugarloaf Meadow and Pond will be officially designated administrative use only. This will not change the on-the-ground situation because access to this area has been gated for some time.

Making 1N34 administrative use from the Cucamonga side to Day Canyon will reduce the disturbance to the Designated Critical Habitat for **mountain yellow-legged frog** in Day Creek.

There are some areas at the north edge of the City of San Bernardino which has historically supported **California gnatcatcher**. The proposed elimination of non-highway legal use on the Cloudland Fuelbreak/Marshall Peak system could benefit California gnatcatcher if the habitat was allowed to recover without frequent wildfire. However, this area has had the chaparral and coastal sage scrub habitat severely degraded by too frequent fire and lack of scrub regeneration. Nonnative invasive grasses are increasing with every fire and continue to degrade the scrub habitat. The majority of the habitat currently open to non-highway legal use is higher elevation than gnatcatcher habitat, so the potential benefits of eliminating non-highway legal use are very small.

California condors have been sighted on the Forest several times in the last couple of years. One sighting was over the Cloudland fuelbreak area where several birds were soaring in and around hang gliders using the site. This was the only known observation that we have there. Removal of non-highway legal vehicle use could benefit condors in the long run, but at this time with the very infrequent use, there is no impact. An additional sighting was made at the Keller Peak lookout which is near areas that have yellow post site access roads proposed for designation. The birds were observed soaring along the ridgeline. The work that is proposed to identify a single route to these existing camping spots will not affect condors.

Cumulative Effects to TEP Animals

There are no adverse effects to listed plants expected from this project; thus, there are no cumulative effects to listed animals.

Table 15 Threatened, Endangered, Proposed and Candidate Wildlife Species

Common Name	Latin Name	Occurrence Information*			Habitat Type**	Critical Habitat On SBNF	Known From Project Area
		Mountaintop	Front Country	San Jacinto			
Endangered Species							
Quino checkerspot butterfly	*Euphydryas editha quino*	N	N	Y	c	Designated	N
unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*	N	H	N	aq		N
mountain yellow-legged frog	*Rana muscosa*	N	Y	Y	r, aq	Proposed	N
arroyo toad	*Bufo californicus*	Y	Y	Y	d,aq,r	Designated	Y
California brown pelican	*Pelecanus occidentalis californicus*	U	U	N	aq		N
California condor	*Gymnogyps californianus*	H	H	H	mc,g,c,a,rk,wo		Y
southwestern willow flycatcher	*Empidonax trailii extimus*	Y	Y	Y	r,m	Proposed	P
least Bell's vireo	*Vireo bellii pusillus*	N	Y	P	r,m		N
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	N	Y	Y	w	Designated	N
Stephens' kangaroo rat	*Dipodomys stephensi*	N	N	P	g, sage scrub		N
Peninsular bighorn sheep	*Ovis canadensis cremnobates*	N	N	Y	wo, rk, d	Designated	N
Threatened Species							
Santa Ana sucker	*Catostomus santannae*	N	H	N	aq		N
California red-legged frog	*Rana aurora draytonii*	H	H	N	r,aq		N
desert tortoise	*Gopherus agassizii*	Y	P	Y	d		N
coastal California gnatcatcher	*Polioptila californica californica*	N	Y	P	c	Designated & proposed	P
Federal Candidate Species							
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	U	P	P	r	N/A	N

*Occurrence Information: N = Outside known distribution/range of the species; U = Occurrence of the species is unlikely based on habitat present.; P = Occurrence of the species is possible; suitable habitat exists; L = Occurrence of the species is likely; suitable habitat exists and the species is known from nearby locations; Y = Species is known to occur; H = Part of the historical range but the species has been extirpated; B = Species is known or likely to nest in the area; M = The species uses the area during migration as a stopover.

**Habitat Types/Habitat Components: a = aerial; usually seen in flight, often over several habitat types; r = riparian (streamside thickets and woodlands); g = grasslands, fields and agricultural areas; m = marshes, meadows; both freshwater areas and moist meadows; c = chaparral and coastal sage scrub; wo = woodlands; pinyon-juniper, oaks; mc = mixed conifer forests; Jeffrey pine, ponderosa pine, bigcone Douglas fir, coulter pine, sugar pine, white fir overstory; d = desert; Joshua tree woodlands, creosote bush scrub, blackbrush scrub; aq = aquatic; lakes, reservoirs, ponds, vernal pools/puddles; u = urbanized areas; w = washes and alluvial fans; rk = cliffs and rocky outcrops; s = snags and cavities

Effects for Threatened, Endangered and Proposed Species – Plants

Table 16 contains the current TE plants for the SBNF. All species listed in this table were considered in this analysis and those shown in bold are those known to occur in or very near the project area. It is likely that Sensitive plant occurrences are present but undetected/unmapped within the project area.

Direct and indirect effects to Threatened and Endangered plants and their designated or proposed critical habitat are as follows:

Acanthoscyphus parishii var. goodmaniana: This taxon is endemic to carbonate-derived soils of the northeastern San Bernardino Mountains. It usually occurs on fine to medium grained, unconsolidated soils and often (though not exclusively) on flat to gentle slopes. Carbonate habitats are generally open in structure because carbonate soils are poor in nutrients and have low water-holding capacity. Where this species occurs on relatively flat and open habitat, it is vulnerable to crushing and uprooting by motorized vehicles traveling off-route. The decommissioning of the northern loop of 3N11, north of 3N17, is extremely important for the conservation of this species. This section of road passes directly through the heart of this population and many plants grow in the roadbed and suffer chronic disturbance from vehicle use. This action element is included in alternatives 1A and 4, but not alternative 3. Reclassification of roads 3N88, 3N88B, 3N87 and 3N54 to administrative use only will be wholly beneficial for this species by reducing travel on and adjacent to these roads. The restoration of multiple unclassified routes in the Holcomb Valley, Burnt Flats, Tip Top Mountain and Rattlesnake Canyon areas, included under all action alternatives, will also be very important for the conservation of this species. Redesignating 2N90A to Tip Top Mountain for non-highway legal use should be closely monitored if included. If vehicles venture off the road near the top of Tip Top Mountain, individuals of this species will likely be crushed and/or uprooted. Each action alternative provides wholly beneficial effects to this species and its critical habitat.

Astragalus albens, Erigeron parishii and ***Eriogonum ovalifolium var. vineum****:* These taxa are also endemic to carbonate-derived soils of the northeastern San Bernardino Mountains and are also vulnerable to crushing and uprooting by motorized vehicles traveling off-route. Reclassification of roads 3N88, 3N88B, 3N87 and 3N54 to administrative use only will be wholly beneficial for this species by reducing travel on and adjacent to these roads. The restoration of multiple unclassified routes in the along the 3N03 and 2N02 corridors will be very important for the conservation of these species. Each action alternative provides wholly beneficial effects to these species and their critical habitat.

Poa atropurpurea and ***Taraxacum californicum***: These species occur within and on the margins of montane wet meadow habitat in the eastern San Bernardino Mountains. The primary threats to these species include roads (and their associated effects to meadow hydrology) and motorized vehicle travel off route into the meadows themselves. Off-route vehicle travel through meadow habitat can uproot and crush plants and also creates deep ruts that divert and channelize water and often have long-lasting adverse effects. The restoration of multiple unclassified routes in the Holcomb Valley and Broom Flats areas will be very important for the conservation of these species. Each action alternative provides wholly beneficial effects to these species and their proposed critical habitat.

Arenaria ursina, Castilleja cinerea and ***Eriogonum kennedyi var. austromontanum***: These species occur on pebble plains and are endemic to the eastern San Bernardino Mountains. Pebble plains are extremely susceptible to damage by off-route vehicle travel. The habitat is flat and open, offering virtually no resistance to motorized travel. However, the diminutive shallow rooted

plants typical of pebble plains are very susceptible to crushing and uprooting and the clay soils that in part define this habitat are susceptible to deep rutting and compaction. The restoration of multiple unclassified routes in the Holcomb Valley, Sugarloaf and Broom Flats areas will be very important for the conservation of these species. Decommissioning of roads in the Sugarloaf and Broom Flats (Juniper Springs) areas will also provide important conservation benefits. Each action alternative provides wholly beneficial effects to these species and their critical habitat.

Based on habitat models finalized in 2003 in coordination with U. S. Fish and Wildlife Service, modeled habitat is present for all 12 listed plant species of the mountain meadows, pebble plains and carbonates of the San Bernardino Mountains. Individual occurrences of listed plant species may occur undetected in these areas. No new construction is proposed within occupied or modeled TE plant habitat. A short segment of unclassified road in modeled habitat is proposed for designation at Cactus Flats. This route was surveyed and found not to be suitable habitat because the route is well-established, frequently used and without evidence of points of departure from the route or need for maintenance outside the existing prisms. Adjacent habitat was found to be suitable for listed carbonate species. The remainder of elements within modeled habitat common to all action alternatives are many roads to be decommissioned and unclassified routes to be rehabilitated. Based on Design Feature B-3, these will be planned to avoid adverse effects to TE plant species. If TE species occur undetected in modeled habitat in the project area, effects to these occurrences are expected to be wholly beneficial.

Additional Impacts to TE Plants and Critical Habitat Under Alternative 3

Alternative 3 would not add any impacts to known occurrences of TE plants or critical habitat. However, it would exclude the important protection for *Acanthoscyphus parishii* var. *goodmaniana* provided under the other action alternatives by decommissioning the northern section of 3N11 north of 3N17.

Modeled habitat could incur additional impacts under alternative 3 where unclassified routes into the following yellow post sites are proposed for designation: Big Bear South Shore 27, Apple Canyon 1&3, 5S09 1&2, Mission Springs 1, Fawnskin 6&7, South Lake Hemet 1 and Coon Creek 9&15. None of these were surveyed for this project. If listed species were to occur undetected along any of these routes, it is presumed that no additional impacts would occur (as the unclassified routes are in existence and frequently used). Designating a single route in to these sites and disguising others could have beneficial effects on these modeled habitats. Finally, if TE plants are subsequently found along any of these routes and conflicts are identified, Forest Plan Standard S- and Appendix D would be invoked. Ultimately, if conflicts can not be resolved through less restrictive methods, the yellow post sites can be closed.

Additional Impacts to TE Plants and Critical Habitat Under Alternative 4:

There are no additional impacts to TE Plants and Critical Habitat under alternative 4.

Cumulative Effects to TEP Plants

There are no adverse effects to listed plants expected from this project; thus, there are no cumulative effects to listed plants.

Table 16 Threatened, Endangered, Proposed and Candidate Plant Species

Species Name	Common Name	Occurrence Information			Critical Habitat On SBNF	Habitat Type	Known From Project Area
		Mountaintop	Front Country	San Jacinto			
Endangered Species							
Acanthoscyphus parishii var. goodmaniana	**Cushenbury puncturebract**	**X**			**Designated**	**Carbonate soils**	**Known**
Arenaria paludicola	marsh sandwort				None	Freshwater marsh	N
Astragalus albens	**Cushenbury milk vetch**	**X**			**Designated**	**Carbonate soils**	**Known**
Astragalus brauntonii	Braunton's milk-vetch		P		Des, not on SBNF	Limestone soils in chaparral	N
Astragalus lentiginosus var. coachellae	Coachella Valley milk vetch			P	Des, not on SBNF	Sandy Sonoran desert scrub	N
Astragalus tricarinatus	triple-ribbed milk-vetch		P	P	None	Sandy/gravel, desert margin	N
Berberis nevinii	Nevin's barberry		P	P	Prop, not on SBNF	Clay soils/vernally wet areas	N
Docecahema leptoceras	slender-horned spineflower		X	X	None	Alluvial scrub	N
Eriastrum densifoloium ssp. sanctorum	Santa Ana River woollystar		P		None	Alluvial scrub	N
Eriogonum ovalifolium var. vineum	**Cushenbury buckwheat**	**X**			**Designated**	**Carbonate soils**	**Known**
Nasturtium gambelii	Gambel's water cress				None	Freshwater marsh	N
Poa atropurpurea	**San Bernardino bluegrass**	**X**	**P**	**P**	**Proposed**	**Meadows**	**Known**
Physaria kingii ssp. bernardina	**San Bernardino Mtns. bladderpod**	**X**			**Designated**	**Carbonate soils**	**Modeled**
Sidalcea pedata	**bird's foot checkerbloom**	**X**	**P**		**None**	**Meadows**	**Modeled**
Taraxacum californicum	**California taraxacum**	**X**	**X**		**Proposed**	**Meadows**	**Known**
Thelypodium stenopetalum	**slender-petaled mustard**	**X**			**None**	**Meadows**	**Modeled**
Threatened Species							
Arenaria ursina	**Bear Valley sandwort**	**X**			**Designated**	**Pebble plain**	**Known**
Brodiaea filifolia	thread-leaved brodiaea		P	P	Des, not on SBNF	Clay soils/vernally wet areas	N
Castilleja cinerea	ash-gray Indian paintbrush	X	X		Designated	Pebble plains; openings in conifer forest	Known
Erigeron parishii	**Parish's daisy**	**X**			**Designated**	**Carbonate soils**	**Known**
Eriogonum kennedyi var. austromontanum	**southern mountain buckwheat**	**X**			**Designated**	**Pebble plain**	**Known**

Effects for Sensitive Species - Animals

Sensitive Animals - Impacts of No Action

The discussion at the beginning of the this section is applicable for any Sensitive species that occur in the project area.

Sensitive Animals – Direct and Indirect Impacts Common to all Action Alternatives

A number of Sensitive wildlife species are known or expected to occur within the project area. Table 17 contains the current Sensitive animals for the SBNF and the potential for each to occur in the project area. The potential impacts to Sensitive species that are known to occur and those that have a high probability of occurring in and adjacent to the project area are discussed in detail.

The following table displays the sensitive wildlife species on the Forest, the habitats they occur in and whether or not they are present in the project area or affected by decisions being made. In general the effects to sensitive wildlife species from motorized vehicle use on roads, trails and cross country were described in the previous section on General Fish, Wildlife and Plants. Specific conflicts and benefits from aspects of the various alternatives with sensitive fish and wildlife species will be discussed as appropriate.

Table 17. Region 5 Sensitive Wildlife Species

Common Name	Latin Name	Occurrence Information*			Habitat Type**	Occurrence In Project Area?
		Mountaintop	Front Country	San Jacinto		
Santa Ana speckled dace	*Rhinicthys osculus* ssp.	N	Y	Y	aq	Y
arroyo chub	*Gila orcutti*	N	P	Y	aq	Y Hybrid
partially armored threespine stickleback	*Gasterosteus aculeatus microcephalus*	N	H	Y	aq	Y
large-blotched ensatina	*Ensatina eschscholtzii klauberi*	Y	Y	Y	r, mc	P
Monterey Salamander	*Ensatina eschscholtzii eschscholtzii*	?	Y	N	r, mc	P
San Gabriel Mountain slender salamander	*Batrachoseps gabrieli*	N	Y	N		P
southwestern pond turtle	*Actinemys marmorata pallida*	P	N	Y	aq, r	N
California legless lizard	*Aniella pulchra*	?	Y	Y	c, d	P
San Diego horned lizard	*Phrynosoma coronatum blainvillii*	Y	Y	Y	w, d, wo	Y
southern rubber boa	*Charina bottae umbratica*	Y	Y	Y	mc, c, r	Y
coastal rosy boa	*Lichanura trivirgata rosafusca*	U	Y	Y	c	L
San Bernardino ringneck snake	*Diadophis punctatus modestus*	Y	Y	N	c, g, rk, r	L
San Diego ringneck snake	*Diadophis punctatus similis*	N	N	Y	c, g, rk	P
San Bernardino mountain kingsnake	*Lampropeltis zonata parvirubra*	Y	Y	Y	mc, c, pj, r	L
San Diego mountain kingsnake	*Lampropeltis zonata pulchra*	N	N	Y	mc, r	P
two-striped garter snake	*Thamnophis hammondii*	Y	N	Y	r, aq	P
bald eagle	*Haliaeetus leucocephalus*	Y	U	Y	aq,r,m	Y
northern goshawk	*Accipiter gentilis*	Y	Y	Y	mc	P
California spotted owl	*Strix occidentalis occidentalis*	Y	Y	Y	mc	Y
American peregrine falcon	*Falco peregrinus anatus*	Y	Y	Y	**	P
willow flycatcher (migrant)	*Empidonax traillii*	Y	Y	Y	r	Y
San Diego cactus wren	*Campylorhynchus bruneicapillus sandiegense*	N	Y	H	d, c	N
California leaf-nosed bat	*Macrotus californicus*	Y	?	P	d, wo (pj)	P
Townsend's big-eared bat	*Corynorhinus townsendii*	Y	?	Y	mc, r, aq, wo, c, mines	P
pallid bat	*Antrozous pallidus*	L	P	Y	c, wo, mc, d, rk, r	P
western red bat	*Lasiurus blossevillii*	Y	?	?	mc, r	P

Common Name	Latin Name	Occurrence Information*			Habitat Type**	Occurrence In Project Area?
		Mountaintop	Front Country	San Jacinto		
Los Angeles little pocket mouse	*Perognathus longimembris brevinasus*	U	U	Y	c	N
San Bernardino white-eared pocket mouse	*Perognathus alticolus alticolus*	H	P	N	mc, wo	U
San Bernardino flying squirrel	*Glaucomys sabrinus californicus*	Y	Y	H	mc, r	Y
San Gabriel Mountains bighorn sheep	*Ovis canadensis nelsoni*	N	Y	N	wo, rk, d	Y

*Occurrence Information: N = Outside known distribution/range of the species; U = Occurrence of the species is unlikely based on habitat present; P = Occurrence of the species is possible; suitable habitat exists; L = Occurrence of the species is likely; suitable habitat exists and the species is known for nearby locations; Y = Species is known to occur; H = Part of the historical range but the species has been extirpated; B = Species is known or likely to nest in the area; M = The species uses the area during migration as a stopover.

**HABITAT TYPES/HABITAT COMPONENTS: a = aerial; usually seen in flight, often over several habitat types; r = riparian (streamside thickets and woodlands); g = grasslands, fields and agricultural areas; m = marshes, meadows; both freshwater areas and moist meadows; c = chaparral and coastal sage scrub; wo = woodlands; pinyon-juniper, oaks; mc = mixed conifer forests; Jeffrey pine, ponderosa pine, bigcone Douglas fir, coulter pine, sugar pine, white fir overstory; d = desert; Joshua tree woodlands, creosote bush scrub, blackbrush scrub; aq = aquatic; lakes, reservoirs, ponds, vernal pools/puddles; u = urbanized areas; w = washes and alluvial fans; rk = cliffs and rocky outcrops; s = snags and cavities

Fish

There are three sensitive fish species potentially effected by the various actions contained in the three alternatives.

Partially armored threespine stickleback occur in Coxey Pond and Coxey Creek. Coxey Creek Trail (3N95) has been closed for some time to protect the sensitive resources in Coxey Creek and Deep Creek. It is very important that this route remain closed and the closure enforced as the road and trail are located in the worst possible location with numerous eroding steep hillsides and multiple stream crossings. All alternatives provide for officially decommissioning this route.

Arroyo chub/Mojave chub hybrids are known from Deep Creek. Actions that would increase erosion and resulting sedimentation in Deep Creek would be adverse to this species. None of the proposed actions in the Deep Creek Watershed are very close to Deep Creek. The amount of decommissioning and change to administrative use is similar to the amount of road being opened to non-highway legal vehicles. There should be no change from current sediment in Deep Creek under any alternative.

Speckled dace are present in Cajon Wash. The only activities proposed under any alternative are making one road administrative use only and removing non-highway legal vehicles from another. Both of these roads are some distance from the creek. No alternative should have any effect on Santa Ana speckled dace.

Amphibians

There are three sensitive amphibians potentially present in the area affected by the various proposed actions in the action alternatives. The two *ensatina* salamander species are generally found in moist situations in canyons and north facing slopes or in riparian or moist forest and woodlands. They spend the majority of their time in situations with lots of hiding cover and moist microclimates, so they are not likely to hang out on edges of roads and trails. The majority of the activity planned in this project is in dryer more open habitats. Very little new construction is planned and it is not in situations conducive to *ensatina* salamanders. Existing routes that are being designated as open for non-highway legal vehicle use do pass through some areas that could have salamanders. Some of the areas being closed to non-highway legal vehicle use, rehabilitated and designated for administrative use only could also have *ensatina*. The greatest impact to *ensatina* would be the creation of eroding surfaces with gullies and waterways from cross country vehicle use that would dewater a site and make it less suitable for this species. Overall, there should be little effect on this species because the proposal is for designated routes accompanied with enforcement and Forest Service presence.

San Gabriel Mountain slender salamander may be present on the far west end of the project in the San Gabriel Mountains. Making 1N34 and 1N35 administrative use only could reduce the small potential for roadkill of salamanders.

Reptiles

There are two sensitive lizards, **California legless lizard** and **San Diego Coast horned lizard**, that are potentially affected by this proposal. In addition, there are seven snakes including the southern rubber boa, coastal rosy boa, San Bernardino and San Diego ringneck snake, San Bernardino and San Diego Mountain kingsnake and two-striped garter snake that are in the project area.

For the most part, these species prefer areas with cover such as down logs, duff, leaf litter, surface and subsurface rocks with spaces, cavities in down logs and the like. For most of them, surface

and subsurface moisture is important and the microhabitat created by cover and moisture. Riparian areas are important. For two-striped garter snakes, only perennial riparian areas with fish or tree frogs appear to be used. For all of these species, cross country vehicle use can be very damaging. In addition to the killing of individuals by crushing, loud noise can disrupt their behavior and even cause long-term damage to their hearing. Perhaps the greatest impact of cross country use is the creation of eroding surfaces with gullies and waterways that dewater a site and make it less suitable for these species. Since this project will only allow use on designated roads and trails which for the most part have existing use and riparian areas are avoided, the impacts are expected to be minor. There could potentially be some limited mortality to these species from roadkill where roads or trails pass through suitable habitat.

San Diego horned lizard is a species that may be impacted more than the rest of these species. They are attracted to bare areas with loose soil and an abundance of native ants. Often times, roads and trails have loose soil on the edges with bare areas that are perfect for foraging. As a result, horned lizards are probably the most likely species to be killed by crushing as routes are used. However, of the sensitive reptile species on the project, San Diego horned lizards appear to be the most abundant and widespread of all the species. They have been found in virtually all habitats from coastal to desert and valley to montane up to around 8,000 feet.

Birds

Sensitive bird species present in the project area include the **bald eagle, northern goshawk, California spotted owl, American peregrine falcon** and **willow flycatcher.** Bald eagles are primarily around Big Bear Lake, Silverwood, Lake Arrowhead and Lake Hemet. None of the proposed project areas are within known nesting or roosting habitat for bald eagles. They may fly over some of the areas and occasionally land near a route, but none of the routes are in habitat considered to be important for this species. There should be no impact to bald eagles from this project.

The northern goshawk is a very rare visitor to the San Bernardino National Forest. Breeding has not been confirmed in the San Bernardino, San Gabriel or San Jacinto Mountains, however there are infrequent observations in the summer. Summer observations have been primarily in the higher elevation forests and there is not much activity associated with this project in those areas other than identifying and designating access roads to yellow post campsites. There should be no impact to the northern goshawk.

The American peregrine falcon forages over most of the forest. One of the only locations where nesting has been documented is in the Mormon Rocks formation in Cajon Pass. Although this area is heavily impacted by freeways, railroads, power lines and other utilities, suitable habitat still exists for this species where they historically nested. The only part of any alternative that would potentially affect this area is planning to make 2N87 Administrative Use or permittee use only. Making 2N87 and 2N88 Administrative use only will reduce the potential harassment of prairie and peregrine falcons in the Mormon Rocks.

This should be a benefit to peregrine falcons and reduce potential human conflicts in the form of shooting or harassment. Riparian areas are important foraging areas for peregrines and these areas are being avoided by new route designation.

Migrant willow flycatchers are known to use most of the high quality riparian habitats on the San Bernardino National Forest. This project proposes no new non-highway legal routes that would impact riparian areas that are not already impacted by roads and vehicle use. Creating a system that provides quality experience and reduces unauthorized trail and cross country vehicle use should benefit this species. There should be no adverse impact to migrant willow flycatchers.

California spotted owls are present in areas planned for some activity in this project. A more detailed discussion can be found in the section on Management Indicator Species. Some yellow post sites scattered throughout the Forest are located in or on the edge of California spotted owl home range cores, protected activity centers and nest stands. These yellow post sites have been used for some time and this project will designate a single access route and eliminate multiple access roads. This should reduce human disturbance to these sites or maintain the status quo. Areas which have this situation are in the Lytle Creek watershed portion of the San Gabriel Mountains, Black Mountain, North Fork, Lake Hemet and Thomas Mountain areas of the San Jacinto Mountains.

Making 2N12 and 2N12X north of Green Valley Lake administrative use only will benefit owl habitat by reducing disturbance in HRC, PAC and nest stands.

The changes proposed near the North Lake Arrowhead administrative sites will be a benefit to CASPO by removing non-highway legal use in some areas, decommissioning some routes and making a more logical non-highway legal system. These changes will more than make up for the small amount of new routes designated for non-highway legal use.

Designating the access road to Cajon Mountain as administrative use is best for CASPO. This road is already gated, but making it official is a positive decision for owls.

Making 1N04 to Rattlesnake Creek administrative use only will benefit CASPO in the long run. This route is currently gated and officially making the road administrative use only is positive.

Making routes around Sugarloaf Mountain administrative use only as well as a substantial amount of restoration will benefit CASPO. Decommissioning 1N39 A will benefit owls. Making routes north of Sugarloaf Mountain administrative use only as well as a substantial amount of restoration in the area will benefit CASPO.

The various alternatives have actions that will benefit owls for the most part. There are a couple of areas where minor encroachments into protected activity centers (PAC) and nest stands (NS) occur with new construction or non-highway legal designation, but in all cases, this is needed to take other actions that will have a greater benefit to PACs and nest stands by decommissioning, making administrative use only, removing non-highway legal use or rehabilitating unauthorized routes.

The following table displays the differences in alternatives for mileage in Protected Activity Centers, Nest Stands and Home Range Cores for spotted owls.

Table 18. Mileage in Protected Activity Centers, Nest Stands and Home Range Cores for Spotted Owls, by Alternative

	Nest Stand (mi)	PAC – NS (mi)	HRC (mi)
Alternative 1			
Add Non-highway legal use	0.00	0.46	0.00
Decommission	0.00	1.40	0.00
Make Administrative	0.79	2.23	2.21
New Construction	0.05	0.15	0.00
Rehabilitate Unauthorized Route	0.31	3.33	5.08
Remove Non-highway legal use	0.00	0.21	0.00
Alternative 3			
Add Non-highway legal use	0.00	0.46	0.00
Decommission	0.00	0.06	0.00
Make Administrative	0.75	1.86	2.21
Open Unclassified Route	0.10	0.16	1.07
Rehabilitate Unauthorized Route	0.31	3.33	5.08
Alternative 4			
Add Non-highway legal use	0.00	0.46	0.00
Decommission	0.00	1.40	0.42
Make Administrative	0.79	2.23	2.21
New Construction	0.05	0.15	0.00
Rehabilitate Unauthorized Route	0.31	3.33	5.08
Remove Non-highway legal use	0.00	0.21	0.00

Based on this comparison, all alternatives will have a beneficial effect on California Spotted Owl based on the mileage of restoration, decommissioning, removal of non-highway legal use and changing to administrative use.

Mammals

Bats

Four sensitive bat species are potentially present in areas planned for activities related to this project. These species roost in rock crevices, caves, mines, tree cavities and in buildings and bridges. None of these habitats are expected to be affected by the proposals in this project. Foraging takes place over a variety of habitats, primarily at night when non-highway legal vehicle activity on the Forest is not heavy. Preferred areas for foraging are riparian areas and meadows which are avoided by the proposed increase in non-highway legal designation. The impacts to bats of this project are anticipated to be very small because of the balance of opening areas and restricting use in other areas and the protection of riparian habitats.

San Bernardino white-eared pocket mouse is not expected to be found in the project area. This species has not been found on the Forest for many years and the locations believed to be the most likely to potentially have this species are not affected under any of the action alternatives.

San Bernardino flying squirrel lives in mixed conifer habitat throughout the San Bernardino Mountains. They are known from the project area. The area most affected by this project are the higher elevation yellow post sites and sites proposed for decommissioning and administrative use only in mixed conifer. Flying squirrels could be affected by disturbance. Eliminating vehicle use

and identifying a single route to yellow post sites should benefit this species. Decommissioning, restoration and making a route administrative use only will benefit this species.

San Gabriel bighorn sheep will benefit from reduced disturbance by designating 1N34 from the Cucamonga Creek side to Day Canyon as administrative use. Designating 2N87 and 2N88 for administrative use only will potentially benefit sheep by reducing harassment in an important habitat linkage between the San Bernardino and San Gabriel Mountains.

Cumulative effects to Sensitive Fish and Wildlife species:

With the amount of removal of non-highway legal use, restoration, decommissioning and making areas administrative use only, sensitive wildlife species affected by the action alternatives would experience neutral, net beneficial or wholly beneficial effects under each of the action alternatives. Therefore, these effects would not be cumulative to the effects of past, current and future actions.

Effects for Sensitive Species - Plants

Sensitive Plants - Impacts of No Action

The discussions at the beginning of this section are applicable for all Sensitive plant species that occur in the project area.

Sensitive Plants –Direct and Indirect Impacts Common to All Action Alternatives

All species listed in Table 19 were considered in this analysis and those shown in bold are those known to occur in or very near the project area. It is likely that Sensitive plant occurrences are present but undetected/unmapped within the project area.

Table 19. Sensitive Plant Species

Species Name	Common Name	Occurrence Information			
		Mountaintop	Front Country	San Jacinto	Known from Project Area
Abronia nana ssp. covillei	Coville's dwarf abronia	X			
Abronia villosa var. aurita	chaparral sand verbena			X	
Acanthoscyphus parishii var. cienegensis	**Cienega Seca puncturebract**	**X**	**P**		**Known**
Allium marvinii	Yucaipa onion		P		
Arabis breweri var. pecuniaria	San Bernardino rock-cress		X		
Arabis johnstonii	**Johnston's rock cress**			**X**	**Known**
Arabis parishii	**Parish's rock cress**	**X**			**Known**
Arabis shockleyi	**Shockley's rock-cress**	**X**			**Known**
Arenaria lanuginosa ssp. saxosa	rock sandwort	X	X		
Astragalus bicristatus	**crested milk vetch**	**X**	**P**	**X**	**Known**
Astragalus lentiginosus var. antonius	San Antonio milk vetch		X		
Astragalus lentiginosus var. sierrae	**Bear Valley milk vetch**	**X**	**P**		**Known**
Astragalus pachypus var. jaegeri	Jeager's milkvetch			X	
Atriplex parishii	Parish's brittlescale	P		P	
Botrychium crenulatum	scalloped moonwort	X	X	P	
Calochortus clavatus var. gracilis	Slender mariposa lily		P		
Calochortus palmeri var. munzii	Munz's mariposa lily			X	
Calochortus palmeri var. palmeri	**Palmer's mariposa lily**	**X**	**P**		**Known**
Calochortus plummerae	**Plummer's mariposa lily**	**P**	**X**	**X**	**Known**
Calochortus striatus	alkali mariposa lily	P			
Canbya candida	**pygmy poppy**	**X**	**X**		**Known**
Castilleja lasiorhyncha	**San Bernardino Mountains owl's clover**	**X**	**P**	**X**	**Known**
Castilleja plagiotoma	**Mojave paintbrush**	**X**	**P**		**Known**
Caulanthus simulans	Payson's caulanthus		P	X	
Chorizanthe parryi var. parryi	Parry's spineflower		P	P	
Chorizanthe polygonoides var. longispina	long-spined spineflower	P		X	
Claytonia lanceolata var. piersonii	Pierson's spring beauty		X		
Deinandra mohavensis	Mojave tarplant	P	P	X	
Delphinium hesperium ssp. cuyamacae	Cuyamaca larkspur			X	
Dieteria canescens var. ziegleri	Ziegler's aster			X	
Draba corrugata var. saxosa	rock draba			X	
Dudleya abramsii ssp. affinis	**San Bernardino Mts. dudleya**	**X**			**Known**

Species Name	Common Name	Occurrence Information			
		Mountaintop	Front Country	San Jacinto	Known from Project Area
Eriogonum evanidum	**vanishing wild buckwheat**	**X**			**Known**
Eriogonum kennedyi var. alpigenum	southern alpine buckwheat		X		
Eriogonum microthecum var. johnstonii	Johnston's buckwheat	X	X		
Eriogonum microthecum var. lacus-ursi	Bear Lake buckwheat	P			
Galium angustifolium ssp. jacinticium	San Jacinto Mts bedstraw			X	
Galium californicum ssp. primum	California bedstraw			X	
Gentiana fremontii	moss gentian		X		
Gilia leptantha ssp. leptantha	San Bernardino gilia	X	X		
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	P	P	P	
Heuchera abramsii	Abrams' alumroot		P		
Heuchera elegans	Urn-flowered alumroot		X		
Heuchera hirsutissima	shaggy-haired alum root			X	
Heuchera parishii	**Parish's alumroot**	**X**	**X**	**X**	**Known**
Horkelia cuneata ssp. puberula	Mesa horkelia		P		
Horkelia wilderae	Barton Flats horkelia	X	X		
Hulsea vestita ssp. gabrielensis	San Gabriel Mountains sunflower		P		
Hulsea vestita ssp. pygmaea	pygmy hulsea	X	X		
Imperata brevifolia	California satintail		P		
Ivesia argyrocoma	**Silver-haired ivesia**	**X**			**Known**
Ivesia callida	Tahquitz ivesia			X	
Lepechinia fragrans	**Fragrant pitcher sage**		**X**		**Known**
Leptosiphon floribundus ssp. hallii	Santa Rosa Mts linanthus			X	
Lilium parryi	Lemon lily	X	X	X	
Linanthus concinnus	San Gabriel linanthus		X		
Linanthus jaegeri	San Jacinto prickly phlox			X	
Linanthus killipii	**Baldwin Lake linanthus**	**X**			**Known**
Linanthus orcuttii	**Orcutt's linanthus**	**X**			**Known**
Malaxis monophyllos var. brachypoda	Adder's mouth		X	X	
Marina orcuttii var. orcuttii	California marina			X	
Matelea parvifolia	spearleaf			X	
Meesia triquetra	three-ranked hump moss		P	P	
Meesia uliginosa	Broad-nerved hump moss		P	P	

Species Name	Common Name	Occurrence Information			
		Mountaintop	Front Country	San Jacinto	Known from Project Area
Mimulus exiguus	**San Bernardino Mountain monkeyflower**	**X**			**Known**
Mimulus purpureus	**purple monkeyflower**	**X**			**Known**
Monardella macrantha ssp. hallii	Hall's monardella		X	X	
Monardella nana ssp. leptosiphon	**San Felipe monardella**			**X**	**Known**
Monardella viridis ssp. saxicola	rock monardella		X		
Navarretia peninsularis	**Baja navarretia**	**X**		**P**	**Known**
Opuntia basilaris var. brachyclada	**Short-joint beavertail**	**P**	**X**		**Known**
Oreonana vestita	woolly mountain parsley	P	X		
Orobanche valida ssp. valida	Rock Creek broom-rape		X		
Packera bernardina	**San Bernardino butterweed**	**X**			**Known**
Parnassia cirrata var. cirrata	Fringed grass-of-Parnassus		X		
Penstemon californicus	**California penstemon**			**X**	**Known**
Phacelia exilis	**Transverse range phacelia**	**X**	**P**		**Known**
Phlox dolichantha	**Bear Valley phlox**	**X**			**Known**
Potentilla glandulosa ssp. ewanii	Ewan's cinquefoil	X	P		
Potentilla rimicola	cliff cinquefoil			X	
Pyrrocoma uniflora ssp. gossypina	**Bear Valley pyrrocoma**	**X**			**Known**
Saltugilia latimeri	**Latimer's woodland gilia**	**X**	**P**	**P**	**Known**
Scutellaria bolanderi ssp. austromontanum	southern mountain skullcap	P		X	
Sedum niveum	Davidson's stonecrop	X	X	X	
Sidalcea hickmanii ssp. parishii	Parish's checkerbloom	X	P		
Sidotheca caryophylloides	Chickweed starry puncturebract	X	P	X	
Sidotheca emarginata	white-margined puncturebract			X	
Streptanthus bernardinus	Laguna Mountains jewelflower	X	X	X	
Streptanthus campestris	southern jewelflower	X	P	X	
Symphyotrichum defoliatum	San Bernardino aster	X	X	X	
Thelypteris puberula var. sonorensis	Sonoran maiden fern		X	P	
Viola pinetorum ssp. grisea	grey-leaved violet	P			

Direct and indirect effects to Sensitive plants

Arabis johnstonii and ***Penstemon californicus:*** The spur off of Forest Road 6S05, proposed under all action alternatives for addition to the transportation system as a highway legal route, could indirectly impact these species. While the alignment of the proposed spur does not intersect this plant's habitat, the route provides access to a network of unclassified routes through Quinn Flat which could further proliferate into this plant's habitat. The habitat structure is flat with a very open vegetation structure and is vulnerable to impacts from off road motorized vehicle exploration, as well as parking along these unclassified routes. Designation of this spur could have adverse indirect effects on this species and its habitat.

Arabis parishii, Packera bernardina, Phlox dolicantha, Pyrrocoma uniflora var. gossypina and ***Ivesia argyrocoma***: These endemic species occur on pebble plains and other heavy soils on the eastern half of the Mountaintop District. Many unclassified routes along these corridors are proposed for restoration. While restoration activities may have short-term adverse effects on these species and plants in general, these effects will be actively avoided and minimized. Long-term, restoration of these routes will be very beneficial to these species by opening up new habitat and removing/reducing the primary source of chronic disturbance to their habitat (*i.e.*, off road vehicle travel).

Arabis shockleyi: This species is associated with carbonate habitats of the San Bernardino Mountains, sharing the same distribution as the five federally-listed carbonate endemic plants of the San Bernardino Mountains. This species, however, is more common within the narrow distribution and also occurs in the Last Chance and Cottonwood desert mountain ranges of Death Valley National Park. Reclassification of the Mining Roads 3N88, 88B, 87 and 54 and restoration of multiple unclassified routes near these mining roads and Forest Road 3N03 will provide a benefit for this taxon by removing/reducing a primary source of chronic disturbance to its habitat.

Astragalus bicristatus: This species is associated with carbonate habitats in the san Bernardino and eastern San Gabriel Mountains. The largest populations occur on the dolomite derived soils of Bertha Ridge and Sugarlump, closely mirroring the distribution of the endangered ***Physaria kingii***. This species occurs along forest roads 2N07 and 2N09C, which are proposed for redesignation to administrative use only. This redesignation is not expected to have any effect of these plants as use is mostly limited to administrative uses under the existing conditions. This species also occurs along an unclassified route that connects 3N08 with 3N79, which is proposed for restoration. This action may have minor short-term adverse effects but these would be offset by long-term beneficial effects related to the removal of unauthorized motorized assess through this habitat.

Astragalus lentiginosus var. sierrae: This species' distribution occurs in the 6000 to 8000 foot elevation range of the eastern San Bernardino Mountains. This is same area as the majority of the proposed restoration of unclassified routes. These species are tolerant of and often associated with intermediate levels of disturbance, so are often found roadside. While restoration activities may have short-term adverse effects on these species and plants in general, these effects will be actively avoided and minimized. Long-term, restoration of these routes will be very beneficial to these species by opening up new habitat and removing/reducing the primary source of severe and chronic disturbance to its habitat (*i.e.*, off road vehicle travel).

Calochortus palmeri var. palmeri, Castilleja lasiorhyncha, Mimulus exiguus, Mimulus purpureus, Phacelia exilis, Navarretia peninsularis: These species occur in montane wet meadows, seeps, springs and vernally-wet drainages. They are part of a suite of species (collectively, the vernal wet species) that are particularly vulnerable to unauthorized off-road

vehicle travel because of relatively flat topography, open vegetation structure, seasonally-wet soils that are fragile and easily rutted and dependence on highly localized hydrological patterns. This localized hydrology is readily disrupted by vehicle tracks, which can divert and concentrate surface water flows. Plants of this habitat are also vulnerable to crushing and uprooting because the soils are fragile and easily displaced when wet. Several occurrences of this species would benefit from the suite of transportation solutions in the North Shore Lake Arrowhead and Ash Meadows areas and near the sections of 2N26, 2N75 and 2N25Y proposed for decommissioning. A more clear and efficient transportation system for this area is expected to reduce the likelihood that motorists will venture off-road into this plant's habitat.

Calochortus plummerae: This species is known from Cleghorn Ridge, the Summit Valley area and across the cismontane foothills of the San Bernardino Mountains. The proposed actions at Cleghorn Ridge are not expected to affect this species beyond effects occurring under the existing conditions. However, the occurrence near Forest Rd 2N47 in T1NR5W sec. 2 (i.e., where the PCT crosses 2N47) warrants close monitoring. No other known occurrences are adjacent to proposed action elements under any of the alternatives.

Canbya candida: This species occurs in the Cajon Pass and Summit Valley areas in open-structured habitats with generally unconsolidated soils. As with other rare plants, this generally flat and open habitat association makes the species vulnerable to unauthorized motorized vehicle travel off of roads. This species will benefit from the administrative use designation of 3N66. This species also occurs along 3N22 near the PCT crossing, south of 3N66. The proposed action and alternatives would not have any effects on these occurrences, however since it is a popular non-highway legal use area, they do warrant focused monitoring efforts.

Castilleja plagiotoma: This species occurs on clay rich soils in the Little Pine Flat, Coxey Meadow and Dawn o' Day canyon areas and continuing north and east off NFS lands into the Ord Mountains. It is the larval host plant for the rare Erlich's checkerspot butterfly. *Castilleja plagiotoma* occurs on and adjacent to pebble plain habitats and on relatively flat ground with open vegetation structure. As a hemi-parasite, it depends on host plants and does not recover well following crushing or uprooting impacts associated with off-road vehicle travel. This species will benefit significantly from the decommissioning of 3N14D, 3N95, 3N96, 3N98, 3N99 and also from the redesignation of 3N41 and 3N59B for administrative use only.

Dudleya abramsii ssp. affinis: This species is endemic to roughly the northeastern quadrant of the San Bernardino Mountains, on pebble plains and also on outcrops of quartzite, granite and carbonate rocks, from lower Deep Creek on the western limit of its range to the northern and eastern flanks of the range. Where this plant occurs on pebble plains it is vulnerable to unauthorized off-road vehicle travel and will benefit from proposed transportation actions, in the same ways as *Arabis parishii* and *Castilleja plagiotoma* will. Where this species occurs within rock outcroppings, motorized vehicles are generally not a threat and effects (beneficial or adverse) from this project to these occurrences are not expected.

Eriogonum evanidum: This species was considered to be extinct until it was rediscovered in 2007 near Caribou Creek. This single known occurrence is within an open, sandy sagebrush flat adjacent to meadow habitat. Because of its flat and open habitat association, this species is vulnerable to impacts from unauthorized off-road vehicle travel. The proposed restoration of unclassified routes east of 3N09 and south of 3N16 is essential to the conservation of this species.

Lepechinia fragrans: The only known localities of this species on the SBNF are near Cucamonga canyon, along and near roads 1N34 and 1N35. These occurrences are the easternmost limit of this species' distribution. Both of these roads, where they pass through or are near this plant's habitat,

are proposed for redesignation to administrative use only. This redesignation will be beneficial to these species to the extent that reduced public use reduces unauthorized off-road vehicle travel. In this area, the terrain is so steep that this benefit is expected to be primarily realized along canyon bottoms and ridge-top fuelbreaks.

Linanthus killipii, Linanthus orcuttii and ***Saltugilia latimeri:*** Habitat for these species occurs in the eastern San Bernardino Mountains, from eastern Bear Valley to the easternmost flanks of the San Bernardino Mountains. The two *Linanthus* species are notoriously difficult to tell apart, but since they are both listed as Sensitive, they are addressed here collectively. The combined range of these species, from Nelson Ridge and Baldwin Lake, to Lone Valley (the only known locality for the *Saltugilia* on the SBNF), Arrastre Creek, Rose Mine and Rattlesnake Canyon, contains numerous unclassified road segments proposed for restoration. While restoration activities may have short-term adverse effects on these species and plants in general, these effects will be actively avoided and minimized. Long-term, restoration of these routes will be very beneficial to these species by opening up new habitat and removing or reducing the primary source of chronic disturbance to their habitat (*i.e.*, off road vehicle travel).

Opuntia basilaris var. brachyclada: This species occurs in the Cajon Pass and Summit Valley areas in open-structured habitats with generally unconsolidated soils. As with other rare plants, this generally flat and open habitat association makes the species vulnerable to unauthorized motorized vehicle travel off of roads. This species will benefit from the administrative use designation of 3N66.

Additional Impacts to Sensitive Plants Under Alternative 3

Acanthoscyphus parishii var. cienegensis: This species occurs along 1N02 and will likely be impacted by designation of spurs to yellow post sites in the Heart Bar to Coon Creek area. This species occurs in open-structured habitat on unconsolidated sandy soils and is vulnerable to uprooting by vehicles venturing off-route. Defining a single access route to each of these yellow post sites and disguising any others, may have short-term adverse effects but would be beneficial overall.

Monardella nana ssp. leptosiphon: This taxon is recorded from the Thomas Mountain ridgeline. These occurrences may be impacted by designation of spurs to yellow post sites in the Heart Bar to Coon Creek area. This species occurs in open-structured habitat on unconsolidated sandy soils and is vulnerable to uprooting by vehicles venturing off-route. Defining a single access route to each of these yellow post sites and disguising any others, may have short-term adverse effects but would be beneficial overall.

The exclusion of the suite of transportation actions at North Shore of Lake Arrowhead from alternative 3 would remove substantial benefits to the following Sensitive plants, relative to alternative 1: *Castilleja lasiorhyncha and Calochortus palmeri* var. *palmeri*.

Additional Impacts to Sensitive Plants Under Alternative 4

Decommissioning of 1N39A may result in short-term adverse effects to *Lilium parryi*, which occurs at the road's terminus adjacent to Fish Creek. However, decommissioning of this road will have substantial benefits to this rare plant occurrence and its riparian habitat.

Cumulative effects to Sensitive Plant species

Sensitive species affected by the action alternatives would experience neutral, net beneficial or wholly beneficial effects under each of the action alternatives. Therefore, these effects would not be cumulative to the effects of past, current and future actions.

Effects for Watch List Species - Animals

Watch list species are those that the local biologists and botanists have expressed concern about either because of apparent downward trends, apparent changes in habitat availability or because of lack of knowledge and/or understanding of the species.

Watch List Animals - Impacts of No Action

The discussions under the general impacts to wildlife section above is applicable for any Watch-list animals that occur in the project area.

Watch List Animals – Direct and Indirect Impacts of the Action Alternatives

The project area spans most of the Forest, so no attempt has been made to indicate which wildlife species are known or suspected from areas included in the project. The list of the Forest Watch list Wildlife Species is provided in the table below. This list is used during surveys to note occurrence of these species to assist the Forest in doing a better job of protecting them in the long-term. Impacts to these species are described above in the General Impacts to wildlife sections. Impacts from this project are relatively minor when considering all the benefits provided by restoration, elimination of vehicles in sensitive areas, designating some roads as administrative use only and decommissioning some roads. The impacts of designating new non-highway legal routes and new construction are offset by these measures.

Table 20. Watch List Animals for SBNF

Common Name	Latin Name	Occurrence Information*			Habitat Type**
		Mountaintop	Front Country	San Jacinto	
Springsnails	*Pyruglopsis sp.*	Y	Y	L	aq – seeps and springs
simple hydroporus diving beetle	*Hydroporus simplex*	Y	?	?	aq
greenest tiger beetle	*Cicindela tranquebarica viridissima-*	?	P	Y - Hemet	r, w
Dorhn's elegant eucnemid beetle	*Palaeoxenus dorhni*	Y	Y	Y	mc
Pratt's blue butterfly	*Euphilotes enoptes cryptorufes*	N	N	Y	
San Bernardino Mountains silk moth	*Coloradia velda*	Y	N	N	wo (pj), mc
August checkerspot butterfly	*Euphydryas editha augustina*	Y	N	N	mc
bicolored rainbeetle	*Pleocoma bicolor)*	Y – endemic to Crestline, BlueJay, Arrowhead	N	N	mc, wo (oaks)
California diplectronan caddisfly	*Diplectrona californica*	N	Y	N	aq
Dammer's blue butterfly	*Euphilotes enoptes dammersi)*	N?	Y?	N?	wo (pj), Pebble plain
(Baldwin Lake) blue butterfly	Baldwin Lake *Euphilotes enoptes* near *dammersi* ssp.	Y	N	N	Pebble plain
(Arrastre Creek) blue butterfly	Arrastre Creek *Euphilotes enoptes* near *dammersi* ssp.	Y	N	N	Pebble plain
Andrew's marble butterfly	*Euchloe hyantis andrewsi*	Y	N	N	m, r
vernal blue butterfly (Coxey Meadow)	*Euphilotes baueri (battoides) vernalis*	Y	N	N	Pebble plain
San Gabriel Mountains blue butterfly	*Plejebus saepiolus aureolus*	N	P	N	m
San Gabriel Mountains elfin	*Incisalia mossii hidakupa*	N	?	N	rk, on *Sedum spathulifolium*
Ehrlich's checkerspot butterfly	*Euphydryas editha ehrlichi*	Y	N	N	d, c, Pebble plain
desert monkey grasshopper	*Psychomastax deserticola*	Y	N	N	d, wo (pj)
Monterey ensatina salamander	*Ensatina eschscholtzii eschscholtzii*	Y	Y	L	wo (oaks), mc, r
arboreal salamander	*Aneides lugubris*	N	Y	Y	wo (oaks), c, r
garden slender salamder	*Batrachoseps major*	N	Y	P	r, wo, g, meadow, c
Red spotted toad	*Bufo punctatus*	Y	L	P	r
western spadefoot toad	*Spea hamondii*	N	Y	Y	w, r
common chuckwalla	*Sauromalus obesus*	Y	N	Y	d, wo (pj)

Common Name	Latin Name	Occurrence Information*			Habitat Type**
		Mountaintop	Front Country	San Jacinto	
granite night lizard	*Xantusia henshawi*	P	P - maybe SG Pass	Y – Indian Vista	rk,
Desert night lizard	*Xantusia vigilis*	P	P	Y	d
Collared lizard	*Crotaphytus vestigium*	Y	Y	Y	d
Zebra-tail lizard	*Callisaurus draconiodes rhodostictus*	L	Y	Y	d, sandy washes
Coronado skink	*Eumeces skiltonianus interparietalis*	N	P – SG Pass	Y	c, wo, r, mc – sea level to 1675 meters
Belding's orange-throated whiptail	*Aspidoscelis hyperthrus beldingi*	N	Y	N	w, rk, c, wo (oaks)
coast patch-nosed snake	*Salvadora hexalepis virgultea*	L	Y	Y	c, d, w, rk, coastal sage, alluvial fan scrub
mountain garter snake	*Thamnophis elegans elegans*	Y	Y	N	m, r
red diamond rattlesnake	*Crotalus ruber ruber*	N	Y	Y	c, wo, d, rk
southwestern speckeled rattlesnake	*Crotalus mitchellii pyrrhus*	L	Y	Y	c, wo, d, rk
common snipe	*Gallinago gallinago*	Y	P	Y	m, aq
white-faced ibis	*Plegadis chihi*	Y	U	Y	aq
American bittern	*Botaurus lentiginosus*	P	P	Y	aq
western least bittern	*Ixobrychus exilis hesperis*	L	P	Y	aq
turkey vulture (breeding)	*Cathartes aura*	Y	Y	Y	a, g, c, wo, d, rk
osprey	*Pandion haliaetus*	Y	P	Y	aq, r
white-tailed kite	*Elanus leucurus*	Y	Y	Y	r, wo
northern harrier	*Circus cyaneus*	Y	Y	Y	g, m
sharp-shinned hawk (breeding)	*Accipiter striatus*	Y	Y	Y	r, mc
Cooper's hawk (breeding)	*Accipiter cooperii*	Y	Y	Y	r, mc
zone-tailed hawk	*Buteo albonotatus*	Y	Y	Y (nest @ SJ in Santa Rosa Mtn)	mc, wo (pj)
ferruginous hawk	*Buteo regalis*	Y	Y	Y	g, d
golden eagle	*Aquila chrysaetos*	Y	Y	Y	g, d, wo (pj, oak)
merlin	*Falco columbarius*	Y	Y	Y	g, mc
prairie falcon	*Falco mexicanus*	Y	Y	Y	g, d
mountain quail	*Oreortyx pictus*	Y	Y	Y	mc, wo, r

Common Name	Latin Name	Occurrence Information*			Habitat Type**
		Mountaintop	Front Country	San Jacinto	
band-tailed pigeon	*Columba fasciata*	Y	Y	Y	mc, wo
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	U	P	P	r
flammulated owl	*Otus flammeolus*	Y	Y	Y	mc
western screech owl	*Otus kennicottii*	Y	Y	Y	r, mc, wo
northern pygmy owl	*Glaucidium gnoma*	Y	Y	Y	r, mc, wo
burrowing owl	*Athene cunicularia hypogaeae*	P	Y	Y	d
long-eared owl	*Asio otus*	Y	Y	Y	r, mc
northern saw-whet owl	*Aegolius acadicus*	Y	Y	Y	wo, mc, pine
common nighthawk	*Chordeiles minor*	Y	P	U	a, pine, mc
whip-poor-will	*Caprimulgus vociferus*	Y	Y	Y	wo, mc
black swift	*Cypseloides niger*	Y	Y	Y	a, r (waterfalls)
calliope hummingbird	*Stellula calliope*	Y	Y	Y	r
Lewis' woodpecker	*Melanerpes lewis*	Y	Y	Y	wo (oak), r
Williamson's sapsucker	*Sphyrapicus thyroideus*	Y	Y	Y	mc
Nuttall's woodpecker	*Picoides nuttallii*	Y	Y	Y	r, c, wo, mc
southern white-headed woodpecker	*Picoides albolarvatus*	Y	Y	Y	mc
gray flycatcher	*Empidonax wrightii*	Y	P	P	wo (pj), c
California horned lark (breeding)	*Eremophila alpestris actia*	Y	Y	Y	g, d
purple martin	*Progne subis*	Y	Y	Y	a, r, mc, wo
tree swallow	*Tachycineta bicolor*	Y	Y	Y	a, r, wo, mc
pinyon jay	*Gymnorhinus cyanocephalus*	Y	Y	Y	wo (pj), mc
oak titmouse	*Parus inornatus*	Y	Y	Y	c, mc, r, wo
American dipper	*Cinclus mexicanus*	Y	Y	Y	streams
Swainson's thrush	*Catharus ustulatus*	Y	Y	Y	r, mc
hermit thrush (breeding)	*Catharus guttatus*	Y	Y	P	pine, mc
Bendire's thrasher	*Toxostoma bendirei*	Y	N	N	c, wo, r, d
LeConte's thrasher	*Toxostoma lecontei*	Y	Y	P	d
American pipit (water pipit) (breeding)	*Anthus rubescens*	Y	Y (San Gorgonio)	P	alpine, talus & sand slopes
loggerhead shrike	*Lanius ludovicianus*	Y	Y	Y	c, wo, r, d, mc
gray vireo	*Vireo vicinior*	Y	Y	Y	wo (pj),ch

Common Name	Latin Name	Occurrence Information*			Habitat Type**
		Mountaintop	Front Country	San Jacinto	
Cassin's vireo (solitary)	*Vireo cassinii*	Y	Y	Y	mc, wo (oak), r
plumbeus vireo (solitary)	*Vireo plumbeus*	Y	P	P	wo (pj), mc
warbling vireo	*Vireo gilvus*	Y	Y	Y	r, wo, mc
Virginia's warbler (breeding)	*Vermivora virginiae*	Y	P	N	wo (pj), c
yellow warbler	*Dendroica petechia brewsteri*	Y	Y	Y	mc, wo, r
MacGillivray's warbler	*Oporornis tolmiei*	Y	Y	Y	r. m
common yellowthroat	*Geothlypis trichas*	Y	Y	Y	r
Wilson's warbler	*Wilsonia pusilla*	Y	Y	Y	r
yellow-breasted chat	*Icteria virens*	P	Y	P	r
hepatic tanager	*Piranga flava*	Y	Y	Y	wo
summer tanager	*Piranga rubra*	P	Y	Y	r
southern California rufous-crowned sparrow	*Aimophila ruficeps canescens*	Y	Y	Y	c
black-chinned sparrow	*Spizella atrogularis*	Y	Y	Y	d, c, wo (pj)
Bell's sage sparrow	*Amphispiza belli belli*	Y	Y	P	c
Lincoln's sparrow	*Melospiza lincolnii*	Y	Y	N	r, mc, wo
tri-colored blackbird	*Agelaius tricolor*	Y	P	Y	r, m
Lawrence's goldfinch	*Carduelis lawrencei*	Y	Y	Y	r, c
Yuma myotis	*Myotis yumanensis*	Y	Y	Y	d, wo
long-eared myotis	*Myotis evotis*	Y	Y	L	c, wo, mc
fringed myotis	*Myotis thysanodes*	Y	Y	Y	r, wo, m, g, mc
long-legged myotis	*Myotis volans*	Y	Y	L	wo, mc, c
occult little brown bat	*Myotis lucifugus*	L	N	Y	c, m, g, wo
western small-footed myotis	*Myotis ciliolabrum*	Y	Y	L	wo, r, mc
spotted bat	*Euderma maculatum*	L	L	L	d, rk
pocketed free-tailed bat	*Nyctinomops femerosaccus*	L	N	Y	wo (pj), d
western mastiff bat	*Eumops perotis californicus*	Y	Y	Y	mc, wo, c, g, d, u
San Diego black-tailed jackrabbit	*Lepus californicus bennettii*	Y	Y	Y	c, wo
golden-mantled ground squirrel	*Spermophilus lateralis bernardinus*	Y	Y	N	mc, rk
lodgepole chipmunk	*Tamias speciosus speciosus*	Y	Y	H	mc
San Diego pocket mouse	*Chaetodipus fallax fallax*	N	Y	Y	d, c

Common Name	Latin Name	Occurrence Information*			Habitat Type**
		Mountaintop	Front Country	San Jacinto	
southern grasshopper mouse	*Onychomys torridus ramona*	P	L	Y	d, c
San Diego desert woodrat	*Neotoma lepida intermedia*	N	Y	Y	d, c, rk
porcupine	*Erethizon dorsatum*	Y	H	N	mc, wo
ringtail	*Bassariscus astutus*	Y	Y	Y	mc, wo, rk, r
American badger	*Taxidea taxus*	Y	Y	Y	wo, mc, c, d, g
western spotted skunk	*Spilogale gracilis*	P	P	P	mc, wo, r, c
mountain lion	*Felis concolor*	Y	Y	Y	mc, wo, c, d
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	Y	Y	N	c, d, rk, wo (pj), mc,

Effects for Watch List Species - Plants

Watch List Plants - Impacts of No Action

The discussion in general impacts to plants at the beginning of the section are applicable for all watch list plant species that occur in the project area.

Watch List Plants – Direct and Indirect Impacts Common to All Action Alternatives

There are 13 watch list plant species known to occur within the reach of direct and indirect effects of the action alternatives. All species listed in Table 21 were considered in this analysis and those shown in bold are those known to occur. It is likely that Watch-list plant occurrences are present but undetected/unmapped throughout the project area.

Direct and Indirect Effects to Watch List Plants

Androsace elongata ssp. acuta: The spur off of Forest Road 6S05, proposed under all action alternatives for addition to the transportation system as a highway legal route, could indirectly impact this species. While the alignment of the proposed spur does not intersect this plant's habitat, the route provides access to a network of unclassified routes through Quinn Flat which could further proliferate into this plant's habitat. The habitat structure is flat with a very open vegetation structure and is vulnerable to impacts from off road motorized vehicle exploration, as well as parking along these unclassified routes. Designation of this spur could have adverse indirect effects on this species and its habitat.

Arabis dispar: This species occurs on clay-rich soils on the east end of the Mountaintop District, primarily along the Forest Roads 2N02 and 3N03 corridors. Many unclassified routes along these corridors are proposed for restoration. While restoration activities may have short-term adverse effects on this species and plants in general, these effects will be actively avoided and minimized. Long-term, restoration of these routes will be very beneficial to this species by opening up new habitat and removing/reducing the primary source of chronic disturbance to its habitat.

Astragalus leucolobus, Castilleja montegena and ***Swertia neglecta***: The majority of these species' regional distributions occur in the 6000 to 7000 foot elevation range of the eastern San Bernardino Mountains. This is same area as the majority of the proposed restoration of unclassified routes. These species are tolerant of and often associated with intermediate levels of disturbance, so are often found roadside. While restoration activities may have short-term adverse effects on these species and plants in general, these effects will be actively avoided and minimized. Long-term, restoration of these routes will be very beneficial to these species by opening up new habitat and removing/reducing the primary source of severe and chronic disturbance to its habitat (*i.e.*, off road vehicle travel).

Eriogonum microthecum var. corymbosoides: This taxon is endemic to carbonate habitats of the San Bernardino Mountains, sharing virtually the same distribution as the five federally-listed carbonate endemic plants of the San Bernardino Mountains. This species, however, is more common within the narrow distribution. Reclassification of the Mining Roads 3N88, 88B, 87 and 54 and restoration of multiple unclassified routes near these mining roads and Forest Roads 2N02 and 3N03 will provide a benefit for this taxon by removing/reducing a primary source of chronic disturbance to its habitat.

Hulsea vestita ssp. parryi and ***Rupertia rigida***: These taxa occur within the project area throughout Holcomb Valley and in Bear Valley south and east of the town of Sugarloaf. In both of these areas, restoration of unclassified routes may cause short-term localized adverse effects (direct impacts such as uprooting, crushing, trampling, etc), but with long-term benefits

associated with discontinuation of use of these routes and availability of additional habitat. The suite of transportation solutions south of the town of Sugarloaf also includes decommissioning of system roads and reclassification of system roads to administrative use only. Together, these actions will have the same potential for short-term impacts to plants but with significant long-term benefits for the plant populations.

Layia ziegleri: This species is currently considered to be a synonym of the more common *Layia platyglossa*. However, because this form is endemic to the Garner Valley area, the SBNF maintains this formerly recognized taxon on the watch list as a distinct population of conservation and taxonomic interest. This plant is known to occur near the unclassified spur off of Forest Road 6S05, proposed for designation under all action alternatives as a system road. This unclassified spur is well used and designation would not be expected to cause direct impacts to this plant. However, the spur crosses a wash (and periodically blows out), so expected maintenance and periodic reconstruction of the road following designation could impact this plant where it occur near and downstream from the spur. This impact could include uprooting, crushing, burial and downstream erosion and deposition of sediments.

Lilium humboldtii var. ocellatum: This species is associated with mountain and foothill canyons below 6000 feet and occurs within the riparian zone as well as on shaded and moist canyon slopes. Several occurrences of this species would benefit from the suite of transportation solutions near the North Shore of Lake Arrowhead and Ash Meadows areas. A more clear and efficient transportation system for this area is expected to reduce the likelihood that motorists will venture off-road into this plant's habitat. This species also occurs in the Holcomb Creek riparian zone near the 3N16 crossing. This section of 3N16 is proposed to be redesignated to add non-highway legal use to the existing use by highway legal vehicles. Forest Road 3N16 is heavily used and no effects are expected to be caused by this redesignation, based on the assumptions stated in section 2.3.1(a)(i), above. There is a recommendation to monitor and test this assumption and the Holcomb Creek crossing at 3N16 should be included with this monitoring.

Perideridida parishii ssp. parishii and ***Phacelia mohavensis***: These species occur in montane wet meadows, seeps, springs and vernally-wet drainages. They are part of a suite of species (collectively, the vernal wetland species) that are particularly vulnerable to unauthorized off-road vehicle travel because of relatively flat topography, open vegetation structure, seasonally-wet soils that are fragile and easily rutted and dependence on highly localized hydrological patterns. This localized hydrology is readily disrupted by vehicle tracks, which can divert and concentrate surface water flows. Plants of this habitat are also vulnerable to crushing and uprooting because the soils are fragile and easily displaced when wet. Several occurrences of this species would benefit from the suite of transportation solutions in the North Shore Lake Arrowhead and Ash Meadows areas and near the sections of 2N26, 2N75 and 2N25Y proposed for decommissioning. A more clear and efficient transportation system for this area is expected to reduce the likelihood that motorists will venture off-road into this plant's habitat.

Syntrichopappus lemmonii: This species occurs in sunny openings with little to no shrub or tree canopy cover and little to no slope. This habitat offers virtually no resistance to off-road vehicle exploration. This plant's habitat is known on the SBNF from the central and western transmontane Mountaintop District, from Little Pine Flats to Saddle Flats and Burnt Flats to Cajon Pass and on the San Jacinto District in the Garner Valley and Quinn Flats areas. The proposed classification of an unclassified spur off of 6S05 would likely result in indirect adverse effects caused by increased unauthorized vehicle access to the Quinn Flat area. The decommissioning of 2N25Y at Rouse Meadow would be a great benefit for this species, as this is one of its largest documented occurrences and this decommissioning will reduce threats and open

up available habitat. Decommissioning of 3N96 and 3N98, along with redesignation of 3N41, would also be beneficial for this species.

Additional Impacts to Watch List Plants Under Alternative 3

Eriophyllum lanatum var. obovatum: This taxon occurs in open-canopy forest habitats in the Childrens' Forest and Bluff Mesa areas, in the 7500 to 8000' elevation range. Yellow post sites in these areas occur within and near occurrences of this plant. Designation of routes to provide authorized motorized access to yellow post sites would not impact these occurrences. However, the associated efforts to define a single route and block/disguise alternative routes into these sites is expected to benefit this taxon.

Eriogonum umbellatum var. minus: This taxon reportedly occurs in open-canopy forest habitats in the Bluff Mesa area, in the 7500 to 8000' elevation range. However, these may be misapplied records of *Eriogonum umbellatum* var. *subaridum* or *E. u.* var. *munzii*. Yellow post sites in these areas occur within and near occurrences of these occurrences. Designation of routes to provide authorized motorized access to yellow post sites would not directly impact these occurrences. However, the associated efforts to define a single route and block or disguise alternative routes into these sites is expected to provide a net benefit to general vegetation and by extension to this taxon if this nomenclature is correctly applied to the plants in this area.

The exclusion of the suite of transportation actions at North Shore of Lake Arrowhead from alternative 3 would remove substantial benefits to the following watch list plants, relative to alternative 1: *Perideridia parishii* spp. *parishii*, *Phacelia mohavensis* and *Lilium humboldtii* var. *ocellatum*.

Additional Impacts to Watch List Plants Under Alternative 4

There are no additional impacts to watch list plants under alternative 4.

Table 21. San Bernardino National Forest Watch Plant Species

Species Name	Common Name	Occurrence Information			Occurrence in Project Area
		Mountaintop	Front Country	San Jacinto	
Allium parishii	Parish's onion	P		P	
Androsace elongata ssp. acuta	**California androsace**	**P**	**P**	**X**	**Known**
Antennaria marginata	White-margined everlasting	X	X		
Arabis dispar	**pinyon rock-cress**	**X**			**Known**
Astragalus leucolobus	**Bear Valley woollypod**	**X**	**X**	**X**	**Known**
Boykenia rotundifolia	Round-leaved boykenia	X	X	X	
Calyptridium pygmaeum	pygmy pussypaws	X	X		
Castilleja montigena	**Heckard's paintbrush**	**X**	**X**		**Known**
Chaenactis parishii	Parish's chaenactis			X	
Chorizanthe xanti var. leucotheca	White-bracted spineflower		X	X	
Corydylanthyus eremicus ssp. eremicus	desert bird's beak	P			
Erigeron breweri var. jacinteus	San Jacinto Mts. daisy			P	
Eriogonum microthecum var. corymbosoides	**San Bernardino Mountains buckwheat**	**X**			**Known**
Eriogonum umbellatum var. minus	**alpine sulpher-flowered buckwheat**	**X**			**Known**
Eriophyllum lanatum var. obovatum	**southern Sierra woolly sunflower**	**X**	**X**		**Known**
Galium angustifolium ssp. gabrielense	San Antonio Canyon bedstraw		P		
Galium jepsonii	Jepson's bedstraw		P		
Galium johnstonii	Johnston's bedstraw	X	X	X	
Hulsea vestita ssp. callicarpha	Beautiful hulsea			X	
Hulsea vestita ssp. parryi	**Parry's sunflower**	**X**	**X**		
Juglans californica	southern California black walnut		X	X	
Juncus duranii	Duran's rush	X			
Layia ziegleri	**Ziegler's aster**			**X**	**Known**
Lepidium virginicum var. robinsonii	Robinson's peppergrass		P	P	
Linanthus maculatus	Little San Bernardino Mountains gilia	P		P	
Lilium humboldtii var. ocellatum	**ocellated Humboldt lily**	**X**	**X**	**P**	**Known**
Monardella cinerea	Gray monardella		P	P	
Muhlenbergia californica	California muhly grass		X		
Muilla coronata	Crowned muilla	P			
Oxytropis oreophila var. oreophila	mountain oxytrope		X		
Packera ionophylla	Tehachapi ragwort	X	X		
Perideridida parishii ssp. parishii	**Parish's yampah**				**Known**

Species Name	Common Name	Occurrence Information			Occurrence in Project Area
		Mountaintop	Front Country	San Jacinto	
Phacelia mohavensis	**Mojave phacelia**	**X**	**P**		**Known**
Piperia leptopetala	Narrow-petaled rein orchid	X	X		
Podistera nevadensis	Sierra podistera	X			
Rupertia rigida	**Parish's California tea**	**X**	**P**	**P**	**Known**
Swertia neglecta	**pine-green gentian**	**X**			**Known**
Syntrichopappus lemmonii	**Lemmon's syntrichopappus**	**X**	**P**	**X**	**Known**
Viola aurea	Golden violet	P	P		

Management Indicator Species

Introduction

Management indicator species (MIS) are selected because their population changes are believed to indicate the effects of management activities (36 CFR [Code of Federal Regulations] 219.19(a)(1), 1982) and to serve as a focus for monitoring (36 CFR 219(a)(6), 1982). The purpose of this assessment is to evaluate the potential impacts of the proposed project on the Management Indicator Species (MIS) identified in the LMP.

MIS accounts (http://www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml) incorporated by reference into this document are based on the most current information on life history, habitat relationships, past and present suitable habitat and population information. The MIS accounts contain information about habitat status and trend and population status and trend. They also discuss the methodology used for assessing status and trends (*e.g.*, breeding bird surveys, Forest Inventory Assessment data).

MIS Selected for Project Analysis

A review was conducted to determine whether the project area was within known or potential habitat for each MIS. Table 22 displays the wildlife MIS that were selected for analysis for this project due to the presence of suitable habitat that may be affected.

Table 22. MIS on the San Bernardino National Forest and So. Cal. Province

Management Indicator Species	Habitat Type	Issue	Objectives	Monitoring Method	Measure	Occurrence in Project Area
Mule Deer	All	Vegetation Diversity and Age Class Mosaics; Roads and Recreation Effects	Stable or increasing well-distributed populations	Herd composition in cooperation with CDFG; habitat condition	Trend in abundance and/or habitat condition	Y
Mountain Lion	All	Habitat Linkages/Habitat Fragmentation	Functional landscape linkages; species well-distributed	Studies in cooperation with CDFG and USGS	Trend in distribution, movement and/or habitat conditions	Y
Arroyo Toad	Aquatic and Riparian	Ground Disturbance including trampling and compaction; spread of invasive nonnative species; mortality from collision; altered stream flow regimes	Properly functioning streams; stable or increasing populations	Population abundance and/pr habitat condition in selected locations	Trends in abundance, distribution and/or habitat condition	Roads and trails within 1/2 mile of breeding habitat.
Song Sparrow	Aquatic and Riparian	Ground Disturbance including trampling and compaction; spread of invasive nonnative species; mortality from collision; altered stream flow regimes	Stable or increasing populations; healthy riparian habitat	Riparian bird species point counts and/or habitat condition	Trend in abundance and/or habitat condition	Y
Blue Oak	Oak Woodlands and Savannas	Oak Regeneration	Perpetuate habitat type	FIA data	Trend in sapling abundance	N
Engelmann Oak	Oak Woodlands and Savannas	Oak Regeneration	Perpetuate habitat type	FIA data	Trend in sapling abundance	N
Valley Oak	Oak Woodlands and Savannas	Oak Regeneration	Perpetuate habitat type	FIA data	Trend in sapling abundance	N

Management Indicator Species	Habitat Type	Issue	Objectives	Monitoring Method	Measure	Occurrence in Project Area
Coulter Pine	Chaparral/ Conifer Ecotone	Drought/beetle-related mortality and lack of fire	Maintain Coulter pine habitat	FIA data; aerial photo-monitoring	Trend in age/size class distribution	Y
Bigcone Douglas-fir	Chaparral/ Conifer Ecotone	Altered fire regimes (fire severity and/or fire return interval)	Maintain bigcone Douglas-fir stands	FIA data; photo-monitoring	Trend in extent of vegetation type	Y
California spotted owl	Mixed Conifer Forests	Altered fire regimes (fire severity and/or fire return interval)	Maintain/increase numbers and distribution	FS Region 5, CDFG protocol	Occupied territories and/or habitat condition	Y
California black oak	Mixed Conifer Forests	Altered fire regimes (fire severity and/or fire return interval)	Maintain or increase numbers	FIA data	Trend in abundance, size class distribution	Y
White fir	Mixed Conifer Forests	Altered fire regimes (fire severity and/or fire return interval)	Pre-settlement age/size class distribution	FIA data	Trend in size class distribution	Y

Occurrence Key: N = outside known distribution/range of the species and/or no suitable habitat exists; P = potential to occur based on presence of suitable habitat in the project area and within known range of species; Y = known occurrence in project area

Mule Deer

The mule deer was selected as an MIS for forest health related to vegetation management, roads and associated recreation management. The desired condition for mule deer is that habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors and landscape linkages (LMP, Part 1 p.45). The objective for mule deer is that there are stable or increasing well-distributed populations. Trends in abundance and/or habitat condition are to be used for measuring populations. Populations are to be monitored by herd composition counts in cooperation with CDFG or by habitat condition (LMP FEIS, Vol. 1. p. 177, Table 433).

Potential Impacts to Mule Deer – General

Mule deer are especially sensitive to roads and accompanying human use and seem to be more sensitive during hunting season. This is largely due to the fact that they are hunted on the National Forests and they develop a fear of being shot at. Experiences and administrative evaluations on the southern California national forests have demonstrated that as road densities increase, mule deer numbers decrease (Loe personal observation and 1989 LRMP Analysis). This is especially true where road densities exceed two to three miles of road per square mile Areas with the highest mule deer numbers on the San Bernardino National Forest, where this issue has been studied, are generally unroaded or have very low road density. Some unroaded areas on the San Bernardino National Forest have had greater than 20 mule deer per square mile in the winter, while moderately roaded areas with comparable habitat have less than five. Some relatively gentle, open areas on the desert side of the San Bernardino Mountains have up to 10 miles of authorized and unauthorized roads per square mile and there is virtually no mule deer use of that area. Some mule deer are killed each year by vehicle collisions on roads running through the National Forests, but this is generally on the paved, higher-speed roads, not typical National Forest System roads.

Potential Impacts to Mule Deer – No Action

The no action alternative would maintain the existing condition for deer on the San Bernardino National Forest.

Potential Impacts to Mule Deer – Alternatives 1, 3 and 4

All of the action alternatives have portions of the alternative that will benefit and harm deer. The effects of the various actions which vary by alternative are discussed below.

Add Non-highway legal Use

Adding non-highway legal use to an existing road may increase the disturbance to mule deer. In general, non-highway legal vehicles must comply with noise requirements similar to highway legal vehicles. However, some of these vehicles are modified from the factory standards and can be louder. A loophole in the State system allows for Red Sticker vehicles to be used on public lands and to be louder. Some of the use on the Forest is Red Sticker use and thus there would be increased noise effects from present highway legal routes. In addition, the increased volume of traffic by adding non-highway legal use would have some increased disturbance effects. Alternative 1 and 3 add the most non-highway legal use and alternative 4 the least. However, in many cases, this adding of non-highway legal use is only making something permanent that has been used by non-highway legal vehicles for many years. In those cases, there will be no change for deer.

Remove Non-highway Legal Vehicle Use

Removing non-highway legal use from roads where it is currently allowed would reduce the amount of disturbance to mule deer for the reasons described above. Alternatives 1a and 4 remove non-highway legal use from the largest mileage and alternative 3 the least.

Decommissioning Roads

Decommissioning roads would benefit deer. It would reduce the disturbance from vehicles and allow the denuded roadbeds and shoulders to revegetate to provide food and cover. The greatest benefit would be where decommissioning substantially reduces the road density in an area. Alternative 4 decommissions the greatest mileage followed by alternative 1 and then alternative 3.

Make Administrative Use Only

Making a road administrative use only would generally benefit deer. It would greatly decrease the disturbance caused by higher levels of public vehicle use and would significantly reduce the amount of shooting from the road and poaching. Deer would be much more likely to be active near the road. Alternatives 1a and 4 make the greatest mileage administrative use only and alternative 3 the least.

New Construction

Construction of new roads and trails can be very damaging to mule deer habitat. This is especially true when done near riparian and fawning areas, winter concentration areas and areas with no roads currently. It is less of a problem where there are already high road densities and deer are already avoiding the area due to disturbance. Of the action alternatives, alternative 3 has the least mileage of new construction and 1a and 4 have the most. However, the new construction being planned is very minor and is being done to correct problem areas which will reduce the impacts of roads and trails.

Open Unclassified Routes

Opening Unclassified Routes will generally have a negative effect on deer. This is because of the increased use a route will get when designated and made known to users. This would be the greatest problem if the area had little vehicle use before the opening. Of the action alternatives, alternative 3 opens the most unclassified routes and alternative 1 and 4 open the least. However, under all alternatives, the unclassified routes being opened are already heavily used for non-highway legal use and access to yellow post sites. Therefore the opening being planned will have little effect on deer.

Cumulative Effects for Mule Deer

The biggest impact to deer in this area is likely the human development and disturbance by roads, people and dogs. Several other non-habitat factors, such as hunting, poaching, traffic and diseases affect mule deer population numbers. Fuels treatment projects within the SBNF have likely had short-term negative effects and longer term beneficial effects on this deer population. Because of the way these treatments have been and will be spread spatially across the landscape, the impacts of the projects cumulatively are not likely to result in long-term negative impacts to the deer population. In fact, by changing the vegetation to earlier successional stages in some of the project areas and creating openings, it is likely that there have been some longer-term improvements in habitat for deer.

Riparian and meadow habitat within the San Bernardino National Forest on federal and non-federal lands has been affected by development and water diversions and extractions over the years, reducing the amount and quality of this habitat type. As such, impacts to mule deer populations likely have occurred due to reduction in habitat quality and quantity for fawning, water sources and movement corridors. Demands on water and thus riparian/meadow habitat, will likely continue to increase with increasing human populations.

Proposed and planned housing developments within and adjacent to the San Bernardino National Forest will result in increased recreational uses in the project area, particularly in some of the more accessible areas and along Forest System roads, especially in riparian habitats. Hunting and poaching pressures in the area may also increase as human populations increase with development.

Additionally, associated increases in vehicle traffic on existing routes will likewise result in more injuries and deaths of deer and mountain lions while also reducing the quality of movement corridors that are bisected by busier roadways. This route designation project will have some benefits where roads are decommissioned, designated for administrative use, have non-highway legal use removed or are rehabilitated. On the other hand, routes that have non-highway legal use added, there is new construction or unclassified routes become classified will adversely affect deer to some extent. Overall, the route designation process will not add significantly to the cumulative effects to this species or its habitat in the project area or Province because of the small amount of land being affected and the amount of habitat that is being rehabbed as a part of the project.

Summary for Mule Deer

The proposed project is expected to move the habitat in the project area toward the desired conditions for this species by improving the road and trail system on the Forest while rehabbing and decommissioning a significant amount of roads and trails. In the long-term, developing a logical user supported transportation system should benefit deer. Short-term impacts would be expected to result from some temporary disturbance and designation of some routes as open to non-highway legal use, but are not expected to alter population trends when combined with the benefits of removing non-highway legal use from some areas, rehabilitating unclassified routes, making some routes administrative use only and decommissioning existing routes of travel . This project will be neutral or positive relative to the desired condition for deer and deer habitat on the SBNF and in the Southern Province.

Mountain Lion

The mountain lion was selected as an MIS to detect the effects of National Forest activities and uses on landscape-level habitat fragmentation and habitat linkages. The desired condition for mountain lion is that habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors and landscape linkages (LMP, Part 1 p.45).

The objectives for mountain lion are that there are functional landscape linkages and that the species is well-distributed. Trends in distribution, movement and/or habitat conditions are to be used as measurements for evaluation. The monitoring method is studies in cooperation with CDFG, USGS and other agencies (LMP FEIS, Vol. 1. p. 177, Table 433). Fire and fuel management are the main tools intended to implement the objective for providing prey availability. The greatest concern for the long-term health of mountain lion populations on the National Forests of southern California is loss of landscape connectivity between mountain ranges and large blocks of open space on private land.

Potential Impacts to Mountain Lion – General

Because mountain lions prey primarily on mule deer, areas with low mule deer populations would support fewer mountain lions. Mountain lions are also susceptible to being shot illegally from vehicles traveling on the roadways (Bancroft 1990, Tsukamoto 2001). In general, motorized vehicle use effects as described above for mule deer would be applicable to mountain lion. If healthy deer herds are maintained within the Forest, there will be healthy lion populations.

Potential Impacts to Mountain Lion – No Action

The no action alternative would have no effect on the mountain lion. Baseline conditions would remain the same.

Potential Impacts to Mountain Lion –Alternatives 1, 3 and 4

Since deer are so important to mountain lions as their primary food source, the above discussion of effects of this project on deer largely describes the impact on lions.

Studies of mountain lion movements in the Santa Ana Mountains found that riparian vegetation and other vegetation types that provide horizontal cover are important features in movement corridors. In addition, dirt roads did not impede use of these corridors. Implementation of any of the action alternatives would have very little effect on riparian and other vegetation corridors. Some key riparian areas are being protected with the proposed projects. Activities associated with restoration, new construction and decommissioning could cause short-term disturbance and displacement of mountain lion (and prey species), but because lions are such a wide-ranging species, the effects of disturbance would not be significant. Following the activity, conditions for lion and deer would improve. Increased vehicle activity may increase the probability of a collision and resulting mortality, but this would be expected to be rare. It is most likely to occur on State and County roads within the Forest boundary. Mountain lions would experience increased disturbance where new non-highway legal activity is allowed, but since they are most active at night, this would not be as significant. The new areas opened to non-highway legal and other motorized vehicle use will be more than made for with the amount of decommissioning, changing to administrative use only and restoration.

Cumulative Effects for Mountain Lion

Fuels treatment projects within the San Bernardino Mountains have likely had some impact on mountain lion population. Because of the way these treatments have been and are planned to be spread spatially across the landscape, the impacts of the projects cumulatively are not likely to result in long-term negative impacts to the mountain lion population in the San Bernardino National Forest.

In fact, by changing the vegetation to earlier successional stages in some of the project areas and creating openings, it is likely that there have been some short-term improvements in habitat for deer and thus resulted in increases in the prey base for mountain lions in multiple project areas. None of the recently-implemented projects or currently-planned vegetation treatment projects are expected to adversely affect mountain lion corridors.

The widening of Highway 138 both east and west of Interstate 15 will reduce the permeability of Cajon Pass for mountain lions. The addition of a new BNSF rail line will also have an impact on this critical landscape linkage. There is potential for a high speed train project through the pass as well as additional widening of I-15. Additional powerlines and pipelines are being planned. Even though the SBNF is working with the involved agencies to maintain corridors and linkages and

valuable underpasses through the pass, the cumulative effect is a reduction in permeability for wildlife.

Influences to prey, such as hunting or diseases that affect mule deer population numbers, probably have the greatest influences on mountain lion numbers (see mule deer discussion above). Increasing urbanization and agricultural pressure outside the SBNF boundary may reduce deer populations on the surrounding lands off of the SBNF. As a result, mountain lions may attack more pets and livestock or otherwise threaten local communities, leading to more depredation permits issued to kill lions.

Proposed and planned housing developments in and around the San Bernardino Mountains will result in increased recreational uses in the project area, particularly in some of the more accessible riparian zones that are likely used as movement corridors by mountain lions. Hunting and poaching pressures in the area may also increase as human populations adjacent to the project area increase with development, affecting both deer and mountain lion populations. Additionally, associated increases in vehicle traffic will result in more injuries and deaths of deer and mountain lions and reduce the quality of movement corridors that are bisected by busier roadways.

This overall project should not increase fragmentation and should not add significantly to cumulative effects to this species on the Forest or Province.

Summary for Mountain Lion

Short-term impacts may result in some temporary disturbance but they are not expected to alter population trends. Rehabilitating 84 miles of unclassified routes and decommissioning routes will improve the habitat conditions. New non-highway legal designations will increase disturbance somewhat in those areas, but it will be outweighed by the benefits of the project. The proposed project is not expected to further fragment mountain lion populations through corridor alteration. This project will be neutral or positive relative to the desired condition for mountain lion on the SBNF and in the National Forest Southern Province.

Song Sparrow

The song sparrow was selected as a MIS for riparian areas because its abundance is expected to be responsive to management actions and to indicate trends in the status of the riparian biological community, particularly birds. The desired condition for song sparrows is that wildlife habitat conditions sustain healthy populations of native and desired non-native fish and game species. And, that wildlife habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors and landscape linkages (LMP, Part 1 p.45).

The desired condition is that flow regimes in streams that provide habitat for Threatened, Endangered, Proposed, Candidate and/or Sensitive aquatic and riparian-dependent species are sufficient to allow the species to persist and complete all phases of their life cycles (LMP, Part 1, p. 45). The desired condition for riparian condition is that watercourses are functioning properly and support healthy populations of native and desired non-native riparian-dependent species (LMP, Part 1, p. 41).

The objectives for song sparrow are that there are stable or increasing populations and healthy riparian habitat. Trends in abundance and/or habitat conditions are to be used as measurements for evaluation. The monitoring method is to be riparian bird counts and/or habitat conditions (LMP FEIS, Vol. 1. p. 177, Table 433).

Potential Impacts to Song Sparrow – No Action

The no action alternative will not change the existing situation for song sparrows.

Potential Impacts to Song Sparrow – Action Alternatives

Roads in or near riparian areas can negatively affect song sparrows and other riparian-dependent species. The noise from road use and maintenance can cause birds to abandon nests or to not attempt nesting at all. In addition, roads provide access for recreation use in streams and riparian habitats. Under all alternatives, new proposals for roads or incorporation of unclassified roads in riparian areas are subject to standards and guidance for riparian conservation areas (see Part 3 of the Revised Forest Plan), which should minimize future new impacts on aquatic and riparian habitats.

Some routes that are being closed to non-highway vehicle use and rehabilitated or made administrative use cross riparian areas and impact them to varying extents. Some very important riparian areas (Coxey Creek and Arrastre Creek) will receive increased long-term protection in all alternatives as will Willow Creek under alternative 1 and 4. No new routes (off of existing system travel routes) are being proposed that will impact riparian habitat. Routes that are being made legal for non-highway legal use through this decision cross some riparian and chaparral habitat suitable for song sparrows. This will potentially increase disturbance slightly due to increased traffic, noise and overall disturbance. Removing non-highway legal use will have the opposite effect and improve conditions for song sparrows and other riparian dependent species.

Cumulative Effects – Song Sparrow

Recent and planned vegetation treatments on NFS lands throughout the San Bernardino National Forest have and will have the potential to affect song sparrows. However, each one of those projects also include measures to protect riparian habitat, riparian-dependent T/E species and water quality, thus effectively reducing the degree and duration of potential impacts to song sparrows within those project areas.

Similar vegetation projects on private lands, however, do not generally carry the same levels of riparian protection as those on the SBNF and likely have resulted in disturbance to song sparrows, in short-term and, potentially, in long-term alterations of habitat.

Riparian habitat within the San Bernardino National Forest on federal and non-federal lands has been affected by water diversions and extractions over the years, reducing the amount and quality of this habitat type. As such, impacts to song sparrow populations likely have occurred due to reduction in habitat quality and quantity. Demands on water and thus riparian habitat, are likely continue to increase.

Proposed and planned housing developments in the San Bernardino Mountains will result in increased recreational uses in the project area, particularly in some of the more accessible areas along Forest System roads. Increasing population is southern California is putting more pressure on the few perennial streams for recreation. This can impact song sparrows and other riparian dependent birds when use gets so heavy that there is too much disturbance for nesting.

Summary for Song Sparrow

The proposed project is not expected to result in long-term changes to the existing habitat conditions for song sparrow. Short-term impacts may result from some temporary disturbance associated with decommissioning and restoration but they are not expected to alter population trends. Short-term habitat impacts may also occur but they are not expected to influence distribution of this species over the long-term. Permanent protection of important parts of Coxey

Creek, Willow Creek and Arrastre Creek will benefit song sparrows. This project will be beneficial overall relative to the desired condition for song sparrows and their habitat on the SBNF and in the National Forest Southern Province.

California Spotted Owl

The California spotted owl was chosen as the MIS for mature, large diameter, high canopy closure conditions of montane conifer forest. Monitoring the California spotted owl and its habitat will indicate the effectiveness of management activities in achieving maintenance and restoration of montane conifer forest habitat. The desired condition for California spotted owls is that its habitats are managed to prevent downward trends in populations or habitat capability and to prevent federal listing (LMP, Part 1, p. 45).

Additionally, the desired condition is that wildlife habitat conditions sustain healthy populations and that wildlife habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors and landscape linkages (LMP, Part 1 p.45).

The objective for spotted owl is to maintain/increase numbers and distribution. The number of occupied territories and/or habitat condition is to be used as measurements for evaluation. The monitoring method is to follow Forest Service Region 5, CDFG protocol (LMP FEIS, Vol. 1. p. 177, Table 433). See the MIS account for this species for more detailed information regarding life history, habitat conditions and population trends on the SBNF and in the National Forest southern province. References and literature citations are found in the MIS accounts and are not generally repeated in the following discussions.

General Impacts of Roads and Motorized Trails

California spotted owls are relatively tolerant of roads and trails except during the nesting season, where disturbance at nest sites from vehicles or humans can result in nest abandonment. The effects of motorized trail use on spotted owls would be essentially the same as for roads. Animals can adapt somewhat to properly designed and located authorized routes if they are in low density and riders stay on the trails. Because motorcycles and all-terrain vehicles (ATVs) can cross terrain too rugged or gaps too narrow for street vehicles, user-created trail networks can affect somewhat more habitat. For many years, the San Bernardino National Forest has been working to locate hiking and motorized trails away from spotted owl nest sites. This has been successful in reducing disturbance. Hiking trails have generally just been moved out of sight of nest trees. Motorized routes with the increased noise have been located up to ¼ mile away depending on cover and topography. Noise effects can extend up to ¼ mile.

Potential Impacts to California Spotted Owl – No Action

The no action alternative would not change the baseline condition for the spotted owl.

Potential Impacts to California Spotted Owl - Action Alternatives

Table 18 in the section on Sensitive Wildlife Species helps display the potential effects of the various alternatives on California spotted owl nest stands, Protected Activity Centers (PAC) and Home Range Cores based on miles within each category by alternative.

All alternatives are fairly similar in potential effects on spotted owls. Very little activity is planned in spotted owl habitat. The work that is planned is almost all located on an area north of Lake Arrowhead where some minor adjustments to the non-highway legal system are proposed to make it more compatible with the community, users, OHV managers and the environment. The

small amount of new construction and adding non-highway legal use, are being done in the same area where decommissioning, rehabilitating, removing non-highway legal use and making administrative use only are occurring to make a better system. All alternatives add the same amount of non-highway legal use. Alternative 1 and 4 decommission the most acreage in PACs and HRCs. Alternatives 1 and 4 make more mileage administrative use only. Alternative 3 opens a small amount of unclassified route where alternative 1 and 4 do not. This is all related to designating the access routes to yellow post sites so that access can be better managed. All of the alternatives rehabilitate a substantial amount of habitat. A small amount of non-highway legal use is removed in alternative 1 and 4.

Cumulative Effects for California Spotted Owls

The cumulative effects analysis area for this species is the San Bernardino National Forest. There are 182 known territories on the SBNF; of those, 150 are in the San Bernardino Mountains (plus 10 in the San Gabriel Mountains and 22 in the San Jacinto Mountains).

SBNF vegetation management projects in the recent past and foreseeable future have and will continue to affect spotted owls to some degree. All of the recent fuels reduction projects on the SBNF have used avoidance/minimization measures and treatment guidelines in project design in an attempt to preserve important spotted owl habitat qualities and limit disturbance during implementation.

Because of the way these treatments have been and are planned to be spread spatially across the landscape, the impacts of the SBNF fuels projects cumulatively are not likely to result in long-term negative impacts to spotted owl population in the San Bernardino Mountains. Due to the concern about viability of this species, it is likely that future Forest Service projects will focus on incorporating protection and restoration measures into project designs to ensure long-term viability.

However, the same emphasis on ensuring long-term viability for this species may not be true for projects on non-SBNF lands. Similar vegetation/fuels projects on private lands do not generally carry the same levels of spotted owl habitat protection as those on the SBNF and have likely resulted in disturbance to spotted owls, in short-term and, potentially, in long-term alterations of habitat. Because the California spotted owl is not protected under the state Endangered Species Act, Natural Resources Conservation Service (NRCS), Caltrans, Southern California Edison (SCE) and the California Department of Forestry (CDF) do not afford it the same level of protection that the Forest Service does (as a Forest Service Sensitive species). As such, those agencies do not necessarily avoid disturbance during nesting season or protect the habitat when working on non-NFS lands.

Some spotted owl habitat, including nest stands, on private lands has been treated over the past couple of years, possibly to a degree that makes it unsuitable. In particular, fuels and salvage treatments have occurred in a couple of territories on the Lake Arrowhead Boy Scout camp east of Lake Arrowhead and territories south of Silverwood Lake. We do not have data or an assessment of those treatments and their impacts to those owls and their habitat.

Additionally, SCE and Caltrans have conducted hazard tree removal efforts on federal and non-federal lands to protect state highways and powerlines. These efforts increased substantially in 2003 and have continued due to continued mortality of trees. In 2006, NRCS and Caltrans partnered to remove hazard trees along the state highways. Due to the need to protect powerlines and roads from falling trees, they have not had the flexibility of retaining high value spotted owl trees. Thus, some impacts to owl habitat have occurred by removal of snags and logs in those corridors.

The level of impacts and habitat alteration/losses from hazard tree removal is unknown and likely varies by land ownership. When removing hazard trees on the SBNF, NRCS, Caltrans and SCE comply with the LOPs and other guidelines provided by the SBNF to protect owl habitat and nest stands in particular. However, even with the guidelines, some impacts occur on NFS lands. One known nest tree (Willow Creek territory) was cut by NRCS in 2006. The tree was dropped after the territory was determined to be vacant so no direct impacts to owls occurred. While the territory has been vacant for at least three years, removal of a nest tree for a species that has a high fidelity to nest sites is undesirable. However, dead nest trees naturally fall over time and owls do find other nest sites. It is unlikely that removal of one of the two nest trees known for that territory would result in abandonmnet of the territory or decrease the habitat value.

LaHaye et al. (1997) found that 39 percent of the owls in the San Bernardino Mountains nest in high elevation mixed conifer, 41 percent nest in oak/big cone Douglas-fir and 20 percent nest in mixed hardwood/conifer (USDA Forest Service 2004). Oak/big cone Douglas-fir habitats appear to be the most productive, maybe because of higher wood rat densities and the lower elevations are less susceptible to spring snow storms during the breeding season (Stephenson and Calcarone 1999). They note that with increasing urbanization and increased human disturbance at the lower elevations, oak/big cone Douglas-fir habitats will be negatively affected.

Riparian and meadow habitat within the San Bernardino Mountains on federal and non-federal lands has been affected by development and water diversions and extractions over the years, reducing the amount and quality of this habitat type. Many owl territories, especially nest stands, are associtated with drainages and riparian habitats. These drainages appear to be important for supporting high quality nesting, roosting and foraging habitat as well as being suspected in providing movement corridors for foraging. As such, impacts to spotted owl populations likely have occurred due to reduction in habitat quality and quantity as as result of dewatering, especially during drought periods. Demands on water and thus riparian/meadow habitat, will likely continue to increase with increasing human populations.

Proposed and planned housing developments in the mountain and nearby desert areas will certainly result in increased recreational uses in the project area, particularly in some of the more accessible riparian zones. Poaching pressures and disturbance in the area may also increase as human populations adjacent to the project area increase with development. Additionally, associated increases in vehicle traffic will increase the potential for collison-related injuries and death of owls.

With the SBNF small amount of habitat impacting proposals in this project and the amount of work being done to decommission or reclaim roads and trails protecting this species, the proposed project is not expected to contribute substantial impacts to the current cumulative effects for spotted owls on the SBNF.

Determination of Effects

Implementation of the action alternatives, as described, may affect individuals, but is not likely to result in a trend towards federal listing for California spotted owls. Additionally, this project is not likely to have any measurable effect on the spotted owl population or habitat on the San Bernardino National Forest or the southern California Province.

Arroyo Toad

The arroyo toad was selected as an MIS for low-elevation riparian and aquatic ecosystems. The desired condition for Federally-listed species, such as arroyo toad, is that their habitats are conserved and that the species are conserved or moving toward recovery. Additionally, that flow

regimes in streams that provide habitat for Threatened, Endangered, Proposed, Candidate and/or Sensitive aquatic and riparian-dependent species are sufficient to allow the species to persists and complete all phases of their life cycles (LMP, Part 1, p. 45). The desired condition for riparian condition is that watercourses are functioning properly and support healthy populations of native and desired non-native riparian-dependent species (LMP, Part 1, p. 41).

The desired condition for arroyo toad is that habitat functions sustain healthy populations of native and desired non-native fish and game species and that wildlife habitat functions are maintained or improved, including primary feeding areas, winter ranges, breeding areas, birthing areas, rearing areas, migration corridors and landscape linkages (LMP, Part 1 p.45).

The desired condition for watersheds is that they are healthy, dynamic and resilient and are capable of responding to natural and human-caused disturbances while maintaining the integrity of their biological and physical processes (LMP, Part 1, p. 40). Long-term trends in population abundance, stream occupancy and habitat condition are expected to reflect the effectiveness of management actions in protecting low-elevation riparian and aquatic habitat from disturbance and habitat degradation.

The objectives for arroyo toad are that there are properly-functioning streams and stable or increasing populations. Trends in abundance, distribution and/or habitat conditions are to be used as measurements for evaluation. The monitoring method is population abundance and/or habitat condition in selected locations (LMP FEIS, Vol. 1. p. 177, Table 433). See the MIS account for this species for more detailed information regarding life history, habitat conditions and population trends on the SBNF and in the National Forest southern province. References and literature citations are found in the MIS accounts and are not generally repeated in the following discussions.

Potential Impacts to Arroyo Toad

Activities are planned in arroyo toad habitat within ½ mile of Cajon Wash, Little Horsethief Creek and Cucamonga Creek. Proposed activities are approximately ½ mile away from the suitable breeding habitat in these locations and not in highly suitable upland habitat areas. The actions that are proposed in these areas will not impact new ground and will reduce sedimentation to suitable and occupied habitat. Rehabbing eroding sections of the Cleghorn Ridge trail is included in all alternatives and should benefit Little Horsethief habitat. Formally designating 3N66 and 3N66A leading to Little Horsethief Creek as administrative use only will help prevent human disturbance in the habitat. It is already gated to prevent human disturbance of breeding habitat in Little Horsethief Creek. Changing route 2N87 near Cajon Creek to administrative use only could help reduce erosion, sedimentation and potential crushing of toads.

Making 1N35 west of Cucamonga Creek administrative use only will be beneficial for the arroyo toad by reducing traffic on the road and the potential for crushing any toads that could potentially be there. This is proposed in alternative 1 and 4. Several design features have been developed and incorporated as part of the proposed action to minimize impacts to riparian and aquatic habitats.

Cumulative Effects for Arroyo Toad

Recent droughts, fires and floods have probably adversely affected arroyo toad on the SBNF. Some known occupied habitat has gone for several years with no surface water for breeding during the breeding season. In addition to the fires and floods, the areas that were impacted have had considerable emergency repair work done to roads, railroads and utilities. Drainages that have been impacted the most are Cajon Wash and Bautista Canyon. Beaver dams in lower Deep Creek behind Mojave Forks dam were recently blown out from the flooding. This should improve

the habitat for toads by restoring sandy benches and islands, as well as reducing the bullfrog population which thrives in beaver dam ponds.

Two large-scale housing developments adjacent to Lake Silverwood and the Mojave River (in the Los Flores Ranch and Little Horsethief areas) are in the midst of the approval process. Combined, they are projected to result in an additional 19,000 new house in the area. The Los Flores Ranch area of the Mojave River just north of the Silverwood Lake dam contains important occupied habitat for arroyo toads. Housing development in these areas will increase levels of human disturbance to arroyo toads by increasing human disturbance, including off-road vehicle use, impacts from pet dogs and cats and injury/death caused by people picking up and/or collecting toads.

Bautista Canyon Road improvement project has been abandoned by Riverside County. This road improvement was predicted to be a problem for toads. Unauthorized cross country vehicle use if not adequately controlled is a problem for toads in lower Deep Creek, Horsethief Creek and Cajon Wash. Dispersed recreation (especially illegal camping) is a problem in Deep Creek at the Hot Springs. Illegal campfires and dispersed recreation are a problem in Bautista Canyon.

"This species has disappeared from 76 percent of its total historic range in the United States (California). Populations have disappeared entirely from the northern, central and eastern parts of its range; the extreme habitat specialization of arroyo toads coupled with the fact that most factors that undoubtedly contributed to the extirpation of most populations are still impacting or threaten the few (less than 25) remaining small (30 to 100 adults) populations" (Sweet 1991,1993). "Coupled with requirements of relatively large, streamside flats with scattered vegetation (juvenile-adult habitat) adjacent to shallow pools with open sand or gravel bars place significant constraints where arroyo toads may occur. Development and alteration of streamside flats (particularly by changing the natural hydrologic regime) may have been the crucial factors contributing to the extirpation of historic populations".

While there is occupied arroyo habitat in the project action areas, potential impacts to suitable habitat and individuals are very low (some changes in water quality and reduced disturbance in upland areas). This project can be implemented with minimal affects by following mitigation measures, RCA standards and BMPs. This project, if implemented as described, is not expected to add to the cumulative effects of this species.

Summary for Arroyo Toad

Design features and RCAs in the proposed action will help reduce risk to arroyo toad and suitable habitat. The only thing proposed for riparian areas is rehab and decommissioning. There will be general, however slight, improvement to toad habitat from this project. This project will not measurably effect arroyo toad populations or habitat on a Forest or Province scale.

MIS Tree Species

Coulter pine, bigcone Douglas fir, black oak and white fir are all tree species that were selected as Management Indicator Species. In every case they were chosen to monitor and guide vegetation treatments and habitat management to achieve desired conditions for the ecosystems and wildlife habitats on the Forest. See the MIS account for these species for more detailed information regarding life history, habitat conditions and population trends on the SBNF and in the National Forest southern province. References and literature citations are found in the MIS accounts and are not generally repeated in the following discussions.

In all cases, they are measured and will be monitored at a much larger scale than that impacted by this project. Most of the routes are already in existence and there will be little new ground

disturbance. Effects on these species would have to be measured by the numbers of stems affected rather than as landscape effects (in acres for instance) which was intended in their selection as MIS. The primary intention of their selection was to monitor and influence such things as forest health treatments, fuels treatments, prescribed fire, reforestation, wildfire suppression, air pollution and climate change.

The actions proposed in all alternatives will not have measurable effects on these vegetation types. This project will not affect their distribution or abundance at the Forest or Province level. A few stems may be affected by the small amounts of new construction (.25 to .5 mi.), but will be more than compensated for by the large amount of decommissioning (13.5 mi. to 20.75) and restoration (84 mi).

Cumulative Effects for MIS Tree Species

As discussed in the California Spotted Owl MIS write-up, Stephenson and Calcarone (1999) modeled montane conifer habitat across southern California habitat and found that 30 percent of mixed-conifer and pine stands are at risk due to stand densification. Since 2003 considerable acreage of Forested habitat has been burned.

The San Bernardino has been conducting a substantial amount of fuels treatment in these forest types. Most of the work has been in the mixed conifer surrounding communities to help protect them from wildfire. Some of the work has been done away from communities to provide diversity in the vegetation to help reduce the effects of wildfire and restore more natural conditions. The work has generally involved thinning from below.

In addition, the mountain communities continue to be rapidly developing. The Forest is working to acquire as many of the inholdings within the Forest in attempt to conserve as much National Forest quality habitat as possible for future generations.

Summary for MIS Tree Species

The actions proposed in all alternatives will not have measurable effects on these vegetation types. This project will not affect their distribution or abundance at the Forest or Province level. A few stems may be affected by the small amounts of new construction (.25-.5 mi.), but will be more than compensated for by the large amount of decommissioning (13.5 mi.- 20.75) and restoration (84 mi).

Summary for MIS

The analysis of effects of the alternatives on MIS species does not indicate a significant concern for any MIS potentially affected by this project. The conservation measures incorporated into project design will effectively reduce potential impacts to the MIS present in the project area. The scope of this project is too small relative to the landscape to have a measurable effect on MIS populations or their habitat across the SBNF. The project will have no effect on the MIS populations or habitat at the Province scale.

Noxious and Invasive Weeds Risk Assessment

An inventory for noxious and other invasive plant species was performed concurrently with focused rare plant surveys and floristic inventories for the new construction and new designation portions of alternative 1. With the incorporation of the Design Features and monitoring measures into the decision, the risk of noxious weed introduction and spread of weeds would be reduced

from a high level of risk to a moderate level of risk. Without the Design Features (see Appendix A: IP-1 through IP-4) and monitoring measures, the risk would remain high.

Cultural Resources

Introduction

The Congress in 1966 declared it to be our national policy that the Federal government "administer federally owned, administered or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations" (National Historic Preservation Act (NHPA) (16 U.S.C. 470-1(3)). This need was made more explicit when the National Historic Preservation Act was amended in 1980 and Section 110 was added to expand and underscore Federal agency responsibility for identifying and protecting historic properties and avoiding unnecessary damage to them. Many historic properties are fragile and once damaged or destroyed they can not be repaired or replaced.

Section 106 of the NHPA compels federal agencies to take into account the effect of its undertakings on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places (36 CFR 60) (Historic Properties). The Travel Management rule requires that the effects on cultural resources be considered, with the objective of minimizing damage, when designating roads, trails and areas for motor vehicle use on National Forest lands (36 CFR 212.55(a), 212.55(b)(1)).

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

There are many federal laws providing for the protection and preservation of archaeological and historic sites. Other laws require the identification and evaluation of important historic properties and the consideration of the effects of federal agency activities and programs on significant historic properties as part of land management decisions. These laws include the: Antiquities Act of 1906 (34 Stat. 225; 16 U.S.C. 431-433), Historic Sites Act of 1935 (49 Stat. 666; 16 U.S.C. 461- 467), National Historic Preservation Act of 1966, as amended (80 Stat. 915 et seq.; 16 U.S.C. 470 et seq.) (NHPA), National Environmental Policy Act of 1969 (NEPA), as amended (83 Stat. 852 et seq.; 42 U.S.C. 4321-4347), Archaeological and Historical Data Preservation Act of 1974 (88 Stat. 174; 16 U.S.C. 469), American Indian Religious Freedom Act of 1978 (92 Stat. 469; 42 U.S.C. 1996), the Archaeological Resources Protection Act of 1979, as amended (ARPA) (93 Stat. 721 et seq.; 16 U.S.C. 470 et seq.); and the Native American Graves Protection and Repatriation Act of 1990 (104 Stat. 3048-3058; 25 U.S.C. 3001-3013). In addition, several Presidential Executive Orders address specific issues affecting properties, locations or resources of importance to American Indian tribes, such as Executive Order 11593 entitled *Protection and Enhancement of the Cultural Environment*, Executive Order 13007 entitled *Indian Sacred Sites* and Executive Order 13175 entitled *Consultation and Coordination with Indian Tribal Governments*.

The Forest Service has also developed specific policy for complying with Section 106 of the National Historic Preservation Act (NHPA) as part of the route designation process, entitled USDA Forest Service Policy for Section 106 of the NHPA Compliance in Travel Management: Designated Routes for Motor Vehicle Use (2005). General Forest Service direction for the management of heritage resources can be found the Forest Service Manual (FSM 2360).

Region 5 has also developed specific procedures to meet the requirements of NHPA Section 106 (36 CFR 800). Forests in Region 5 can comply with the region's Motorized Recreation Programmatic Agreement, entitled Programmatic Agreement among the USDA Forest Service, Pacific Southwest Region, USDA Forest Service, Intermountain Region's Humboldt-Toiyabe National Forest, California State Historic Preservation Officer and Advisory Council on Historic

Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Designating Motor Vehicle Routes and Managing Motorized Recreation on the National Forests in California (Motorized Recreation PA) (2006).

Effects Analysis Methodology

The methods used to determine the Area of Potential Effect (APE) and to identify historic properties within the APE was governed by the Motorized Recreation PA. Methods employed included pre-field research of SBNF heritage records, 100 percent coverage survey of areas not previously surveyed and recording all newly located sites.

Based on the Motorized Recreation PA, the APE was determined to be a corridor 30 meters wide centered on linear features (i.e., roads, trails, corridors, routes, etc.). An intensive pedestrian survey of the APE was then conducted (if no previous survey report existed). As historic properties were discovered they were recorded on standard Department of Parks and Recreation forms.

Pre-field research consisted of an examination of SBNF heritage files and maps in order to identify Archaeological Reconnaissance Reports which documented previous surveys of the current APE. Sites located in the APE were then revisited during fieldwork.

The following spatial and temporal analysis frameworks were used:

Spatial: The location of the historic property is the unit of spatial analysis when considering effects in action alternatives. For some historic properties (e.g., Traditional Cultural Property), the setting beyond the historic property's location must also be considered when determining whether an adverse effect will occur.

Effects Timeframes:

- Short-term effects occur within one year.
- Long-term effects occur up to 20 years.
- Cumulative effects are analyzed at a 20-year interval.

Assumptions specific to cultural resources analysis:

- Where unauthorized, user-created routes are being analyzed for addition to the transportation system, those routes have already affected historic properties within the route prisms.
- Under the action alternatives, use will continue at current levels or increase over time on the designated system.

Data Sources

- Site-specific cultural resource inventories.
- Existing information from cultural resource records, historic archives, maps and GIS spatial layers.

Cultural Resource Indicators:

- Number of historical properties in or near the Area of Potential Effect (APE)
- Number of historical properties protected

Affected Environment

Currently, the San Bernardino NF has a dedicated system of roads and trails intended for use by the public and designed to accommodate various types of transportation ranging from two-wheeled, non-street legal vehicles to street legal cars and trucks.

There are also many user-created, unauthorized routes on the SBNF. In some areas, these routes are located adjacent to or within the boundaries of known historical properties.

The long-term heritage goals of the SBNF include the protection of heritage resources and the completion of a forest-wide heritage inventory. This project is designed to protect heritage resources, in part, by realigning legal routes whose use threatens to damage historic properties and by rehabilitating unauthorized routes whose use may inadvertently and adversely effect historic properties.

Currently, the SBNF monitors damage to archaeological sites through the use of patrol personnel trained to check on specific properties or in resource sensitive areas. District Archaeologist monitor at-risk sites on a regular basis. After fire incidents the Forest often installs temporary fencing in sensitive areas to stop illegal, off-road travel; confining it to authorized Forest Service routes. The current level of monitoring is not sufficient to keep some Forest visitors from driving on unauthorized roads and trails and from damaging historical properties.

Environmental Consequences

Table 23 presents a summary of the environmental effects for the Cultural Resource indicators. Details are discussed under each alternative below.

Table 23. Number of Historical Properties in or near the APE.

Alternative	Number of Historical Properties located in or adjacent to the APE	Number of Historical Properties protected
1	138	131
2	0	0
3	145	128
4	138	131

Alternative 1 – Proposed Action

Alternative 1 includes nine classes of undertaking that effect either unauthorized routes or Forest System roads:

A. Unauthorized Routes:

1. The addition of currently unauthorized routes to the NF road system for non-highway legal vehicles up to 50” wide
2. The addition of unauthorized routes to the NF road system for street legal vehicles
3. The restoration of unauthorized routes

B. Forest System Roads:

4. The reclassification of existing NFS roads for non-highway legal vehicles up to 50” wide

5. The decommissioning some NFS roads
6. Reclassification of some NFS roads for street legal vehicles only
7. Reclassification of some NFS roads for administrative use only
8. Reclassification of some NFS roads for authorized use only
9. The construction of new NFS roads

Direct and Indirect Effects

Classes 1, 2, 3, 5 and 9 of the proposed undertaking have the potential to affect historic properties. Classes 6, 7 and 8 do not have the potential to affect historic properties. Only those classes that have the potential to affect historic properties were considered when determining the Area of Potential Effect for this undertaking. One hundred thirty-eight historic properties are located in or adjacent to the APE, and 131of these will be protected under this alternative through the restoration of unauthorized routes, the decommissioning of existing Forest Service roads. The remaining seven properties will have no significant effect because they are only adjacent to the APE.

Cumulative Effects

Over time, this project will result in decreased damage to historical resources through the decommissioning and reroute of various road segments will. Traffic will be routed away from sensitive areas.

Alternative 2 – No Action

Direct and Indirect Effects

There are no direct effects from taking no action. Indirect effects include increased damage to historical resources as unauthorized roads are not closed and rehabilitated.

Cumulative Effects

The indirect effects of unmanaged and unauthorized motor vehicle use will continue to adversely affect historical properties, eventually leading to their complete loss.

Alternative 3

Alternative 3 includes the same nine classes of undertaking that appear in alternative 1a, with several changes, including the addition of all yellow post site spur roads to the NFTS.

Direct/Indirect Effects

One hundred forty-five historical properties are located in or adjacent to the APE, and 128 of these will be protected under this alternative through the restoration of unauthorized routes and the decommissioning of existing Forest Service roads. Three properties will be left at risk to increased damage under this alternative because 3W12 and 3W13 would not be rerouted just south of 3N34. The remaining 14 properties would have no significant effect because they are only adjacent to the APE.

Cumulative Effects

Over time, this project will result in a decrease to 12 historical properties and increased damage to three others through the decommissioning and reroute of various road segments.

Alternative 4

Alternative 4 includes the same nine classes of undertaking that appear in alternative 1, with several minor changes.

Direct/Indirect Effects

One hundred thirty-eight historical properties are located in or adjacent to the APE, and 131 of these will be protected under this alternative through the restoration of unauthorized routes and the decommissioning of existing Forest Service roads. The remaining seven properties will have no significant effect because they are only adjacent to the APE.

Cumulative Effects

Over time, this project will result in decreased damage to historical resources through the decommissioning and reroute of various road segments will. Traffic will be routed away from sensitive areas.

Compliance with the Forest Plan and Other Regulatory Direction

The SBNF has a dedicated road network designed to accommodate use by a variety of vehicle types. The present undertaking is designed to modify the existing system rather than develop a completely new system. As a consequence, the SBNF Heritage staff was required to survey individual road segments rather that to undertake a complete survey of the Forest. Alternatives 1, 3 and 4 were designed to correct deficiencies in the current road system, in part by rerouting portions of existing roads so that damage to historic properties created by road use is minimized or avoided completely.

Alternatives 1, 3 and 4 of the current undertaking incorporate the Forest Plan heritage strategy by protecting heritage resources for cultural and scientific value and public benefit (LMP, Part 2, p. 142). Alternative 1 most closely complies with the strategy, as does alternative 4. Two elements of alternative 3 (reroutes of 3W12 and 3W13), if adopted, will fail to protect historic sites along Forest Service road 3N34.

Fire Risk

In response to the concern raised in scoping about the potential for fire starts due to OHV traffic, the San Bernardino National Forest OHV manager reviewed the past 24 years of records for fire incidents caused by OHVs. This search found only one such incident. In July 2006, a driver of a K-5 Blazer lost control of his vehicle after it became disabled on 3N17 on the west side of White Mountain. The vehicle rolled down a ravine and struck a rock, causing the gasoline cans mounted on the rear bumper to erupt in flames. The fire consumed ½ acre of vegetation. The accident resulted in a fatality, due to injuries. Based on this review, there are no anticipated direct, indirect or cumulative effects of fire caused by non-highway legal vehicles.

Fire Emergency Access

Fire staff on each district of the San Bernardino National Forest reviewed the proposed action and determined there is no critical loss of emergency access. Fire staff also reviewed the other action alternatives and determined they would also have no effect on emergency access.

Recreation

Affected Environment

Easy access, natural settings, day and weekend recreation, conservation education for a multitude of diverse visitors (many who are novice outdoor recreation enthusiasts) and dramatic scenery define the existing conditions of the San Bernardino National Forest; a mountain refuge surrounded by rapidly growing, diverse urban communities. From the edge of busy metropolitan areas to rugged deserts, scenic canyons and backcountry wild lands of chaparral which rise to towering peaks, dense forests and cool lakes, the Forest offers many and varied natural recreation opportunities. There are green-cloaked mountains with deeply incised canyons and swift-flowing streams; steeply rising peaks that create a strong visual and physical edge to the urban development of the Inland Empire; and twisting, climbing roads along big-tree forested landscapes on the mountain sides – all unique attributes that quickly separate the mountain communities from the valley cities below. These natural settings provide the recreation opportunity for a diverse visitor population ranging from large extended families groups to individual solitude.

Within mountain and canyon settings are islands of relatively flat land where development of communities, resorts and recreation areas that utilize the character and features of the Forest for daily life as well as recreation and amenities occurs. The resort communities of Lake Arrowhead, Big Bear and Idyllwild within the Forest are familiar names to the 24 million people living in southern California, 80 percent of who are located 90 minutes or less from National Forests. These mountain communities form the magnet and the surrounding Forest lands, roads and trails become recreation opportunities to those who visit the area. The character of the mountain resorts, cool and clear air and recreation opportunities within the dense forests are a contrast to the urban areas of San Bernardino, Riverside, Los Angeles and Orange Counties, Palm Springs and the communities of the Coachella Valley and High Desert. Quick access to these sub-alpine settings is achieved by driving through the Forest on the Rim of the World and Palms to Pines Scenic Byways.

Visitors choose specific settings for their activities to enjoy desired experiences. These settings vary by place and are further refined by the Recreation Opportunity Spectrum (ROS), a classification system that describes different settings across the national forests using five classes that range from highly modified and developed settings to primitive, undeveloped settings. By describing existing recreation opportunities in each class, the ROS system helps match visitors with their preferred recreation setting. The Recreation Opportunity Spectrum can also be used to plan how areas should be managed for recreation in the future. See the ROS table below and the information and maps in the 2006 San Bernardino Land Management Plan (Forest Plan) and Final Environmental Impact Statement (FEIS) (USDA FS, 2006; 2005).

Table 24. Current Adopted Recreation Opportunity Spectrum (ROS)—Acres of NFS Lands

Classification	San Bernardino Acres	Percent by ROS
Primitive Characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free of evidence of human-induced restrictions and controls. Motorized use within the area is not permitted. There are no developed facilities.	117,792	18
Semi-Primitive Non-Motorized Characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreation experience opportunities. A minimum of developed facilities (if any) are provided.	162,226	24
Semi-Primitive Motorized Characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present but would be subtle. Motorized use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbikes is permitted. Developed facilities are present but are more rustic in nature.	58,873	9
Roaded Natural Characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of people. Such evidence usually harmonizes with the natural environment. Interaction among users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities, which are present and well defined.	284,471	43
Rural Characterized by a substantially developed environment and a background with natural-appearing elements. Moderate to high social encounters and interaction between users is typical. Renewable resource modification and utilization practices are used to enhance specific recreation activities. Sights and sounds of humans are predominant on the site and roads and motorized use is extensive. Facilities are more highly developed for user comfort with ample parking.	32,776	5
Unauthorized	9,614	1

Source: USDA FS, 2005

Outdoor recreation opportunities are varied and abundant. The San Bernardino National Forest is regionally renowned for outstanding winter sports opportunities, including three major ski areas. Organization camps, recreation residences, shooting areas and ranges, campgrounds and picnic

areas, snow play and even an arboretum are present. There are many diverse recreation opportunities from small and intimate settings to large spatial experiences in both urban and forest settings. Although the San Bernardino National Forest is known by most for resort communities, amenities and developed recreation, there are also vast and remote backcountry areas and wild lands. The opportunity for solitude and personal challenge exists in dispersed use places that are accessed by many miles of back roads and challenging non-motorized trails. The Forest is home to the Cucamonga, Bighorn Mountain, San Gorgonio, San Jacinto and Santa Rosa Wilderness Areas and 160 miles of the Pacific Crest National Scenic Trail. Also part of the Forest is the Santa Rosa and San Jacinto Mountains National Monument near Palm Springs, co-managed with the Bureau of Land Management, which reaches from desert palm oases to snow-capped granite peaks. Interpretive centers, including the Big Bear Discovery Center, reach out to visitors with conservation education and information about natural processes and conservation ethics to keep the Forest sustainable. A full and complete description of all San Bernardino National Forest recreation opportunities may be found within the 2006 San Bernardino Forest Plan and FEIS (USDA FS, 2006; 2005) as well as the Forest webpage and annual Visitor Guide.

The San Bernardino National Forest is recognized as a very important local and regional provider of backcountry motorized and non-highway legal vehicle motorized recreation opportunities. The Forest offers trail touring, 4-wheel drive (4WD) and gentle backcountry motorized route opportunities that traverse a wide variety of elevations, vegetation types and terrain features in forested, chaparral and high desert environments. All motorized vehicles have been restricted to existing designated routes since the original 1989 Forest Land and Resource Management Plan – almost 20 years. This has provided a strong foundation of both motorized recreation opportunity for visitors and management success in protecting the environment in implementing the Forest Plan. Outstanding natural and cultural features are popular travel destinations; including mountain and valley vistas, recreation sites and fire lookout towers. The NFTS contains narrow-width trail and 4WD opportunities as well as many miles of backcountry roads that provide a diversity of challenges. Off-highway vehicle activities that more physically impact the land (including cross-county events and open use areas) are not permitted within the San Bernardino National Forest, but do occur elsewhere at local, State, Federal or private lands. All motorized recreation activities are managed to ensure that environmental sustainability is maintained.

Dispersed (also known as remote or primitive) camping occurs outside of developed campgrounds. It is generally allowed, with some use restrictions, throughout much of the Forest. The San Bernardino National Forest has for decades used a yellow post (fire safe) site concept combined with seasonal fire restrictions to accommodate much of the motorized dispersed camping use. Use of these yellow post sites is not mandatory - many other dispersed camping opportunities exist. Most yellow post sites within the Forest are accessed by short spurs that, due to past management oversight, are now classified as unauthorized motorized routes.

The Forest Plan and FEIS (USDA FS, 2006; 2005) estimated that the Forest managed 229,193 acres as suitable for motorized uses with 160 miles of road and 39 miles of trail for a total of 199 miles of non-highway legal vehicle opportunities. An additional 560 miles of maintenance level 2 roads are open for highway licensed vehicle use, of which 112 miles are classified as a 4-wheel drive opportunity where rugged vehicles and driver experience are required to negotiate difficult driving conditions non-highway legal vehicle use is also limited by safety concerns and/or resource issues. In some locations, maintenance level 3 roads have been designated as temporary non-highway legal vehicle linkage routes until bypass trails can be constructed or other roads could be designated for use. There are currently 61 miles of maintenance level 3 roads designated for temporary non-highway legal vehicle use on the San Bernardino National Forest (USDA FS, 2006; 2005).

The following table displays a more current and accurate measurement of Forest non-highway legal vehicle non-highway legal vehicle opportunities.

Table 25. Existing Non-highway Legal Vehicle Designation – Roads and Trails

Trails	Mileage
Motorcycle Only Trails	5.2
ATV & Motorcycle Trails	33.4
All Motorized Trails	38.6
Roads	**Mileage**
Maintenance Level 1	1.0
Maintenance Level 2	123.0
Maintenance Level 3 (not including the temporary non-highway legal vehicle designations)	5.3
Total Non-highway Legal Vehicle - Legal Roads	129.3
(Total NFS Roads)	(797)
Total Non-highway Legal Vehicle Available Mileage	**167.9**

Source: Forest GIS Data Table, January 2008

Since approval of the 1989 Forest Plan, minor changes have been made as appropriate to continue to improve motorized vehicle opportunities and facilities as well as to protect the environment. An emphasis was placed on the designation of short lengths of new route as well as the mitigation and relocation of other routes that were having an adverse effect on forest resources. There are numerous NFTS routes and robust motorized recreation opportunities located in the Arrowhead, Silverwood and Big Bear backcountry areas of the Forest. In some locations the existing NFTS does not fully meet the needs of some non-highway legal vehicle enthusiasts because of low trail mileage, fewer than desired long distance riding opportunities that connect non-highway legal vehicle systems together, a lack of features (loop trails) that provide a variety of riding opportunities for different experience levels and limited or non-existent access and parking. These locations include (but are not limited to) Cleghorn Ridge, Pilot Rock Ridge, Lone Valley and Lake Arrowhead areas.

Unauthorized motor vehicle travel off the existing designated route system has occurred within some areas of the San Bernardino National Forest. These locations include Baldy Mesa at the Front Country Ranger District (currently being analyzed in a separate EA in compliance with the Travel Management Rule), the northern tier of the San Bernardino Mountains from Deep Creek through the White Mountains over to Cactus Flat on the Mountaintop Ranger District and Bee Canyon on the San Jacinto Ranger District. Most of this unauthorized route creation predated the 1989 Forest Plan decision to restrict vehicles to existing system routes, which has been successful in preventing many new incursions.

New unauthorized route creation continues to occur at times but at a pace and magnitude far less than 20 years ago. New routes are often spotted quickly; then blocked, signed and restored in a rapid and successful manner by Forest law enforcement and recreation staff directing the Forest off-highway vehicle volunteer corps and the many adopt-a-trail groups. Some areas recently burned by wildfire or that had stand density reduction through vegetation management treatment may be susceptible to and impacted by unauthorized motorized use. However, special management attention (Forest orders, patrols) and additional funding (for placement of signs and barriers) after wildfires or for fuels treatments has generally kept most unauthorized motorized use out of these vulnerable areas.

The following roads and trails are currently under Forest 'Adopt-a-Trail' maintenance agreements with more than 40 different clubs and organizations from across southern California hosting more than 3,000 volunteers. These routes receive extensive annual maintenance from the adopting club.

Table 26. Roads and Trails under Forest 'Adopt-a-Trail' Maintenance Agreements

Road	Name	Length (Miles)
1N01	Pipe's Canyon	7
1N34	Cucamonga Trail	7
1N37	Bean Flat	4
1N38	Heartbar Peak	3
1N54	Clark's Grade	3
2N04	Balky Horse	4
2N06X	Lower Larga Flat	4
2N06XA	Lower Larga Flat - Spur	0.5
2N17X	Silverwood Lake	4
2N19	Craft's Peak	6
2N19A	Craft's Peak	3
2N27Y	Rouse Meadow	1
2N28Y	Rouse Meadow	2
2N29Y	Stove Flats	1
2N33	Pilot Rock Ridge	8
2N34	Tunnel II Ridge	2
2N34A	Tunnel II Ridge	1
2N47	Cleghorn	8
2N54	Snowslide	3
2N61Y	Round Valley	4
2N69Y	Rattlesnake Canyon	1
2N70Y	Rattlesnake Canyon	1
2N83	Green Valley Lake	1
2N84	Little Bear Peak	2
2N84A	Little Bear Peak – Spur	0.5
2N84B	Little Bear Peak – Spur	0.5
2N90	Tip Top Mountain	2
2N90A	Tip Top Mountain – Spur	1
2N90B	Tip Top Mountain – Spur	0.5
3N02	Burnt Flat	3
3N03A	Horse Thief Flat	4
3N06	Baldy Notch	2.5
3N06A	Coldwater Canyon	2
3N07Y	Cactus Flats	1
3N08	Holcomb Valley	5
3N10	John Bull - West	3
3N10	John Bull – East	2
3N11	Wright Mine	1
3N11A	Wright Mine Saddle	1
3N17	White Mountain	6
3N17A	White Mountain - Spur	1

Road	Name	Length (Miles)
3N34	Dishpan Springs	5
3N59A	Luna Mountain	3
3N61	Jacoby Canyon	3
3N69	Gold Mountain	5
3N80	Delmar Mountain	2
3N93	Holcomb Creek	6
4S21	Indian Mountain	5
Trail	**Name**	**Length (Miles)**
1W17	Redonda Ridge – West	4
1W17	Redonda Ridge – East	4
2E44	Allasandro Trail	3
2W01	Devil's Hole	3
3W11	Metate Trail	3
3W12	North Shore Trail	6
3W13	Willow Creek	5

A 2005 Forest inventory identified unauthorized roads and motorized trails that, while providing motorized recreation opportunities, could also lead to some degree of erosion, visual impacts, noise, watershed and habitat degradation, conflicts with non-motorized recreation uses and impacts to cultural resource sites. Most of these routes developed without Forest Service knowledge or approval prior to the 1989 Forest Plan decision to restrict vehicles to designated routes. They did not have environmental analysis or public involvement and do not have status as National Forest System roads and trails included in the NFTS.

In fiscal year 2003, non-highway legal vehicle use in the San Bernardino National Forest totaled 131,000 visitors, about 6.7 percent of the Forest's 1.95 million annual visits and dispersed camping use totaled 40,000 visitors, about 2.0 percent (USDA FS, 2003).

Estimates of future use for a specific activity cannot be directly correlated to increases in the population growth for southern California; therefore, it is difficult to predict future levels of non-highway legal vehicle use. Use of individual routes may increase or decrease but overall system use on motorized roads and trails is not expected to significantly change.

Environmental Consequences

Introduction

This section of the environmental analysis examines the extent to which alternatives respond to recreation management direction established in the San Bernardino National Forest Land Management Plan (Forest Plan) and the Travel Management (TM) Rule. The Forest Plan recreation direction was established under the implementing regulations of the National Forest Management Act (NFMA). The NFMA requires the provision of a broad spectrum of forest and rangeland-related outdoor recreation opportunities that respond to current and anticipated user demands. The Forest Plan satisfies this requirement through its use of the Recreation Opportunity Spectrum (ROS) classification system of "zoning" recreation opportunities. In addition, specifically for "off-road vehicle" use, the NFMA requires that these motor vehicle opportunities be planned and implemented to protect land and other resources, promote public safety and minimize conflicts with other uses of the National Forest System (NFS) lands. The TM Rule

requires that we examine the compatibility of motor vehicle use with existing conditions in populated areas; the conflict between motor vehicle use and existing or proposed recreational uses of NFS lands or neighboring federal lands; and the provision of recreational opportunities and access needs.

Regulatory Framework: Compliance with the Forest Plan and Other Regulatory Direction

Regulatory Direction relevant and specific to the proposed action as it affects recreation resources includes:

National Forest Management Act (NFMA). The NFMA requires that 'Off-Highway Vehicle' use be planned and implemented to protect land and other resources, promote public safety and minimize conflicts with other uses of the NFS lands. It also requires that a broad spectrum of forest and rangeland-related outdoor recreation opportunities be provided (see the Recreation Opportunity Spectrum maps at http://www.fs.fed.us/r5/scfpr/projects/lmp/mapindex.htm) that respond to current and anticipated user demands.

National Environmental Policy Act (NEPA). The NEPA requires that we describe the areas to be affected by the alternatives under consideration; the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided and the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.

Travel Management Rule (TM). The TM Rule requires that in designating NFS roads, trails and areas, responsible officials consider the provision of recreational opportunities; public access needs; conflicts among uses of NFS lands, including other recreational uses; and the compatibility of motor vehicle use with existing conditions in populated areas.

San Bernardino National Forest Land Management Plan (Forest Plan). The Forest Plan provides goals for the recreation resource and requires a broad range of developed and dispersed recreation opportunities in balance with existing and future demand. The Recreation Opportunity Spectrum (ROS) is the basic inventory that was used to create recreation-opportunity "zoning" in these plans. The intent is to provide for these recreation opportunities within these zones to meet NFMA requirements for a broad spectrum of forest and rangeland-related outdoor recreation opportunities that respond to current and anticipated user demands. As noted above, NFMA requires that off-road vehicle opportunities be planned and implemented to protect land and other resources, promote public safety and minimize conflicts with other uses of the NFS lands. For the purposes of travel management actions, the term 'off-road vehicles' is applied to public wheeled motor vehicle use (highway legal and non-highway legal). The ROS inventory provides for a spectrum of classes from "Urban" to "Primitive." There is a distinction between motorized and non-motorized spectrum classes (or 'zones'). Motorized use falls in the motorized ROS classes (Urban, Rural, Roaded-Modified, Roaded-Natural, Semi-Primitive-Motorized). Non-motorized classes include Semi-Primitive Non-Motorized and Primitive.

Part 2 of the Forest Plan contains the following objectives for Recreation Resources:

REC 1 - Recreation Opportunity

Manage national forest land to achieve recreation opportunity spectrum (ROS) classes.

TRANS 1 - Transportation Management

Plan, design, construct and maintain the National Forest System roads and trails to meet plan objectives, to promote sustainable resource conditions and to safely accommodate anticipated levels and types of use. Reduce the number of unnecessary unclassified roads and restore landscapes:

- Enhance user safety and provide adequate parking at popular destinations on high traffic passenger car roads, while also minimizing adverse resource effects.
- Using priorities identified in the Roads Analysis Process, reduce the road maintenance backlog to provide safe, efficient routes for recreationists and through-traveling public and to safely accommodate fire protection equipment and other high-clearance vehicles.
- Implement landscape scale transportation system analysis on a priority basis. Coordinate with state, county, local and regional government entities, municipalities, tribal governments, other agencies and the public.
- Add unclassified roads to the National Forest System roads or trails when site-specific road analysis determines there is a public need.
- Decommission roads and trails that have been determined to be unnecessary and establish level of restoration during project planning.

Trails

Develop an interconnected, shared-use trail network and support facilities that complement local, regional and national trails and open space and that also enhance day-use opportunities and access for the general public:

- Construct and maintain the trail network to levels commensurate with area objectives, sustainable resource conditions and the type and level of use. Manage the Pacific Crest National Scenic Trail for the conservation and enjoyment of its nationally important scenic, historic, natural and cultural qualities.
- Maintain and/or develop access points and connecting trails linked to surrounding communities.

Off-Highway Vehicles

Improve off-highway vehicle opportunities and facilities for highway licensed and non-highway licensed vehicles:

- Manage the National Forest System roads for a spectrum of 4-wheel drive opportunities in the easy, more difficult and most difficult categories of route difficulty.
- Develop motorized trails that address the needs of off-highway vehicle enthusiasts in conjunction with the designation of low-maintenance standard roads.
- Submit candidate roads and trails to the state of California, Off-Highway Motor Vehicle Division, for designation as the California Backcountry Discovery Trail as opportunities to provide this experience are identified.

Indicator Measures

Indicator Measures are intended to address how each action individually (direct and indirect effects) and each alternative as the sum total of its proposed actions (cumulative effects) respond to the Forest Plan and the TM Rule.

Indicator Measure 1. The extent of non-motorized recreation activities displaced by proposed motor vehicle use.

Nearly all San Bernardino National Forest visitors and users, regardless of the purpose for their visit, travel the local county, State, Federal or National Forest Transportation System (NFTS) by motorized transport in some manner. Modifying the existing designated NFTS to prohibit existing or allow new motorized use has the potential to affect or displace some of these visitors and users, including those who access trailheads, facilities, destinations or geographic areas for non-motorized recreational activities.

The National Visitor Use Monitoring (NVUM) of 2003 estimates Forest motorized and non-motorized recreation activity participation as shown below in Table 27.

Table 27. San Bernardino NF Activity Participation and Primary Activity

Activity	Percent Participating	Percent as Main Activity
Developed Camping	9.80	4.14
Primitive Camping	2.33	1.65
Backpacking	3.31	0.84
Resort Use	13.96	0.37
Picnicking	18.20	4.24
Viewing Natural Features	41.10	3.72
Visiting Historic Sites	3.43	0.00
Nature Center Activities	10.48	2.47
Nature Study	7.05	0.14
Relaxing	45.54	11.62
Fishing	2.65	1.63
Hunting	0.43	0.07
OHV Use	6.70	3.78
Driving for Pleasure	16.92	1.45
Snowmobiling	0.00	0.00
Motorized Water Activities	0.29	0.01
Other Motorized Activity	0.60	0.46
Hiking / Walking	47.16	24.45
Horseback Riding	1.19	0.05
Bicycling	6.87	4.80
Non-motorized Water	0.22	0.09
Downhill Skiing	32.58	32.47
Cross-country Skiing	0.35	0.11
Other Non-motorized	4.97	2.53
Gathering Forest Products	1.82	0.00
Viewing Wildlife	31.00	0.73

Note: Second column may total more than 100 percent because some visitors chose more than one primary activity. Figures are not specific to ranger district or location. Source: Table 13, NVUM Report 2003, San Bernardino NF

Most activity participation is in hiking/walking, relaxing, viewing natural features, downhill skiing and viewing wildlife. Knowing this and then analyzing the effects to the Semi-Primitive Non-Motorized Recreation Opportunity Spectrum (ROS) class (and all other ROS classes) by alternative as shown in Table 28 below illustrates how the non-motorized recreation uses might be affected by the proposed changes to the Forest NFTS.

Table 28. ROS Mileage Changes, by Alternative

	ROS Mileage Change					
Alternative	**Primitive**	**Rural**	**Roaded Natural**	**Semi-Primitive Motorized**	**Semi-Primitive Non-Motorized**	**Net Totals**
Alternative 1						
Add Non-highway Legal Vehicle	--	--	0.3	53.5	1.3	55.1
Decommission	-0.9	--	-3.3	-9.3	-5.0	-18.5
Make Admin Use	--	-0.5	-7.7	-15.9	-23.8	-47.9
New Construction	--	--	0.3	0.2	--	0.5
Add Unauthorized	--	--	0.1	7.3	1.3	8.7
Rehab	-8.1	--	-13.0	-38.2	-24.8	-84.1
Remove Non-highway Legal Vehicle	--	--	-2.3	-16.9	--	-19.2
Net Totals	*-9.0*	*-0.5*	*-25.6*	*-19.3*	*-51.0*	-105.4
Alternative 3						
Add Non-highway Legal Vehicle	--	--	0.3	53.5	1.3	*55.1*
Decommission	-0.9	--	-2.7	-5.6	-5.0	*-14.2*
Make Admin Use	--	-0.5	-7.2	-7.2	-23.4	*-38.3*
New Construction	--	--	0.2	--	--	*0.2*
Add Unauthorized	--	--	0.9	12.1	1.7	*14.8*
Rehab	-8.1	--	-13.0	-37.6	-24.8	*-83.5*
Remove Non-highway Legal Vehicle	--	--	-0.3	-0.2	--	*-0.5*
Net Totals	*-9.0*	*-0.5*	*-21.8*	*15.0*	*-50.2*	*-66.5*
Alternative 4						
Add Non-highway Legal Vehicle	--	--	0.3	49.3	1.3	*50.9*
Decommission	-0.9	-0.2	-3.5	-11.2	-5.0	*-20.8*
Make Admin Use	--	-0.5	-7.7	-15.9	-23.8	*-47.9*
New Construction	--	--	0.3	0.2	--	*0.5*
Add Unauthorized	--	--	0.1	7.3	1.3	*8.7*
Rehab	-8.1	--	-13.0	-38.2	-24.8	*-84.1*
Remove Non-highway Legal Vehicle	--	--	-2.3	-16.9	--	*-19.2*
Net Totals	**-9.0**	**-0.7**	**-25.8**	**-25.4**	**-51.0**	**-111.9**

Source: Forest GIS Data Table, April 2008

Alternative 3 proposes the most new system mileage and alternative 4 the least new system mileage. All alternatives propose essentially the same substantial net mileage decreases in the Semi-Primitive Non-Motorized ROS class, primarily for making routes administrative use only or closing and restoring unauthorized routes. This is beneficial and will greatly improve the characteristics of that ROS class (and the non-motorized recreation uses listed above) by reducing the impacts of motor vehicles. Alternative 3 proposes the only net new mileage gain (15.0 miles) in any ROS category, that of Semi-Primitive Motorized. A very minor amount of motorized route

mileage is proposed to be added to the Semi-Primitive Non-Motorized Recreation Opportunity Spectrum (ROS) class in each alternative as shown in the table. It should be noted that the ROS mapping adopted by the Forest Plan and analyzed here offers a broad layout of recreation settings and is not applicable for site-specific projects like this. Therefore, minor site-specific anomalies occur.

The San Bernardino National Forest already has a designated route system with long-established recreation use. Each action alternative proposes only a relatively minor amount of ROS class mileage change as displayed above. No specific non-motorized recreation activity displacement has been identified in this analysis.

Indicator Measure 2. The proximity of motor vehicle use to populated areas and neighboring federal lands.

The most notable indicator of the use of newly designated routes by motorized vehicles would be the potential for an increase in background sound adjacent to the road or trail being used. The analysis of potential noise impacts to populated areas (local residential neighborhoods) and 'quiet' recreationists (including hikers and campers) below used the distance from proposed motorized route changes to the area or recreation use as the main measure of potential impact.

The opportunity for residents and visitors to experience quiet and a sense of solace within a non-motorized use setting varied by alternative. Table 29 shows the miles of motorized routes proposed to be added to the transportation system identified within ½ mile of privately owned property that has existing residences. Table 30 shows the miles of motorized routes proposed to be added to the transportation system identified within ½ mile of existing developed, concentrated area and non-motorized trail recreation use.

Table 29. Route Change Mileage within a Wildland Urban Interface or Developed Area Interface Zone within 1/2 mile of Private Land

	Alt 1	Alt 3	Alt 4
Add Non-highway Legal Vehicle Use (+)	0.2	0.2	0.2
Unauthorized Route Added to NFTS (+)	0.0	0.7	0.0
Decommission (-)	4.0	2.8	4.1
Change to Admin Use Only (-)	7.5	6.5	7.5
New Construction (+)	0.4	0.4	0.4
Restore (-)	11.2	11.2	11.2
Remove Non-highway Legal Vehicle Use (-)	0.9	0.0	0.9
Net Change	**-23.0**	**-19.2**	**-23.1**

Table 30. Route Change Mileage Within 1/2 Mile of a Campground or Non Motorized Trail

	Alt 1	Alt 3	Alt 4
Add Non-highway Legal Vehicle Use (+)	11.5	11.5	11.5
Unauthorized Route Added to NFTS (+)	0.9	4.3	0.9
Decommission (-)	4.8	1.9	7.1
Change to Admin Use Only (-)	13.2	11.2	13.2
New Construction (+)	0.5	0.5	0.5
Restore (-)	26.3	26.3	26.3
Remove Non-Highway Legal Vehicle (-)	0.9	0.5	0.9
Net Change	**-32.3**	**-23.6**	**-34.6**

Source: GIS Data Tables, January 2008

The net changes for all alternatives are a negative number, indicating that more unauthorized and authorized routes would be removed or have their access changed to administrative use only than unauthorized routes added or new construction allowed near populated areas and popular recreation locations. Alternative 3 would provide the least and alternative 4 would provide the most quiet and solace. Alternative 2 (no action) provides no change to the NFTS and thus no additional motorized vehicle noise as well as no reductions in motorized vehicle noise.

Almost all changes in this table for all alternatives reflect the Forest Service's proactive proposal for relatively little new vehicle use near communities or developed recreation sites while at the same time prohibiting or deleting existing motorized use, especially in the Lake Arrowhead area.

Those seeking a quiet non-motorized recreation experience would continue to be most successful when traveling on non-motorized trails or, if appropriate, cross-country, distancing themselves from roads and motorized trails.

No alternative is expected to significantly affect neighboring federal lands (primarily public lands managed by the Bureau of Land Management, California Desert District).

Indicator Measure 3. The quality and diversity of motorized recreation experience.

Each action alternative has a different direct and indirect effect to the quality and diversity of motorized recreation experiences as shown in Table 31 and narrative below.

Table 31. Vehicle Mileage Class Miles, all Action Alternatives

Vehicle Class and Change	Miles		
Dual Sport Hwy Licensed Motorcycle	**Alternative 1**	**Alternative 3**	**Alternative 4**
Decommission	-18.5	-14.2	-20.8
Make Admin Use	-50.6	-41.0	-50.6
New Construction	0.5	0.2	0.5
Add Unauthorized	8.8	14.7	8.8
Net Change	*-59.8*	*-40.3*	*-62.1*
Passenger Car	**Alternative 1**	**Alternative 3**	**Alternative 4**
Decommission	-18.5	-14.2	-20.8
Make Admin Use	-50.6	-41.0	-50.6
Add Unauthorized	0.6	6.8	0.6
Net Change	*-68.5*	*-48.4*	*-70.8*
Non-Highway Legal 4WD	**Alternative 1**	**Alternative 3**	**Alternative 4**
Add Non-highway Legal Vehicle	55.2	55.3	51.0
Remove Non-highway Legal Vehicle	-24.9	-6.1	-24.9
Add Unauthorized	0.3	0.3	0.3
Net Change	*30.6*	*49.5*	*26.4*
Non-Highway Legal ATV	**Alternative 1**	**Alternative 3**	**Alternative 4**
Add Non-highway Legal Vehicle	55.3	55.3	51.0
New Construction	0.5	0.2	0.5
Add Unauthorized	8.5	8.2	8.5
Remove Non-highway Legal Vehicle	-24.9	-6.1	-24.9
Net Change	*39.4*	*57.6*	*35.1*
Non-Highway Legal Motorcycle	**Alternative 1**	**Alternative 3**	**Alternative 4**
Add Non-highway Legal Vehicle	55.3	55.3	51.0
New Construction	0.5	0.2	0.5
Add Unauthorized	8.5	8.2	8.5
Remove Non-highway Legal Vehicle	-24.9	-6.1	-24.9
Net Change	*39.4*	*57.6*	*35.1*
Hwy Licensed 4WD	**Alternative 1**	**Alternative 3**	**Alternative 4**
Decommission	-18.5	-14.2	-20.8
Make Admin Use	-50.6	-41.0	-50.6
Add Unauthorized	0.6	6.8	0.6
Net Change	*-68.5*	*-48.4*	*-70.8*

Source: Forest GIS Data Table, May 2008

As shown in the table above, Forest motorized recreation experiences (including driving for pleasure and touring, adequate sport experiences, loop opportunities, mixed use roads to connect loops and/or create longer routes, diversity of trail difficulty and access to desirable features) would be improved in alternative 1, improved the most in alternative 3 and improved the least in alternative 4. This is based both upon the mileages added or removed by vehicle category and a spatial review of the alternative maps.

Indicator Measure 4. Quality of motorized access to dispersed recreation opportunities.

Alternative 3 includes the addition of 5.6 miles of designated motorized highway legal access to existing yellow post campsites into the NFTS as noted below. This aspect of alternative 3 was developed in response to Issue 2 - Access to Dispersed Camping (see Chapter 1).

Table 32. Alternative 3 – Yellow Post Site Mileage Additions

Forest Plan Place Name	Miles
Anza	0.3
Arrowhead	0.3
Big Bear	1.0
Big Bear Back Country	0.3
Garner Valley	1.1
Garner Valley & Anza	0.5
Idyllwild	0.4
Idyllwild & Garner Valley	0.1
San Bernardino Front Country	0.5
San Gorgonio	0.8
Santa Rosa/San Jacinto Mountains National Monument	0.3
Total	**5.6**

Source: Forest GIS Data Table, May 2008

The San Bernardino National Forest has for decades used a yellow post (fire safe) site concept combined with seasonal fire restrictions to accommodate much of the motorized dispersed camping use. These sites have a fire ring but no other amenities. Use of these yellow post sites is not mandatory - many other dispersed camping opportunities exist.

Most yellow post sites within the Forest are accessed by short (most are less than 0.1 miles in length, the longest is 0.5 miles) spurs that connect to highway legal roads.

- Coon Creek 1-19
- South Shore Big Bear 26-30
- Clark's Ranch 1
- Fawnskin 1,2,4,5,6,7,31,33,34
- Thomas Hunting Grounds 1
- Keller Peak 1-10
- Fuller Ridge 1
- Black Mountain 1,3,4,5
- Seven Pines 1
- Hall Decker 1
- Santa Rosa Campground 1
- Santa Rosa Springs 1
- Santa Rosa yellow Post
- Toro Camp 1,2
- Southridge 1-3
- Apple Canyon 1-3
- South Lake Hemet 1
- Thomas Mountain 2-7
- Thomas Mountain Lookout 3
- Tool Box Springs 1-5

Due to past management oversight, these spurs are now classified as unauthorized motorized routes. Validation of this motorized access in alternative 3 would formalize a long-term (decades) existing use at San Bernardino National Forest yellow post sites and enhance the quality of the dispersed camping recreation opportunity. Alternatives 1, 2 and 4 would not provide motorized users this type of access to existing Forest dispersed camping sites and thus would create ‘de facto’ yellow post site motorized access closures, with resulting loss of quality remote recreational camping experiences at most locations. Implementation of all of these alternatives would also affect to a minor degree the ability of visitors to use their vehicles to disperse camp along existing routes that are proposed to be closed, decommissioned or have administrative use access only.

Indicator Measure 5. Special Areas (Wilderness, Inventoried Roadless Areas and Wild and Scenic Rivers)

Special areas within the San Bernardino National Forest include wilderness, recommended wilderness, inventoried roadless areas and candidate wild and scenic rivers. The location, description and management of these areas can be found within the San Bernardino Forest Management Plan and FEIS (USDA FS, 2006; 2005).

Wilderness

No motorized routes are proposed to be added to any designated Forest wilderness or any area recommended for wilderness designation through the Forest Plan.

However, wilderness does not exist in a vacuum and activities on both sides of wilderness boundaries are considered in this analysis. There is no direction to maintain external buffer strips of undeveloped wild land to provide an informal extension of national forest wilderness or to maintain internal buffer zones that might then degrade wilderness values. Therefore, noise from motor vehicles operating outside of the wilderness may at times in some locations affect solitude opportunities within wilderness. But studies conducted to evaluate the detectable distance of non-highway legal vehicles in typical forest conditions found that less than 5 percent of non-highway legal vehicles were detectable at a distance of 1 mile (Harrison, 1975; Harrison et al., 1993).

Table 33. Miles of Motorized Route Changes Proposed to be Changed within One Mile of Existing Forest Wilderness Area Boundaries

	Alt 1	Alt 3	Alt 4
Add Non-highway Legal Vehicle Use	16.7	16.7	15.0
Unauthorized Route Added to NFTS	0.6	2.9	0.6
TOTAL	**17.3**	**17.6**	**15.6**

Source: GIS Data Table, January 2008

Alternative 4 proposes the least change and alternative 3 proposes the most change. All of the mileage listed in this table results from the addition of non-highway legal vehicle mixed use to Forest Road 3N03 and, to a lesser degree, the addition of unauthorized routes in the same area (0.11 mile), Long Valley, within the Mountaintop Ranger District. These actions would occur within one mile of the Bighorn Mountain Wilderness Area, created in 1994 by the California Desert Protection Act and co-managed with the Bureau of Land Management. It is located on the northeast flank of the San Bernardino Mountains, east of Big Bear Lake. Elevations range from 4,800 feet to 7,500 feet at the top of the Granite Peaks. This wilderness represents a transition zone from the Joshua trees and yucca of the high desert to scattered Jeffrey pine on the peaks. Mule deer, mountain lions, golden eagle and bobcats dwell here.

There are no established trails or campsites in the area and permits are not required, so recreation use here is very minimal (primarily a few hunters in the fall). Occasional motor vehicle noise is already present on Forest Road 3N03, primarily from slow speed highway legal and non-highway legal vehicle (because this route is already under a temporary designation) vehicles during summer weekends and holidays. This proposed change would make official this existing minor amount of motor vehicle sound from the non-highway legal vehicle vehicles that are not generally detectable within the wilderness by the few visitors that use the area.

Table 34. Proposed Miles of Route Deletions or Changes in Use within One Mile of Existing Wilderness

	Alt 1	Alt 3	Alt 4
Decommission	0.0	0.0	2.3
Change to Administrative Use Only	7.1	2.4	7.1
Restore	15.6	15.6	15.6
TOTAL	**22.7**	**18.0**	**25.0**

Source: GIS Data Table, January 2008

The mileage listed in this table reflects the deletion (or change in use) of existing motorized routes. Alternative 3 proposes the least change and alternative 4 proposes the most change. These proposals would bring positive changes to the solitude of existing wilderness areas by reducing existing vehicle traffic and their sounds.

The proposed decommissioning would occur in the Rattlesnake Canyon area on a portion of Forest Road 2N64Y, within one mile of the Bighorn Mountain Wilderness (see the narrative above).

The proposed changes to administrative use would occur only in alternative 4 on a portion of Forest Road 1N34 within one mile of the Cucamonga Wilderness Area. The area adjacent to Forest Road 1N34 is very steep and little used by visitors.

The proposed restoration actions would occur within one mile of the Bighorn Mountain Wilderness (see the narrative above), where numerous unauthorized routes exist.

Inventoried Roadless Areas

Some minor changes to motorized routes are proposed within San Bernardino National Forest Inventoried Roadless Areas (IRAs).

The Forest Service is operating under the Roadless Rule, adopted at 66 Fed. Reg. 3,244, 3,272-73 (January 12, 2001). Only roads and trails that are part of a national forest transportation system can be designated for motorized vehicle use. Many IRAs contain unauthorized routes that were created through motorized cross-country travel and are not part of the NFTS. In some cases, after considering site-specific environmental impacts and public concerns, an unauthorized route could be considered for addition to the NFTS as an NFTS motorized trail. Decisions to convert unauthorized routes to national forest transportation system motorized trails within IRAs may be made after given thoughtful consideration and coordination, including analysis of the potential impacts on roadless area characteristics. There is to be no net increase in IRA route mileage.

See Appendix G, Maps for the locations of these proposed changes.

Table 35. Miles of Proposed Route Changes of Existing Use Within an IRA

	Alt 1	Alt 3	Alt 4
Add Non-highway Legal Vehicle Use to Existing NFS Road	3.9	3.9	3.9
TOTAL	**3.9**	**3.9**	**3.9**

Source: GIS Data Table, January 2008

All of the 3.9 miles listed in this table (for all alternatives) for the addition of non-highway legal vehicle mixed use to NFTS roads is reflective of anomalies and inconsistencies created by the original Inventoried Roadless Area large-scale mapping done in the year 2000 that inadvertently included some existing designated National Forest System highway legal roads slightly within

forest IRA boundaries. The proposed non-highway legal vehicle use additions to these existing roads are:

- Forest Roads 3N59A south of Bowen Ranch and 2N31Y west of Crab Flats Campground – both in the Deep Creek IRA
- Forest Roads 2N61Y and 2N71Y in Long Valley in the Granite Peak IRA.

All alternatives propose this same minor amount of motorized use change. There would be no new environmental impacts or changes to the roadless character of these areas because motorized use is already fully and legally authorized, present and well-established on these existing designated roads.

These IRA boundaries and prohibitions used and established by the 2001 Roadless Rule may not be changed through project decisions. Because some of these IRA boundaries date back as far as the RARE II inventories and are now obsolete (as shown here), at some future time the Chief of the Forest Service may decide to update them to more accurately reflect current conditions and to better fit identifiable boundaries. Any future changes to IRA boundaries will be conducted in an open process with public input.

See Appendix G, Maps for the locations of these proposed changes.

Table 36. Miles of Proposed Route Elimination or Removal of Existing Public Use within an IRA

	Alt 1A	Alt 3	Alt 4
Decommission	-4.4	-4.0	-4.4
Change to Administrative Use Only	-4.8	-4.8	-4.8
Restore	-6.5	-6.5	-6.5
TOTAL	**-15.7**	**-15.3**	**-15.7**

Source: GIS Data Table, January 2008

Alternatives 1 and 4 propose the most deletion or change in use within an IRA and alternative 3 proposes 0.4 miles less. Again, all of the 4.8 miles listed in this table for the change to administrative use on NFTS roads is reflective of anomalies and inconsistencies created by the original Inventoried Roadless Area large-scale mapping done in the year 2000 that inadvertently included some existing designated National Forest System highway legal roads within San Bernardino National Forest IRA boundaries. The decommissioning mileage is primarily Forest Road 3N95 in the Deep Creek IRA; the administrative use mileage is primarily Forest Road 3N95B in the Deep Creek IRA; and the restoration mileage is scattered in short segments throughout various IRAs within the Mountaintop Ranger District. All of these actions would cause very minimal to no environmental impacts and greatly improve the solitude and roadless character of these areas by removing or dramatically reducing vehicle use on designated routes there. This aspect of the action alternatives fully complies with the November 2007 Regional Forester direction.

Wild and Scenic Rivers

The San Bernardino National Forest does not have any designated National Wild and Scenic Rivers. However, a number of candidate stream segments with a total of 134.4 miles were found eligible and tentatively classified as wild, scenic or recreational in the Forest Plan FEIS (USDA FS, 2005, Appendix E). This included 56.8 miles of potential wild river, 28.5 miles of potential scenic river and 49.1 miles of potential recreational river. The following table illustrates the analysis criteria of amount of travel route mileage affected in San Bernardino National Forest wild and recreational candidate river corridors (1/4 mile of either side of the river) by alternative. There were no proposed changes and thus no impacts to scenic candidate rivers in any alternative.

Table 37. Miles of Proposed Route Changes within Candidate Wild and Scenic River Corridors

	Alt 1	Alt 3	Alt 4
Candidate Wild River Corridor			
Add Non-highway Legal Vehicle Use	0.0	0.0	0.0
Decommission	0.0	0.0	0.9
Change to Administrative Use Only	0.0	0.0	0.0
Unauthorized Route Added to NFTS	0.0	0.0	0.0
Restore	0.0	0.0	0.0
TOTALS	**0.0**	**0.0**	**0.9**
Candidate Recreational River Corridor			
Add Non-highway Legal Vehicle Use	1.9	1.9	1.9
Decommission	0.0	0.0	1.3
Change to Administrative Use Only	0.8	0.8	0.8
Unauthorized Route Added to NFTS	0.0	0.2	0.0
Restore	0.6	0.6	0.6
TOTALS	**3.3**	**3.5**	**4.6**

Source: GIS Data Table, January 2008

The Forest Plan provides management direction to protect the free-flowing character, potential classification and outstandingly remarkable values of eligible wild and scenic rivers until a suitability study is completed and final recommendation to Congress regarding river designation is made. The proposed actions in all action alternatives are modest and meet the national wild and scenic river criteria for both use or modification and improvement.

Generally, a wild river is accessible only by non-motorized trail. The only action in any alternative that affects a candidate wild river is the decommissioning of 0.9 miles of existing Forest Road 1N05A along Fish Creek in alternative 4. This action would be beneficial to Fish Creek.

A recreation river is usually readily accessible by road. Roads are normally open to motorized travel but use may be regulated. Actions as listed in the above table are compatible with recreational river management. There would be no adverse effects to free-flowing character, potential classification or outstandingly remarkable values for the addition of non-highway legal vehicle use on Forest Road 3N16 along Holcomb Creek (all alternatives) or the extremely short (0.2 miles) addition of the unauthorized route along the Santa Ana River in alternative 3 for access to yellow post camping sites. Decommissioning of 1.3 miles of Forest Road 1N39 along the Santa River in alternative 4, changing to administrative use only of 0.8 miles of Forest Road 1N04A along the Santa Ana River in all alternatives and restoring 0.6 miles of unauthorized routes along Holcomb Creek would be beneficial to management of these candidate recreational rivers.

Direct, Indirect and Cumulative Effects

Recreation and administrative transportation experiences will be somewhat different among the alternatives, all of which contain routes ranging from high standard surfaced roads already designated for public highway-licensed motor vehicle use to infrequently maintained native surface roads and trails. All of the action alternatives differ in mileage for motorized uses from that included in alternative 2 (no action). Management of the systems proposed in all of the action alternatives will represent a change from the current condition. Cross-country motorized vehicle

travel has been (since 1989) and will continue to be prohibited within the San Bernardino National Forest.

It is assumed that proposed additions to the NFTS will have a beneficial effect on the motor vehicle experience by providing a variety of easy-to-difficult riding experiences and contribute to the continuity of the motor-touring experience.

The Forest boundary is the unit of spatial analysis for determining all effects. The short-term timeframe is one year (not applicable in the cumulative effects analysis) and the long-term timeframe is 20 years.

Alternative 1

Alternative 1 would change the NFTS as described in Chapter 2. It has the second most motorized road and trail mileage of the three action alternatives. Options for motorized travel are proposed to provide greater access and diversity of motorized riding experiences.

There are direct and indirect effects of modifying the NFTS. The methodology and rationale are as follows.

Non-motorized recreation activities displaced by proposed motor vehicle use are estimated by use of ROS class mileage changes and indicate that there would be beneficial effects associated with the reduction of 51.0 miles in the Semi-Primitive Non-Motorized ROS class. There is a net reduction of 105.4 miles in total, second highest of the action alternatives. Unauthorized route restoration proposed in the Holcomb Valley area would reduce potential recreation conflicts there. No specific non-motorized developed or dispersed recreation activity would be displaced.

Motorized route reductions near populated areas are 23.0 miles and near campgrounds 32.3 miles, second highest of the action alternatives. Alternative 1 includes a suite of actions specifically designed to address the numerous motorized recreation noise, dust and physical presence complaints from the residents of North Lake Arrowhead due to the proximity of the neighborhood to several motorized forest routes. The actions would be to decommission 3W12, 3W13 and 2N95; make 2N96 administrative use only; remove non-highway legal vehicle use on 2N28Y; construction of access connecter to Forest Service North Shore Work Center; and construction of connecter between 3W12 and 3W13. They would provide a larger buffer between the residential neighborhood and motorized forest routes, while still providing motorized access to the Forest and a diversity of motorized riding opportunities. These actions are also included in alternative 4 but not in alternative 3.

The quality and diversity of Forest motorized recreation experiences (including driving for pleasure and touring, adequate sport experiences, loop opportunities, mixed use roads to connect loops and/or create longer routes, diversity of trail difficulty and access to desirable features) would be improved in alternative 1 as shown in Table 31 above.

The quality of motorized access to dispersed recreation opportunities would not be improved in alternative 1, as spur roads to yellow post campsites would not be designated as authorized routes. There would be an immediate loss of quality remote camping experiences at most yellow post site locations. A minor amount of other Forest motorized dispersed camping opportunities would be affected along existing routes that are proposed to close, be decommissioned or have access changes.

No changes would occur to designated or proposed Forest wilderness. There would be no change from existing sound conditions to the Bighorn Mountain Wilderness if Forest Road 3N03 would have mixed vehicle use on 17.3 miles. There would be 22.7 miles of route deletions or beneficial

changes in use within one mile of wilderness in alternative 1. All alternatives propose the essentially the same changes within IRAs. Alternative 1 would also add/modify 3.3 miles of route within a candidate recreational river corridor.

Most of the changes proposed in alternative 1 would not foster conflict as these modifications involve reclassification of existing routes already being used by motor vehicles. And none of the changes would lead to increased use of wilderness trails or Pacific Crest National Scenic Trail use as there would be no new direct connections constructed or authorized.

Alternative 2

This no action alternative would propose no change to the NFTS.

There would be no direct or indirect effects other than the continued beneficial effects of the prohibition of motorized cross-country travel. Under this alternative the agency will take no affirmative action (no change from current management or direction). The use of all unauthorized routes will continue to be illegal and no changes will be made to the current NFTS. The no action alternative is a proposal to 'do nothing' and maintain the 'status quo'. No unauthorized routes would be rehabilitated.

No specific non-motorized developed or dispersed recreation activity would be displaced.

There would be no motorized route reductions near populated areas or campgrounds.

The quality and diversity of Forest motorized recreation experiences (including driving for pleasure and touring, adequate sport experiences, loop opportunities, mixed use roads to connect loops and/or create longer routes, diversity of trail difficulty and access to desirable features) would not change.

The quality of motorized access to dispersed recreation opportunities would not be improved as spur roads to yellow post campsites would not be designated as authorized routes. There would be an immediate loss of quality remote camping experiences at most yellow post site locations.

No changes would occur to designated or proposed Forest wilderness, IRAs or candidate wild and scenic rivers.

Alternative 2 does not include a suite of actions that are included in alternatives 1 and 4 to address the numerous motorized recreation noise, dust and physical presence complaints from the residents of North Lake Arrowhead due to the proximity of the neighborhood to several motorized forest routes. There would be no changes to 3W12, 3W13, 2N95, 2N96, 2N28Y; no construction of access connecter to Forest Service North Shore Work Center; and no construction of a connecter between 3W12 and 3W13.

Alternative 3

Alternative 3 would change the NFTS as described in Chapter 2. It has the highest motorized road and trail mileage of the three action alternatives and proposes the greatest addition to the non-highway legal vehicle system and the most highway legal mileage. Additional options for motorized travel are proposed in alternatives to provide greater access and diversity of motorized riding experiences.

Mileage totals by category are as follows.

Table 38. Alternative 3; Proposed Route Changes, by Mileage

Add non-highway legal vehicle use on existing street legal routes	55.25
Decommission	14.24
Make administrative use only	40.96
New construction	0.17
Add unauthorized routes to system	14.71
Rehabilitate unauthorized routes	73.58
Remove non-highway legal vehicle use from street legal routes	6.14

There are direct and indirect effects of modifying the NFTS. The methodology and rationale are as follows.

Non-motorized recreation activities displaced by proposed motor vehicle use are estimated by use of ROS class mileage changes and indicate that there would be beneficial effects associated with the reduction of 50.2 miles in the Semi-Primitive Non-Motorized ROS class. There is a net reduction of 66.5 miles in total, lowest of the action alternatives. Unauthorized route restoration proposed in the Holcomb Valley area which would reduce potential recreation conflicts there. No specific non-motorized developed or dispersed recreation activity would be displaced.

Motorized route reductions near populated areas are 19.2 miles and near campgrounds 23.6 miles, second highest of the action alternatives.

The quality and diversity of Forest motorized recreation experiences (including driving for pleasure and touring, adequate sport experiences, loop opportunities, mixed use roads to connect loops and/or create longer routes, diversity of trail difficulty and access to desirable features) would be improved in alternative 3 as shown in Table 31 above.

Alternative 3 does not include a suite of actions that are included in alternatives 1 and 4 to address the numerous motorized recreation noise, dust and physical presence complaints from the residents of North Lake Arrowhead due to the proximity of the neighborhood to several motorized forest routes. There would be no changes to 3W12, 3W13, 2N95, 2N96, 2N28Y; no construction of access connecter to Forest Service North Shore Work Center; and no construction of a connecter between 3W12 and 3W13.

The quality of motorized access to dispersed recreation opportunities would be improved in alternative 3, as spur roads to yellow post campsites would be designated as authorized routes. A minor amount of other Forest motorized dispersed camping opportunities would be affected along existing routes that are proposed to close, be decommissioned or have access changes.

No changes would occur to designated or proposed Forest wilderness. There would be no change from existing sound conditions to the Bighorn Mountain Wilderness if Forest Road 3N03 would have mixed vehicle use on 17.6 miles. There would be 18.0 miles of route deletions or changes in use within one mile of wilderness in alternative 3. All alternatives propose the essentially the same changes within IRAs. Alternative 3 would also add/modify 3.5 miles of route within a candidate recreational river corridor.

Most of the changes proposed in alternative 3 would not foster conflict as these modifications involve reclassification of existing routes already being used by motor vehicles. And none of the changes would lead to increased use of wilderness trails or Pacific Crest National Scenic Trail use as there would be no new direct connections constructed or authorized.

Alternative 4

Alternative 4 would change the NFTS as described in Chapter 2. It has the lowest motorized road and trail mileage of the three action alternatives and proposes the least addition to the non-highway legal vehicle system and the most highway legal mileage. Additional options for motorized travel are proposed in alternatives to provide greater access and diversity of motorized riding experiences.

Mileage totals by category are as follows:

Table 39. Alternative 4, Proposed Route Changes, by Mileage

Add non-highway legal vehicle use on existing street legal routes	50.99
Decommission	20.81
Make administrative use only	50.63
New construction	0.45
Add unauthorized routes to system	8.75
Rehabilitate unauthorized routes	74.20
Remove non-highway legal vehicle use from street legal routes	24.94

There are direct and indirect effects of modifying the NFTS. The methodology and rationale are as follows.

Non-motorized recreation activities displaced by proposed motor vehicle use are estimated by use of ROS class mileage changes and indicate that there would be beneficial effects associated with the reduction of 51.0 miles in the Semi-Primitive Non-Motorized ROS class. There is a net reduction of 111.9 miles in total, highest of the action alternatives. Unauthorized route restoration proposed in the Holcomb Valley area would reduce potential recreation conflicts there. No specific non-motorized developed or dispersed recreation activity would be displaced.

Motorized route reductions near populated areas are 23.1 miles and near campgrounds 34.6 miles, second highest of the action alternatives. Alternative 4 includes a suite of actions specifically designed to address the numerous motorized recreation noise, dust and physical presence complaints from the residents of North Lake Arrowhead due to the proximity of the neighborhood to several motorized forest routes. The actions would be to decommission 3W12, 3W13 and 2N95; make 2N96 administrative use only; remove non-highway legal vehicle use on 2N28Y; construction of access connecter to Forest Service North Shore Work Center; and construction of connecter between 3W12 and 3W13. They would provide a larger buffer between the residential neighborhood and motorized forest routes, while still providing motorized access to the Forest and a diversity of motorized riding opportunities.

The quality and diversity of Forest motorized recreation experiences (including driving for pleasure and touring, adequate sport experiences, loop opportunities, mixed use roads to connect loops and/or create longer routes, diversity of trail difficulty and access to desirable features) would be improved in alternative 4 as shown in Table 31 above.

The quality of motorized access to dispersed recreation opportunities would not be improved in alternative 4, as spur roads to yellow post campsites would not be designated as authorized routes. A minor amount of other Forest motorized dispersed camping opportunities would be affected along existing routes that are proposed to close, be decommissioned or have access changes.

No changes would occur to designated or proposed Forest wilderness. There would be no change from existing sound conditions to the Bighorn Mountain Wilderness if Forest Road 3N03 would

have mixed vehicle use on 15.6 miles. There would be 25.0 miles of route deletions or changes in use within one mile of wilderness in alternative 4. All alternatives propose the essentially the same changes within IRAs. Alternative 3 would also add/modify 4.6 miles of route within a candidate recreational river corridor.

Most of the changes proposed in alternative 4 would not foster conflict as these modifications involve reclassification of existing routes already being used by motor vehicles. And none of the changes would lead to increased use of wilderness trails or Pacific Crest National Scenic Trail use as there would be no new direct connections constructed or authorized.

Cumulative Effects

There are cumulative effects of modifying the NFTS. The methodology and rationale are as follows.

No project listed on the current Forest Schedule of Proposed Actions (Appendix B) would have any significant cumulative effects on the motorized recreation that was analyzed in the alternatives of this Environmental Assessment except the Baldy Mesa Recreation Trails Project EA at the Front Country Ranger District. This project would designate and reconstruct trails for motorized and non-motorized use, evaluate location of parking areas, construct a parking area for radio controlled glider club events and close all undesignated trails and restore those areas. It would be complimentary to this Forest Travel Management EA in that it addresses an area not examined in this analysis and proposes to:

- Designate 2.0 miles of 3N24 for non-highway legal vehicle use (east end).
- Prohibit a 1.3 mile segment of 3N24 for non-highway legal vehicle use (west end).
- Designate 9.6 miles of trails that are temporarily designated for non-highway legal vehicle use.
- Designate 2.1 miles of unauthorized (user created) trails for non-highway legal vehicle use.
- Construct 2.4 miles of non-highway legal vehicle trail.
- Prohibit use on 0.5 miles of existing non-motorized trail and construct 0.5 miles of trail for equestrian use in a more suitable location.
- Continue restoring unauthorized user created trails if they occur.
- Designate a non-highway legal vehicle staging area at the junction of 3N21 and 3N53 for approximately 80 vehicles and 40 trailers. Relocate the existing parking area adjacent to and north of the existing area on 2.0 acres.
- Construct a 0.3 mile non-highway legal vehicle trail from the staging area parking area for beginner training and warm up.
- Construct a glider landing area approximately 100 by 50 yards in size.

Another reasonably foreseeable action would be a future follow-on proposal for new motorized vehicle staging areas across the Forest to help accommodate the parking needed to access the designated route system. These could include some or all of the actions in Table 40 (the majority of these are unauthorized and would not require new construction). These actions would improve access for motorized vehicles and provide legal parking opportunities, but would not create additional motorized traffic.

Table 40. Foreseeable Future Proposals for Staging Areas

District	Route Identifier	Approximate Acreage
Front Country	Summit (off Hwy 138 and 3N22)	3
Mountaintop	Miller Canyon (new construction to move user created parking out of riparian area)	3
	Big Pine Flats	3
	Crab Flats	3
San Jacinto	Vista Grande off of 4S06 (new construction)	3
TOTAL		**15**

Compliance with the Forest Plan and Other Regulatory Direction.

All alternatives would meet the goals and objectives of the San Bernardino National Forest Land Management Plan (Forest Plan).

- All alternatives would continue to provide a broad range of developed and dispersed recreation opportunities in balance with existing and future demand. Although there are NFTS changes by alternative within Recreation Opportunity Spectrum (ROS) classes in alternatives 1, 3 and 4, no ROS class would be compromised in any alternative.
- No Special Area designation would be significantly affected in any alternative.
- Part 2 of the Forest Plan contains the REC 1 and TRANS 1 objectives for Recreation Resources. All alternatives would meet these objectives. In particular, alternatives 1, 3 and 4 would to varying degrees as described above meet the objective of 'improving off-highway vehicle opportunities and facilities for highway licensed and non-highway licensed vehicles,' specifically managing the National Forest System roads for a spectrum of 4-wheel drive opportunities in the easy, more difficult and most difficult categories of route difficulty and developing motorized trails that address the needs of off-highway vehicle enthusiasts in conjunction with the designation of low-maintenance standard roads.
- And all action alternatives would plan, design, construct and maintain the National Forest System roads and trails to meet plan objectives, to promote sustainable resource conditions and to safely accommodate anticipated levels and types of use. Unnecessary unclassified roads would be eliminated and landscapes would be restored. Finally, unclassified roads would be added to NFTS in alternatives 1, 3 and 4 to improve the user experience as described above.

All alternatives would meet the Regulatory Direction (NFMA, NEPA and TM).

- Off-highway vehicle use would be planned and implemented to protect land and other resources, promote public safety and minimize conflicts with other uses of the NFS lands. A broad spectrum of forest and rangeland-related outdoor recreation opportunities would be provided that respond to current and anticipated user demands.
- Areas have been described that would be affected by the alternatives under consideration; the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided and the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term

productivity and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.

- In designating NFS roads, trails and areas, responsible officials have considered the provision of recreational opportunities; public access needs; conflicts among uses of NFS lands, including other recreational uses; and the compatibility of motor vehicle use with existing conditions in populated areas. A Motor Vehicle Use Map (MVUM) would be prepared and published for all alternatives.

Soil and Water

A detailed specialist report has been written for soil and water resources affected by the San Bernardino National Forest Route Designation project (project record). The document contains policy and direction as well as discussion of existing soil and water resource conditions and expected effects of additions and changes to the NFTS on water and soil resources. The full soil and water report is incorporated here by reference. The following discussion provides a summary of this specialist report. Design criteria were developed in the report and are incorporated in Appendix A of the EA.

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

Direction relevant to the proposed action as it affects water resources includes:

San Bernardino NF Land Management Plan

The San Bernardino NF was established to protect the watersheds that influence runoff and supply water to local communities and municipalities (SBNF LMP Part 2:27). Local demand for water is greater than can be produced from national forest watersheds (SBNF LMP Part 2:36). The Physical Resources Program emphasis is expected to balance the needs of water users with the resource needs for maintaining or improving stream, riparian, springs and wetland habitat by procuring water rights and instream flow agreements to address the increased demand for the ground and surface water resources of the national forest (SBNF LMP, Part 2:27 and 36-37).

No watershed related Forest Specific Design Criteria were identified in the San Bernardino NF LMP, Part 2:99-102. There are Standards, Guidelines, Strategies, Tactics provided for watershed (SBNF LMP Part 2:134-136) and Management Direction Design Criteria for the Southern California NF (SBNF LMP Part 3:3-41) provided for water and soil resources.

San Bernardino LMP Appendix D – Adaptive Mitigation for Recreation Uses lists actions and practices for all existing and new recreation sites and uses whenever a conflict between uses or sensitive resources is detected. Sensitive resources include riparian habitats, soils and watersheds.

San Bernardino LMP Appendix E – Five-Step Project Screening Process for Riparian Conservation Areas provides direction to ensure riparian conservation areas (RCAs) are recognized, emphasized and managed appropriately during new project planning and implementation.

FS Manual Direction

2500 Watershed and Air Management - Region 5 Supplement 2500-92-4 to FSM 2540 gives guidance on water uses and developments. This supplement is not applicable to the San Bernardino NF Motorized Travel Management EA; no water uses or developments are proposed.

Region 5 Supplement 2500-92-2 to FSM 2526 discusses riparian area management

Region 5 Supplement 2500-93-1 to FSM 2530 gives guidance on water quality management and the application of Best Management Practices (BMP). Section 2532.03 states “it is the policy of Region 5 that water quality management on National Forest System lands in California shall be conducted within the guidelines and procedures set forth in R-5 FSH 2509.22 Soil and Water

Conservation Handbook and in accordance with the Management Agency Agreement executed in 1981 between the Forest Service and State Water Resources Control Board".

2509.22 Watershed Conservation Practices Handbook – San Bernardino NF Forest Supplement 2509.22-2005-1, effective date November 30, 2005 for the San Bernardino NF provides direction for riparian resources.

2560 and 2880 Groundwater Resources Management Draft direction

EO 11988 and 11990, Floodplain and Wetland Protection - Floodplain and wetland delineation will occur as part of this analysis. Floodplain and wetland protection (BMPs) will be integrated into project design. Floodplain and wetland guidance is also found in 2509.22-2005-1 sec 2.3.

EO 11644 and 11989, Use of Off-Road Vehicles on Public Lands - These Executive Orders establish "policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands …" (Section 1). Section 3 (1) establishes that "Areas and trails shall be located to minimize damage to soil, watershed, vegetation or other resources of the public lands." Section 9 (a) allows the agency head to close trails to use if the use is causing effects to the soil, vegetation and other resources until the adverse effects have been eliminated and measures are implemented to prevent future recurrence.

Clean Water Act of 1948 (as amended in 1972 and 1987) - The Clean Water Act of 1948 (as amended in 1972 and 1987) establishes as federal policy the control of point and non-point pollution and assigns the States the primary responsibility for control of water pollution. Compliance with the Clean Water Act by National Forests in California is achieved under State Law (The California Water Code, including the Porter-Cologne Water-Quality Act (as amended in 2006)).

The state of California, in accordance with EPA and as required by the Clean Water Act (CWA), Section 303(1) (A), has identified water bodies impaired by specific pollutants. Impaired water bodies may not fully support their designated beneficial uses and are placed on the State 303(d) list for further study or development of a TMDL plan for the pollutant deemed to be impairing use.

Water Quality Management for Forest Service System Lands in California, 2000 - Non-point source pollution on national forests is managed through the Regional Water Quality Management Plan (USDA Forest Service 2000), which relies on implementation of BMPs. The Water Quality Management Plan includes one BMP for non-highway legal vehicle use (4-7) and 28 BMPs related to road construction and maintenance (2-1 to 2-28) (Watershed Project File WAT-9). All NFS roads and trails open to non-highway legal vehicle use are required to comply with these BMPs.

Of particular relevance for travel management, BMP #4-7 requires each forest to 1) identify areas or routes where non-highway legal vehicle use could cause degradation of water quality; 2) identify appropriate mitigation and controls; and 3) restrict non-highway legal vehicle use to designated routes. This BMP further requires a forest to take immediate corrective actions if considerable adverse effects are occurring or likely to occur.

Watershed Project File WAT-9 contains a BMP checklist for the San Bernardino NF Motorized Travel Management EA. Region 5 BMP Practices are referenced in USDA-FS Sept 2000. BMP monitoring procedures are referenced in USDA-FS June 2002. San Bernardino National Forest Riparian Conservation Area guidance is found in 2509.22-2005-1 sec 2.5.

The California Water Code consists of a comprehensive body of law that incorporates all state laws related to water, including water rights, water developments and water quality. The laws related to water quality (sections 13000 to 13485) apply to waters on the national forests and are directed at protecting the beneficial uses of water. Of particular relevance for the proposed action is section 13369, which deals with non point-source pollution and BMPs.

The Porter-Cologne Water-Quality Act, as amended in 2006 - The Porter-Cologne Act, (as amended in 2006), is included in the California Water Code. This act provides for the protection of water quality by the State Water Resources Board and the Regional Water Quality Control Boards, which are authorized by the US Environmental Protection Agency (US EPA) to enforce the Clean Water Act of California. Section 13263 of the Porter Cologne Act requires compliance with the Provisions of the Federal Water Pollution control Act as amended in 1972 (also known as the CWA) and preparation of a Pollution Prevention Plan for all projects.

Grant money from the State of California for non-highway legal route implementation contains a stipulation that the project will conform to state laws and policies. The Pollution Prevention Plan for this project is found in the Watershed Project File WAT-9.

Direction relevant to the proposed action as it affects soil resources includes:

San Bernardino National Forest LMP - No watershed related Forest Specific Design Criteria were identified in the San Bernardino NF LMP, Part 2:99-102. There are Standards, Guidelines, Strategies, Tactics provided for watershed (SBNF LMP Part 2:134-136) and Management Direction Design Criteria for the Southern California NF (SBNF LMP Part 3:3-41) provided for water and soil resources.

San Bernardino NF LMP Appendix D – Adaptive Mitigation for Recreation Uses lists actions and practices for all existing and new recreation sites and uses whenever a conflict between uses or sensitive resources is detected. Sensitive resources include riparian habitats, soils and watersheds.

EO 11644 and 11989, Use of Off-Road Vehicles on Public Lands - These Executive Orders establish "policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands …" (Section 1). Section 3 (1) establishes that "Areas and trails shall be located to minimize damage to soil, watershed, vegetation or other resources of the public lands." Section 9 (a) allows the agency head to close trails to use if the use is causing effects to the soil, vegetation and other resources until the adverse effects have been eliminated and measures are implemented to prevent future recurrence.

National Forest Management Act of 1976 - Renewable Resource Program. "(C) recognize the fundamental need to protect and where appropriate, improve the quality of soil, water and air resources."

National Soil Management Handbook - The Soil Management Handbook (USDA 1991) is a national soils handbook that defines soil productivity and components of soil productivity, establishes guidance for measuring soil productivity and establishes thresholds to assist in forest planning.

Region 5 Soil Management Handbook Supplement - The Forest Service Region 5 Soil Management Handbook Supplement (R5 FSH Supplement 2509.18-95-1) establishes regional soil quality analysis standards. The analysis standards address three basic elements for the Soil Resource: (1) soil productivity (including soil loss, porosity; and organic matter), (2) soil

hydrologic function and (3) soil buffering capacity. The analysis standards are to be used for areas dedicated to growing vegetation. They are not applied to lands with other dedicated uses, such as developed campgrounds, administrative facilities or in this case, the actual land surface authorized for travel by the public using various kinds of vehicles.

Regional Forester's Letter (dated Feb 5, 2007). This letter provided clarification to Forest Supervisors on the appropriate use of the R5 Soil Management Handbook Supplement (R5 FSH Supplement 2509.18-95-1). It states in part:

Analysis or evaluation of soil condition is the intended use of the thresholds and indicators in R5 FSH Supplement 2509.18-95-1. They are not a set of mandatory standards or requirements. They should not be referred to as binding or mandatory requirements in NEPA documents. Standards and guidelines in Forest Land and Resource Management Plans provide the relevant substantive standards to comply with NFMA.

The thresholds and indicators represent desired conditions for the soil resource. Utilization of the thresholds and indicators provides a consistent method to analyze, describe and report on soil condition throughout the Region.

Compliance with the Forest Plan and Other Direction.

San Bernardino National Forest Plan (2006)

Forest Wide Standards and Guidelines, Strategies and Tactics (SBNF LMP, Part 2, Appendix B:134-136). All alternatives are consistent with the Forest Plan if BMPs, a Pollution Prevention Plan, Monitoring, Route Maintenance, and Visitor Controls are implemented.

Watershed Project File WAT-10 contains the Recreation Adaptive Management Review for soil and water resources. Watershed Project File WAT-11 contains the Riparian 5-Step analysis for soil and water resources. Mitigations and design criteria were developed in conjunction with these analyses.

Forest Service Manual 2500 Watershed and Air Management

1. Region 5 Supplement 2500-92-4 to FSM 2540 gives guidance on water uses and developments.

This supplement is not applicable, no withdrawal of surface or groundwater

2. Region 5 Supplement 2500-92-2 to FSM 2526 discusses riparian area management and is further defined by The San Bernardino Supplement to 2509.22 – Soil and Water Conservation Practices Handbook, FSH 2509.22-2005-1.

All alternatives are consistent with FSH 2509.22-2005-1 (Watershed Project File WAT-9)

3. Region 5 Supplement 2500-93-1 to FSM 2530

This supplement is applicable and has been applied through the implementation and use of best management practices (BMP) and mitigations. Erosion control and in-channel sediment reductions are a concern and have been addressed through use of BMPs and route design features

4. FSM 2543 and 2880 are both draft direction for the management of groundwater resources. Manual direction has been applied

All alternatives are consistent because there would be no withdrawal of surface and/or groundwater

Alternative effects to surface and groundwater resources are disclosed.

5. Forest Service Manual 2550 Soil Management

FSM 2550 provides guidance for soil resources along with Region 5, Soil Management Handbook Supplement (2509.18-95-1 Effective June 11, 1995). Designated non-highway legal routes would be considered a dedicated trail and recreation route system; thus, the soil productivity guidelines related to percent of ground cover would not apply in the route corridors or staging areas. Forest Service direction states that "areas with dedicated uses, such as specified roads and developed campsites, are not expected to meet the soil quality analysis standards (S52 – USDA-FS 2005).

Erosion control and in-channel sediment reductions are a concern and have been addressed through use of BMPs and route design features.

Effects Analysis Methodology

Analysis Area and Spatial/Temporal Boundaries

The analysis area for watershed resources includes the route and a 300-foot buffer along the routes identified in this EA. For erosion analysis, affects were analyzed downhill or downstream of the travel routes.

For purposes of analyzing direct, indirect and cumulative effects, the spatial boundary was the San Bernardino National Forest boundary, one year was used for short-term effects and 20 years was used for long-term effects.

Data Sources

1. Soil and water resources were field reviewed by Terry Carlson, Forest Service Hydrologist and Soil Scientist, November 18, 19 and 20, 2006 (Watershed Project File WAT-1: Soil and Water Review). Over 25 miles of the proposed routes were reviewed focusing on the Cleghorn and Pilot Rock Fuelbreaks, Green Valley and Crab Cr Routes, Cactus Flats area and short routes around the housing development on the north shore of Lake Arrowhead. In addition, a restoration plan was developed for the Green Valley Staging Area and proposed staging area locations for Summit, Miller Canyon and Crab Flat were reviewed. These routes and staging areas were field reviewed with the Forest Motorized Trail Ranger. Information about routes not field reviewed in November was obtained from discussions with the Forest Motorized Trail Ranger (Jan 2007, March 2007).

   Review methods included driving routes identified with special watershed concerns and those areas needing restoration. Notes and pictures were taken (Photos are found in Watershed Project File WAT-7). Because of the dispersed nature of the project areas, site-specific soil data and stream data was not collected, however as noted above, pictures and observational notes were taken. GIS resources, topographic maps and conversations with the Forest ORV Ranger provided route specific information. The data is useful to provide a characterization of the area but is not intended to provide trend or baseline monitoring data.

   Soil and water resources were also field reviewed in August 2007 by Greg Hoffman, San Bernardino NF Motorized Trail Ranger, who has education and experience in watershed science as well as extensive knowledge of the Forest non-highway legal routes. The Watershed Specialist Report was peer reviewed by Robert Taylor, San Bernardino Forest Hydrologist.

   Information on impaired water bodies was obtained from the California Department of Water Resources website (California DEQ 2007).

2. The San Bernardino NF provided GIS data runs for road density, meadow and stream buffers, road/stream intersections (crossings), soil erosion and slope, as well as 7th level subwatershed basins. GIS products are found in the Watershed Project File WAT-4. GIS numbers are useful to compare between alternatives. There is error associated with the numbers (*e.g.*, GPS and locational errors when inputting points and lines into GIS, lack of full GIS coverage); the numbers do not represent absolute values.
3. Soils within the analysis area have been mapped and are described in the San Bernardino National Forest Land System Inventory (USDA NRCS 1981). The survey, completed in 1981, was a broad reconnaissance level survey. For this project, the survey was used to provide landscape level information related to the soil resource (Watershed Project File WAT-1: Soil Series Information). This Soil Resource Inventory was correlated under the National Cooperative Soil Survey with NRCS (Natural Resources Conservation Service).
4. Erosion and Runoff Risk Modeling was completed using FS WEPP - Disturbed WEPP. This is a computer model that allows users to evaluate quickly erosion and sediment delivery potential from forest activities and roads (Watershed Project File WAT-2: WEPP run for mitigations). Documentation of the model, assumptions and limitations can be found on the web site: http://forest.moscowfsl.wsu.edu/fswepp. Bill Elliot is the Project Leader.

   The modeling illustrates to decision makers and the public various erosion and runoff risks associated with the typical soil found on the forest. In addition, two different stream crossing egress trail widths were modeled (Watershed Project File Table WAT-5).

   Experience using the model for other projects shows that in general as you increase slope, increase traffic and decrease vegetation on sandy soils, erosion will increase; thus erosion modeling was not conducted for all channel crossings or along all routes considered (Elliot 2007 personal communication). This modeling provides a baseline to compare alternatives.

   Finally, FS WEPP Roads modeling was completed to determine the estimated road slope at which accelerated erosion occurs. For this exercise, Lake Arrowhead climate parameters where combined with sandy loam soils (Watershed Project File WAT-2: WEPP run for mitigations). All road parameters were held constant with the road slope changing from 0.3 to 25 percent. The estimated road prism erosion was graphed and reviewed for jumps in erosion rates. Based on the constants, erosion increased most between 0.3 and 5 percent slope and again between 15 and 20 percent. Given the shear stress and compressive effects of wheeled vehicles on slopes, a slope range of 15-20 percent was determined to be most sensitive to non-highway legal vehicle traffic. This slope range corresponds to soil sensitivities document in the San Bernardino NF Soil Survey and literature. Refer to the effects section of this document for information on the effects of non-highway legal traffic on soil and water resources and literature citations.

   Limitations of Disturbed WEPP and WEPP Roads Model were considered and are discussed in the Soil and Water Report.

Water and Soil Resource Issues

Water and soil issues were raised through both an internal and public scoping process for the proposed action. Issues are incorporated into mitigations and discussed in this analysis.

- Clean Water Act (CWA)
- Water quality limited water bodies.
- Changes to water quality.

- Stream Channel Stability, at route crossings or where the route and channel are in close proximity.
- Increase in slope erosion and in-channel sediment. Coarse textured soils and slopes greater than 15 to 20 percent result in a moderate to high erosion hazard.
- Riparian Areas, wetlands, floodplains: project effects to these resources.

Water and Soil Resource Issue Statements and Measures

1. The effects of implementing the San Bernardino NF Motorized Travel Management EA on surface water quality (sediment, nutrients and metals).

   Measure: Miles of routes added to NFTS system (net change)

   Measure: Miles designated for public motorized use within 150 feet of perennial streams

   Measure: Miles designated for public motorized use within 150 feet of intermittent streams

   Measure: Miles proposed for decommissioning

   Measure: Miles proposed for restoration of unauthorized routes

2. The effect of implementing the San Bernardino NF Motorized Travel Management EA on stream channel stability.

   Measure: Number of intermittent stream crossings to be closed to public motorized use

3. The effect of implementing the San Bernardino NF Motorized Travel Management EA on soil erosion rates.

   Measure: Acres to be closed to public motorized use on severe erosion risk soils

4. The effect of implementing the San Bernardino NF Motorized Travel Management EA on wetland and meadow hydrology.

   Measure: Miles designated for public motorized use within Rouse Meadows

Affected Environment

Water Resources

With exceptions, NFTS routes are located such that water resource desired conditions are met. Exceptions include old firelines (e.g. 2W47X, 2W33X and 2N12X) and poorly maintained or constructed routes. These routes are generating sand and fine sediment due to accelerated erosional processes (e.g. gully formation and enlargement). Since most adjacent channels are ephemeral or intermittent, route sediment is stored in the drainage until storm events with enough power scour the accumulations. Mitigations, maintenance and monitoring have been proposed to reduce these route related sediment inputs.

Where visitor controls are not in place at stream crossings, crossings may become wide or have evidence of multiple trails at the approaches, especially if erosion is causing visitors to ride outside the established tread. Fords on Routes 3N14 (Holcomb Cr), 2N12X (Crab Cr) and 3N34X (Willow Creek) were found to be in need of hardening to limit travelway width, reduce erosion and protect stream function (Water and Soil Resource Report and Appendices).

There is one seasonally moist meadow, Rouse Meadow, with a non-highway legal route included in this analysis (Route 2N25Y). Today, the original roadbed is overgrown and difficult to find.

No anthropogenic sources of nutrients were found associated with existing NFTS routes. Currently, herbicides are not being used.

Flow regimes and channel stability appears to be in balance with the climate, topography and channel morphology expected in steep mountainous terrain with shallow, non-cohesive soils. Summer thunderstorms and rain-on-snow events provide episodic disturbance to this balance, overwhelming the ability of the soil to capture and store water because it comes too fast. Some routes are in need of maintenance and include stream crossings that are affecting channel function.

Soil and Geologic Resources

The local rocks weather into soils that are fine to coarse loamy sands and sandy loams (Water and Soil Resource Report and Appendices). All the existing routes are located on soils with Moderate or Severe erosion class ratings.

Recovery potential within NFTS travelways is low unless vegetation loss and erosion is caught early. Once erosion has removed the thin top soil or resulted in gully formation, site recovery is a slow process. Site stabilization can occur with adequate drainage, the use of groundcover, mulches or erosion control fabrics and persistence in planting and establishment of vegetation.

The desired soil resource condition is not met where routes are on steep, poorly drained or maintained route prisms or where people have strayed from a designated route to create hill climbs areas or establish new routes. In these areas the thin layer of duff and litter has been lost allowing erosion processes to erode the shallow, cohesionless topsoil. Away from the route prism, soils show little sign of disturbance and are meeting the desired condition.

Two geologic hazards have been identified as occurring throughout the forest; flash floods and accelerated soil erosion. Flash floods frequently occur in intermittent and ephemeral drainages during rain-on-snow events or intense summer thunderstorms. Soils adjacent to and within NFTS routes included in this analysis have moderate to moderate-high erosion hazard. The San Andres Earthquake fault and numerous other faults also exist in the area.

Environmental Consequences – Comparison of Alternatives

Direct and Indirect Effects Common to all Alternatives

Similar soil and water resource effects related to actions in the EA are recognized and discussed below. In general, the alternatives vary in the magnitude, number of miles, proposed for action. The differences in magnitude between the alternatives are discussed in the section titled “Alternative Specific Effects”.

The prohibition of cross-country motorized vehicle travel

Cross-country motorized travel is currently prohibited in the San Bernardino NF. Motorized vehicle use is restricted to designated routes by the Forest Plan, Part 3, S35:8-9 and Forest Order 5, pursuant to 36 CFR 261.56 (July 22, 1996). The effect of this prohibition has been to end traffic on routes and areas beyond the authorized NFTS. The effect occurred when the Forest Order was enacted.

In general, the prohibition on cross-country travel has been successful in reducing off-route excursions by motorized vehicles. Visitor contacts and education has also been effective and most unauthorized routes have begun to stabilize from an erosion standpoint. Exceptions occur on rilled or gullied surfaces where some level of active stabilization or restoration may be needed.

There are a few popular unauthorized routes where use has not been curtailed, for example the fuelbreak paralleling the Pilot Ridge and Cleghorn Roads. These routes and others are being considered for inclusion into the San Bernardino NF NFTS to provide a variety of experiences to the rider (Table 6). A positive benefit of bringing some of these route segments into the NFTS would be the development and implementation of a route maintenance plan and the application of BMPs to the routes before inclusion into the NFTS. Remaining Pilot Ridge and Cleghorn route sections are proposed for active restoration to control gully formation.

The major effects of cross-country motorized travel and route proliferation on water resources included increased peak flows and sediment loads due to compacted and unvegetated route surfaces and detachment of sediment by vehicles. Soil effects were the physical displacement of soil during construction of a NFTS facility or caused by the initial unauthorized motorized vehicle traffic, loss of soil productivity from the displacement and loss of soil depth, loss in soil hydrologic function due to loss of soil and loss of soil cover. For existing NFTS and unauthorized routes, direct and indirect effects have already occurred. The short-term effects of proposed changes to the San Bernardino NFTS system will be small and unquantifiable reductions in traffic-related sediment and related pollutants.

Indirectly, the removal of vegetation and exposure of soil in unauthorized routes have resulted in erosion. These unauthorized use areas were not designed or constructed to standards and have no runoff water control to protect the soil resource. Further loss of productivity has occurred and diminished soil hydrologic function. Indirect effects to the soil resource will continue into the future because passive recovery of previously disturbed areas will be slow given the soil texture and climatic regime. Active recovery may speed healing depending on the type of active restoration practices utilized (Watershed Project File WAT-6). Site-specific active restoration plans have not been prepared for the unauthorized routes included in active restoration.

Addition of Motorized Facilities (e.g., New Construction and Add Unauthorized Routes)

Discussed below are the effects of adding motorized facilities. For alternatives 1, 3 and 4, additional motorized facilities include new construction and the designation of selected unauthorized routes into the NFTS. For alternative 2 all routes currently designated for motorized public use would remain open and no unauthorized routes would be added to the San Bernardino NF NFTS.

Direct and Indirect Route Effects – Soils and Erosion Risk

Effects of roads and NFTS routes on the landscape, soil, water and ecological resources have been well documented (Trombulak and Frissell, 2000; Luce and Black, 2001; Switalski et al., 2004; Sheridan et al., 2006; Ouren et al., 2007; and others). Travel route erosion would continue under all alternatives, including no action, because designated routes exist on the landscape and receive use. Existing routes on steep segments without adequate drainage are most susceptible to erosion. Even on bedrock, wheel action dislodges particles, especially on the local geology of soft sandstone, limestone and highly weathered granites (Water and Soil Resources Report: pg 17-20).

While sandy and sandy loam soils may not readily compact, they are easily eroded, especially on a slope or where vegetation has been lost. These sandy oils have a severe erosion risk and are common along the routes considered in this EA (Table 41).

Conversely, fine textured soils with organic matter and stable aggregates are harder to erode but compact easily, especially when moist (Douglass et al., 1999; Foltz and Meadows, 2007; Eckert et al., 1979; Tuttle and Griggs, 1987; and Ouren et al., 2007). Fine textured soils are prone to soil

sealing with raindrop splash or when soil aggregates break down. These processes often result in gullies from consolidated flows across compacted and sealed surfaces. It is not uncommon for fine textured soils to "powder" with use. The "powdered" soil has no organic matter or internal cohesion and is easily lost to erosion or contributes to soil sealing.

Fine textured soils can occur in meadow and desert settings. Rouse Meadows (2N25Y) has fine textured soils and is seasonally moist. Desert soils are especially sensitive to disturbance because of low organic mater, sparse vegetation and the reliance on crytobiotic crusts for stability. Cryptobiotic crusts are easily disturbed with wheel or foot traffic and once disturbed the fine textured soils are easily eroded by water or wind (Eckert et al., 1979). The routes in the Cactus Flat and Cajon Junction area would fall into this category of sensitivity.

Vehicle use increases erosion rates and sedimentation through detachment, abrasion and changes to the road surface, making the local sandy and cohesionless soils susceptible to transport. Four-wheeled vehicles and motorcycles apply a shear stress parallel to the soil surface and a compression stress perpendicular to the surface. These stresses are most destructive on uphill route segments, on curves or route segments in which the tires may spin. Conservation of the soil resource in motorized recreation areas requires intense on-site management (Tuttle and Griggs, 1987).

Traffic can also change the road surface resulting in rill or gully formation or damage to road drainage. The magnitude of impact is tied to the amount and type of vehicle use as well as the behavior of the rider (Sheridan et al., 2006; Foltz and Meadows, 2007; Chin et al., 2004; Ayala et al., 2005; Tuttle and Griggs, 1987).

Studies cited in the Watershed Specialist Report (project record) point to road location as well as adequate and maintained drainage structures to reduce road and motorized recreation related impacts to soil and water resources. Providing for road drainage to be captured and stored on the hillslopes reduces in-channel sedimentation. These principles have resulted in mitigations and best management practices (BMPs) for road and trail design, layout, construction and maintenance (Appendix A and D).

Table 41 compares and contrasts acres of moderate and severe erosion risk on routes identified within this EA. The numbers for alternative 2 represent no action to decommission system routes or change use to administrative or permit holders use only.

Table 41. Erosion Risk Ratings

	Routes to be Designated for Motorized Public Use		Routes to be Closed to Public Use	
	Moderate Erosion Class (Acres)	Severe Erosion Class (Acres)	Moderate Erosion Class (Acres)	Severe Erosion Class (Acres)
Alternative 1	405	2675	1276	4955
Alternative 2	578	4635	1103	2993
Alternative 3	498	2311	1259	4447
Alternative 4	397	2526	1289	5028

Data Source: Watershed Project record: GIS Slope, GIS Soils

Direct and Indirect Route Effects – Stream Channels, Flow Regimes and Water Quality

Hydrologically connected non-highway legal routes are routes with stream crossings or road flow that runs directly into a stream channel or ephemeral draw. Since these routes exist on the landscape today, changes in ephemeral draw or stream channel hydrology occurred at the time the routes were constructed or initially developed by users and continue into the present. Data is not available as to stream flow prior to the existing route construction or development.

Given the arid climate, it is expected that channel function would continue to be governed by climatic events, for example the timing, duration and intensity of snowmelt, large storms or rain-on-snow events. Along ephemeral draws and intermittent streams, bank vegetation is sparse and the coarse textured soils subject to erosion during runoff events. There would be no change to this existing condition with implementation of any alternative. However where routes are maintained, *e.g.*, maintenance of route drainage and hardening of stream crossings, improved riparian and channel function would be realized. In addition, visitor controls at the crossings would limit off-route travel, crossing expansion or the creation of multiple ingress/egress tracks (Watershed Mitigations 7 and 11).

Route 3N95, along Coxey Creek is currently closed to public use and would be decommissioned under alternatives 1, 3 and 4. Originally closed to protect the armored three-spine stickleback fish (T&E species), the closure also enhances riparian and stream processes by protecting the channel bed and banks from motorized use.

Illustrated in Table 42 is a comparison between alternatives and the number of stream crossings that would remain open or be closed to public use. The numbers for alternative 2 represent no action to decommission system NFTS routes or change use to administrative or permit holder use only.

Table 42. Stream Crossings

	Routes to be Designated for Motorized Public Use		Routes to be Closed to Motorized Public Use	
	Perennial Stream Crossings	Intermittent Stream Crossings	Perennial Stream Crossings	Intermittent Stream Crossings
Alternative 1	0	50	14	98
Alternative 2	14	99	0	49
Alternative 3	0	40	14	87
Alternative 4	0	50	14	98

Data Source: Watershed Project record: GIS Crossings

Illustrated in Table 43 is a comparison between alternatives and the miles of perennial or intermittent channels within 150 feet of included routes. The numbers for alternative 2 represent no action to decommission system NFTS routes or change use to administrative or permit holder use only. The decommissioning of Routes 1N39A and 1N05A under alternative 4 is reflected in the additional 0.2 miles of route closed within 150 feet of perennial streams and affect the Santa Ana River and Fish Creek respectively.

Table 43. Miles of Analyzed Non-highway Legal Route within 150 feet Streams

	Routes to be Designated for Motorized Public Use		Routes to be Closed to Motorized Public Use	
	Routes within 150 feet of Perennial Streams	Routes within 150 feet of Intermittent Streams	Routes within 150 feet of Perennial Streams	Routes within 150 feet of Intermittent Streams
Alternative 1	0.3	6.1	2.7	11.4
Alternative 2	2.9	11.1	0.1	6.4
Alternative 3	0.4	6.2	2.7	10.4
Alternative 4	0.3	6.1	2.9	11.4

Data Source: Watershed Project record: GIS Stream Buffers

The miles of motorized public use routes within 150 feet of intermittent channels are the same in alternatives 1 and 4 (Table 43). The mileage within 150 feet of perennial or intermittent streams

to be closed is slightly less under alternative 3 and significantly less for alternative 2. Routes open to public use within 150 feet of perennial or intermittent channels increase the risk of channel bed or bank damage if off-route travel occurs.

Beneficial Uses and Listed Waterbodies

Table 44 describes the effects of the alternatives on beneficial uses and listed waterbodies. Actions that change use to administrative use only would have a positive effect on adjacent listed waterbodies since use of the route and the potential sediment generated from that use would be restricted. Through the restriction process, seasonal closures, type of vehicles and number of vehicles can be controlled. In addition, these routes would be maintained to BMP standards further reducing the risk of sedimentation.

Where routes are proposed to be added to provide motorized access routes to designated yellow post campsites positive effects would be realized. Positive effects would include having the access routes delineated and visitor use controlled as well as having the routes carefully planned, considered and maintenance performed to meet BMPs. The yellow post campsites would continue to be used rather the access routes are added to the NFTS or not.

Where routes are to be decommissioned or restored, positive effects would be realized through the reduction of user created sedimentation within the road prism and at any stream crossing.

Change of use to include both non-highway and highway legal vehicles would have a slight negative to neutral effect. Non-highway legal vehicles may be operated in a manner that increases route erosion; research has found the combination of vehicle and skill result in faster and more aggressive moves on slopes and curves (USDA Forest Service Draft 2007; Foltz and Meadows 2007). However, the routes proposed for vehicle use changes exist on the landscape and are currently being used by highway legal vehicles. Thus the routes have the wide to accommodate non-highway legal vehicles so no additional resources would be designated as roads or trails.

Table 44. California State 303(d) Listed Waterbodies adjacent to EA Routes, Numeric Action Analysis by Alternative

Listed Subwatershed	Non-Highway Legal Route Being Considered in this EA	Action And Effect
Big Bear Lake and Tributaries (including Grout and Knickerbocker Creeks) Rathburn Creek (Trib to Big Bear Lake)	2N77, 2N48Y, 2N07, unauthorized routes on the south and north sides of the lake – change to administrative use or decommission/restore 2N46Y, unauthorized routes in the headwaters of Rathburn Creek - change to administrative use or decommission/restore	Alternative 1 Change to Administrative = 3.2 mi Decommission = 0.9 mi Restore = 2.8 mi Alternative 2 No change from current designation Alternative 3 Change to Administrative = 3.2 mi Decommission = 0.9 mi Restore = 2.8 mi Add Unauthorized Routes = 0.2 mi Alternative 4 Change to Administrative = 3.2 mi Decommission = 0.9 mi Restore = 2.8 mi

Listed Subwatershed	Non-Highway Legal Route Being Considered in this EA	Action And Effect
Santa Ana River, Alder Creek, Deer Creek, subwatersheds	1N04A, 1N03 – change to administrative use add unauthorized routes that access yellow post campsites along Coon Creek 1N39A, 1N05A - decommission routes	Alternative 1 Change to Administrative = 2.1 mi Alternative 2 No change from current designation Alternative 3 Change to Administrative = 2.1 mi Add Unauthorized Routes to yellow post sites = 0.7 mi Alternative 4 Change to Administrative = 2. mi Decommission = 2.3 mi
San Jacinto River, NF San Jacinto River, Poppet Creek, Strawberry Creek subwatersheds	4S06	Alternative 1 Change vehicle class = 8.2 mi Alternative 2 No change from current designation Alternative 3 Change vehicle class = 8.2 mi Add Unauthorized Routes to yellow post sites = 0.5 mi Alternative 4 Change vehicle class = 5.6 mi

Data Source: Alternative Maps; State of California 303(d) List 2005

Adding Unauthorized Routes to the San Bernardino NF NFTS

Unauthorized routes are closed to travel by motorized vehicles under the Forest Plan (Part 3, S35:8-9) and Forest Order 5 (pursuant to 36 CFR 261.56 (July 22, 1996)). The effects of unauthorized routes on the landscape have already occurred and are similar to those discussed above for route effects. The effects include physical soil displacement, loss of soil productivity from the trail tread, erosion and loss of hydrologic function. The effects of unauthorized routes on the landscape are generally greater than those from designed and constructed routes (NFTS routes) because NFTS routes are built to include BMPs and trail design standards. A positive effect occurs if unauthorized routes are designated in that these unauthorized routes would have a maintenance plan and BMP upgrades, reducing effects to soil and water resources (Mitigations 9, 11 and 12).

Review of the unauthorized routes proposed to be added to the NFTS (alternatives 1 and 4) show that only 0.01 miles are within 150 feet of or cross, intermittent channels (Watershed Project File WAT-4:GIS stream buffer and crossings). No routes (alternatives 1 and 4) are within 150 feet of or cross perennial streams. Alternative 3 proposes to open 0.7 miles of unauthorized routes within 150 feet of intermittent streams and 0.1 miles within 150 feet of perennial streams. The unauthorized route mileage close to stream corridors associated with alternative 3 relates to adding yellow post campsite access routes into the NFTS. Under alternative 2, all unauthorized routes would remain closed under the existing Forest Plan and Forest Order.

Unauthorized routes proposed for inclusion into the NFTS are found in Table 45. All the routes, except Routes U2938 and U2000, have a severe erosion hazard (Watershed Project File WAT-4: Soil Erosion Risk). The high sensitivity associated with Routes 2938 and U2000 come from the desert landscape through which they pass, rather than the slope or soil type.

Sections of the unauthorized routes that parallel the Pilot Rock (2W33X) and Cleghorn (2W47X) routes have gully erosion within the road prism. These sections have been identified and are scheduled to be closed and stabilized. Other sections of these routes, if added to the NFTS, would have maintenance and BMPs applied.

Designating unauthorized route U6905 would have a positive effect to soil and water resources since it would replace the currently designated route 2N26 which encroaches on Willow Creek. Route 2N46 is heavily used and affects the function of Willow Creek and its riparian area. Unauthorized route U6905 is away from the riparian area and located on flat ground in relatively stable soils with moderate erosion risk.

Currently, the vehicle access routes to yellow post campsites are considered unauthorized routes. These routes and their effects are discussed under alternative 3. Only alternative 3 considers designating yellow post campsite access routes.

Table 45. Unauthorized Routes to be Added to the NFTS

Unauthorized Route	Stream Crossings	Sensitivity
U2000	0	Desert soils, high sensitivity to erosion and loss of groundcover (pavement, cryptobiotic and chemical crusts)
2W33X	0	High on-site erosion hazard because of soil texture and lack of internal cohesion, no drainage structures and the presence of gullies in trail tread. Low off-site erosion hazard because the route is located on a ridgetop with limited connection to ephemeral drainages Sections of high off-site erosion hazard have been identified and would be closed and stabilized/rehabilitated.
U2938	1 – intermittent drainage, unnamed	Desert soils, high sensitivity to erosion and loss of groundcover (pavement, cryptobiotic and chemical crusts)
U6905	0	Low sensitivity (Slope <10%, soils moderate erosion hazard), replaces an existing route (3W13) within the Willow Creek Riparian zone.
2W47X	0	High on-site erosion hazard because of soil texture and lack of internal cohesion, no drainage structures and the presence of gullies in trail tread. Low off-site erosion hazard because the route is located on a ridgetop with limited connection to ephemeral drainages Sections of high off-site erosion hazard have been identified and would be closed and stabilized/rehabilitated.

New Route Construction

Alternatives 1 and 4 propose 0.5 miles of new construction; alternative 3 proposes 0.2 miles. No new construction would occur in alternative 2 (Appendix B). New trails would be constructed to Forest Service standards and include BMPs and mitigations. Construction related erosion is reduced through the application of BMPs and mitigations. Once the route has “weathered” and

construction related erosion stabilized, erosion rates would drop to those described for vehicle use (Sheridan *et al.* 2006; Megan *et al.* 2001).

No connection to ephemeral or intermittent channels is found along the three proposed routes. Approximately 0.2 miles of new route would be designated for administrative use only; this route is adjacent to the Lake Arrowhead Work Center and connects the work center to the Lake Arrowhead non-highway legal trails.

Another section of new route is also found in the Lake Arrowhead area along Route 3W14. This new route is approximately 0.1 miles in length. The third section of new route is a connector route between 3W12 and 3W13. This route is approximately 0.2 mile long.

The new construction is located on soils with a severe erosion classification. Two-thirds of the new construction would be on landscape slopes less than 20 percent; about seven acres on slope greater than 20 percent. Mitigations 1-19 would apply to all new construction.

Restoration of Unauthorized Motorized Vehicle Routes

User-created routes not identified in this analysis would remain closed. Passive restoration is proposed unless a route is identified for active restoration. Since closure of the cross-country motorized travel routes, passive restoration has begun the healing process although disturbed areas have not change much because removal of vegetation, compaction of soils and alteration of drainage patterns require time to heal without active restoration. Elimination of traffic on unauthorized routes and areas has reduced erosion caused by wheel abrasion, but the routes still intercept and concentrate surface flows and produce sediment. In the long-term, some or all unauthorized routes and areas would probably revegetate and regain some of their hydrologic and geomorphic functions, although use of these routes by non-motorized traffic could delay or prevent recovery (Ouren et al. 2007; Madej 2001; Switalski et al. 2004; and Luce 1997).

Passive restoration for soil and water resources depends on vegetation re-establishment to provide the building blocks to rebuild soil processes that in turn reduce erosion and provide for on-site capture and storage of water. Given the sandy and shallow soils with an effective rooting depth of 10 to 20 inches, passive recovery potential of revegetation would be limited and long-term, greater than 20 to 30 years (Watershed Project File WAT-6). Recovery of soil and hydrologic processes will take longer as soil will need to rebuild and decompact or erosion will need to decrease to geologic levels.

Narrow tracks are likely to close quickly from vegetation growth along the edges while wide trails will take longer to vegetate naturally. Trail aspect and the kinds of vegetation growing nearby would also direct how quickly or slowly the route naturally revegates. If any use continues on the route, e.g., hiking, horseback riding, bike use, vegetation restoration will be retarded.

Active restoration is proposed on identified unauthorized routes. Identified routes are those tied to a legal settlement agreement through the Southern California Conservation Strategy and portions of 2W47X (Cleghorn Ridge Fuelbreak).

Active restoration would accelerate the development of vegetation and soil stabilization, slightly, but would require forest resources from the forest. Continued use of the route, even by hikers, would retard restoration efforts. The long-term goal of any restoration or restoration project would be to have self-sustaining, effective groundcover and vegetation.

Active restoration may include ground disturbance and the use of machinery to decompact soil, remove road bed contours, spread berm or organic material in the area, install waterbars and gully control structures and reestablish stream drainages by removing culverts or re-shaping fords.

Depending on the location of these activities, this work could also be done by hand. Passive and active restoration techniques and references are described in detail in Watershed Project File PF-WAT-6: Decommissioning and Restoration References. Site-specific active restoration plans have not been prepared for the unauthorized routes included in active restoration.

Changes to the existing NFTS

(Changing Vehicle Classification and Routes Proposed for Closure to Motorized Public Use e.g., Change Designated Use to Administrative or Permit Holder only and Route Decommissioning)

Changes to Vehicle Classification

The action alternatives propose to change the type (class) of vehicle for which use is permitted. For example, a route may now only be used for motorcycles, but the alternatives may allow four-wheeled vehicles as well. Changes to vehicle classification effect soil and water resources because of potential changes in road width and too a lesser degree the type of vehicle and rider skill required along the route. The routes proposed for vehicle classification change exist on the ground; soil and water direct and indirect effects occurred when the route was constructed.

The effects of changing vehicle classification on the San Bernardino NFTS would be minimal because the existing routes are wide enough to accommodate the change in use. No addition land would be dedicated to these existing routes to accommodate the change in vehicle type. Routes may see elevated erosion related to more aggressive drivers and machines but the erosion amounts are not anticipated to be measurable since vehicle use is currently occurring on the routes (Tuttle and Griggs 1987; Ouren *et al.* 2007; USDA-FS Draft 2007).

Change Designated Use to Administrative or Permit Holder Only

Closing routes to public access would reduce both use and erosion risk since routes would be used infrequently and the timing of use could be controlled to avoid traffic over wet road conditions. Table 46 compares and contrasts administrative only routes with the existing condition, alternative 2. The numbers for alternative 2 represent no action to change use to administrative or permit holder use only. Alternatives 1 and 4 propose to change use to administrative only adjacent to the most stream miles (intermittent and perennial) and for the most intermittent stream crossings reducing erosion and in-channel sediment risk.

Table 46. Miles of Routes, Number of Perennial and Intermittent Stream Crossings and Miles of Route within 150 feet of Perennial or Intermittent Streams Proposed for Administrative Use Only

	Miles of Route for Admin Use only	Perennial Stream Crossings	Intermit.Stream Crossings	Routes w/in 150 feet of Perennial Streams (miles)	Routes w/in 150 feet of Intermit. Streams (miles)
Alternative 1	38.8	6	30	0.6	2.8
Alternative 2	0	0	0	0	0
Alternative 3	29.1	6	22	0.6	2.2
Alternative 4	38.8	6	30	0.6	2.8

Data Source: Watershed Project File WAT-4: GIS Stream buffers, GIS Crossings

Route Decommissioning

Route decommissioning would include removing the route from the NFTS, blocking or closing the route to public use and stabilizing the route. Decommissioning generally includes a mix of active and passive restoration. Active restoration and ground disturbance can occur with the physical closing of the road (constructing a berm or installing a gate post) and the stabilization

and reestablishment of stream channels where culverts or fords are removed. Passive restoration occurs when nature is left to heal the remaining road bed. Passive restoration may occur on a slow timeframe (greater than 20 years) in this dry, well drained soil environment. Elimination of vehicle traffic reduces erosion caused by wheel abrasion, but the routes still intercept and concentrate surface flows and produce sediment. The use of these routes by nonmotorized traffic could delay or prevent recovery (Ouren *et al.* 2007; Madej 2001; Switalski *et al.* 2004; and Luce 1997).

Passive restoration for soil and water resources depends on vegetation re-establishment to provide the building blocks to rebuild soil processes that in turn reduce erosion and provide for on-site capture and storage of water. Given the sandy and shallow soils with an effective rooting depth of 10 to 20 inches, passive recovery potential of revegetation would be limited and long-term, greater than 20 to 30 years (Watershed Project File WAT-6). Recovery of soil and hydrologic processes will take longer as soil will need to rebuild and decompact or erosion will need to decrease to geologic levels.

Narrow tracks are likely to close quickly from vegetation growth along the edges while wide trails will take longer to vegetate naturally. Trail aspect and the kinds of vegetation growing nearby would also direct how quickly or slowly the route naturally revegates. If any use continues on the route, *e.g.*, hiking, horseback riding, bike use, vegetation restoration will be retarded.

Decommissioning a route using active restoration would accelerate the development of vegetation and soil stabilization, slightly, but would require forest resources from the forest. Active restoration may include ground disturbance and the use of machinery to block road entrances, decompact soil, remove road bed contours, spread berm or organic material in the area, install waterbars and gully control structures and reestablish stream drainages by removing culverts or re-shaping fords. Depending on the location of these activities, this work could also be done by hand. Passive and active restoration techniques and references are described in detail in Watershed Project File PF-WAT-6:Decommissioning and Restoration References. Site-specific decommissioning plans have not been prepared for the identified routes.

Techniques identified for maintenance, decommissioning or restoration would depend on the slope, aspect, soil texture, soil moisture conditions and soil fertility at the particular site (Watershed Project File WAT-6). Typically, sandy soils are well drained, do not hold water, may have low fertility and are easily eroded. They are generally not subject to compaction. Silt soils absorb and hold water within the profile but do not get waterlogged. They are easily compacted especially when moist and erosive when dry. On the other hand, clay soils drain poorly, hold water and nutrients within the soil profile and are not easily eroded. However, because of the small pore sizes and water holding capacity, clay soils are easily compacted when wet but do not compact when they are dry. Rock fragments within the soil profile reduce the risk of compaction and erosion.

Recovery potential within NFTS routes is low unless vegetation loss and erosion is caught early. Once erosion has removed the thin top soil or resulted in gully formation, site recovery is a slow process. Site stabilization can occur with adequate drainage, the use of groundcover, mulches or erosion control fabrics and persistence in planting and establishment of vegetation (Watershed Project File WAT-6: Decommissioning and Restoration References). Because of changes to hydrologic function and soil productivity, these effects would persist for periods of years to decades following closure of any route or trail.

Vegetation establishment is difficult because the soils are well to excessively well drained with low to moderate water holding capacity. Combined with dry, hot summer days, successful plant

establishment often requires additional water. In addition, loss of organic matter leads to ravel and sheet erosion that also reduces re-vegetation success.

Road Density

Route decommissioning would have slight positive effects on subwatershed scale open road densities in project area subwatershed. Changing use to administrative or permit holder only would also reduce the open road density. Adding unauthorized routes would have a negligible effect on open road densities since the routes to be added are scattered throughout the forest and short in length. The addition of 8.55 miles of unauthorized routes over the forest area of about 1479.6 square miles would result in a 0.01 mi/square mile increase to total open road density. Decommissioning and changing use to administrative or permit holder only would reduce total road density by 0.8 miles/square mile.

At a subwatershed scale, similar and slight decreases in open road density are noted. For example, in Silverwood Lake Subwatershed, the current road density is about 2.2 miles/square mile, route decommissioning and change to administrative use would reduce this route density by 0.2 miles/square mile (Watershed Project File WAT-4: Open Road and Watershed Analysis). Adding portions of unauthorized routes X2N47 (0.9 miles) and X2N33 (3.0 miles) would increase the route density by 0.1 miles/square miles for a net decrease in subwatershed open road density of 0.1 miles/square mile. Adding unauthorized route U2938 would affect the Upper South Fork San Jacinto River Subwatershed. Route U6905 is found in the Lower Deep Creek Subwatershed. Route U2000 is located in Arrastre Creek Subwatershed while Route X2N33 is found in both Silverwood (3.0 miles) and Mojave River Forks Reservoir (0.9 miles) subwatersheds. Route X2N47 is split between three subwatersheds, Silverwood (0.9 miles), Upper Cajon (0.4 miles) and Mojave River Forks Reservoir (2.5 miles) (Watershed Project File WAT-4: Watershed Analysis).

Other Common Direct and Indirect Effects

Route Maintenance

Road maintenance would continue on all designated routes, regardless of the alternative implemented. Soil and Water BMPs and mitigations are applied

On all routes, the San Bernardino National Forest would maintain responsibility to keep drainage systems clear and functional and ensure water is diverted off the route in a safe place and in a location that minimizes sediment input into stream channels or ephemeral draws. A high level of maintenance would occur on easy non-highway legal routes (those suited to a wide variety of vehicles and driver skill levels) with lesser amounts of maintenance primarily to remove obstacles on more difficult routes (routes requiring specialized equipment or highly skilled drivers). Water and sediment controls would be the primary maintenance item on all routes.

Mitigation Effectiveness

All alternatives rely on mitigations and monitoring to reduce soil and water effects. Proposed mitigation is based in cited research and standard road maintenance principles (Soil and Water Specialist Report: pages 40-41). BMPs are effective in minimizing the amount of disturbance in conjunction with forest activities. The Pacific Southwest Region of the Forest Service, Region 5, has an active program to evaluate the implementation and effectiveness of Soil and Water BMPs (USDA FS, 2004a).

The Forest Service BMP monitoring and evaluation program fulfills monitoring commitments to the State Water Resources Control Board (USDA FS, 2004a: Executive Summary). Soil and

Water BMPs, when implemented and effective, would assist the Forest Service in meeting its obligation in the Big Bear Lake TMDL (Appendix E; Watershed Project record).

Duration of Effects

Motorized vehicle travel on NFTS routes would continue under all alternatives. Motorized use on current routes, especially high use routes, have already resulted in irreversible changes to soil and water resources within the route prism. Duration of effects related to decommissioning and unauthorized route restoration are discussed above.

Alternative Specific Direct and Indirect Effects

Discussed under the alternative specific effects is the magnitude of the effects (the number of acres or miles proposed for action). Refer to the effects common to all alternatives section, above, for a discussion of the type of effect.

Alternative 1 Proposed Action , Water Direct and Indirect Effects

Addition of Motorized Facilities

Beneficial Uses and Listed Waterbodies

In the Big Bear Lake Subwatershed, improvements would be similar for alternatives 1, 3 and 4 and greater than alternative 2.

Improvement in water quality may be realized in 303(d) listed waterbodies within the Big Bear Lake and Santa Ana River subwatersheds with the implementation of alternative 1 (Tables 44 and 45). Alternative 1 proposes to decommission or restore routes within these subwatersheds or change use to administrative only. Improvement would be noted with reduced vehicle use of the road bed resulting in less road bed erosion and sediment generation. When the route is decommissioned or restored hydrologic function would be improved over time.

In the Big Bear Lake subwatershed improvements would be similar for alternatives 1, 3 and 4 and greater than alternative 2. Under alternative 3, inclusion of 0.7 miles of unauthorized routes to access yellow post campsites would occur along Coon Creek, a tributary to the Santa Ana River. Inclusion of these routes in the NFTS would be a positive effect since the application of BMPs and maintenance of the routes would occur.

For the upper subwatersheds of the Santa Ana River, alternative 1 provides greater improvement than either alternatives 2 or 3 but not as great as alternative 4 which proposed to decommission an additional 2.3 miles.

In the San Jacinto River headwaters, alternative 1 has a neutral effect since the proposal is to change vehicle class. The route, 4S06, is already designated for 4x4 vehicles and is wide enough to accommodate non-highway legal vehicles. Alternative 1 proposes to change use on more miles than alternative 4. Comparing alternative 1 to alternative 3 presents a neutral effect; while alternative 3 designates unauthorized routes to yellow post sites as part of the NFTS, these sites and routes are currently on the ground and being used. Alternative 3 reduces resource effects by stabilizing the access routes and sites.

Stream Flow and Channel Morphology

No change to stream flow is expected. Change to stream flow regimes occurred when the routes were first constructed and/or created through use. Maintenance plans would be developed and implemented for designated routes.

About 0.5 miles of new route construction is proposed under alternative 1; similar to alternative 4 and more miles than either alternatives 2 or 3. The new routes have no connection to ephemeral, intermittent or perennial channels. Maintenance plans would be developed and implemented for these routes (Mitigation WAT 12). Unauthorized routes proposed to be designated would have maintenance plans prepared and implemented (Mitigation WAT 12).

Stream channel condition at perennial stream crossings would be improved under alternative 1; 14 existing perennial stream crossings would be closed to motorized public use (Table 42). Eight crossings would be on decommissioned routes while six crossings proposed for routes that would become administrative use. This effect is similar to alternatives 3 and 4. Alternative 2 does not change motorized public use of perennial stream crossings.

Stream channel condition at intermittent stream crossings would be improved along 98 crossings (similar to alternative 4, greater than alternatives 2 or 3) (Table 42). Of these crossings, 62 would be decommissioned or rehabilitated; 36 would have restricted use through administrative or permit holder use only.

Groundwater

No defined groundwater recharge areas have been identified with the route corridors. Route designation would not change groundwater recharge since the routes are already present on the landscape.

Water Quality

Erosion, stream sediment and water quality are linked and discussed under Soil Effects – Erosion Potential.

Riparian Areas, Wetlands, Floodplains

Route 2N25Y is currently designated adjacent to a moist meadow system, Rouse Meadow. This route is proposed to be decommissioned under alternative 1. Removing use from the area would allow meadow hydrologic and landscape process to continue undisturbed.

Changes to the Existing NFTS

In the San Jacinto River headwaters, alternative 1 has a neutral effect since the proposal is to change vehicle class. The route, 4S06, is already designated for 4x4 vehicles and is wide enough to accommodate non-highway legal vehicles. Alternative 1 proposes to change use on more miles than alternative 4. Comparing alternative 1 to alternative 3 presents a neutral effect; while alternative 3 designates unauthorized routes to yellow post sites as part of the NFTS, these sites and routes are currently on the ground and being used. Alternative 3 reduces resource effects by stabilizing the access routes and sites.

Routes decommissioned or rehabilitated provide positive effects for both soil and water resources, in the long-term, as vegetation becomes established and soils stabilize and rebuild. This effect is especially positive for restoration of unauthorized routes since many are not in desired locations nor were they constructed to Forest Service trail standards. Monitoring and maintenance would assure that drainage problems are corrected and that use is not occurring.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. More routes would be designated as

administrative use only under alternatives 1 and 4 than for alternative 3. No routes would be changed to administrative use only under alternative 2.

Alternative 1 Proposed Action , Soil Direct and Indirect Effects

Addition of Motorized Facilities

Erosion Potential

Erosion potential increases along routes maintained for motorized public access commiserate with route maintenance, grade, width and level of use. Maintenance and monitoring offsets this erosion potential.

Alternative 1 results in slightly more route acres of severe erosion risk soils maintained for motorized public access than alternative 4 (Table 41 erosion on routes open to public use adjusted by the total miles of routes considered for each alternative in the EA). Alternative 1 results in fewer route acres on severe erosion risk soils maintained for motorized public access than alternative 3 and significantly less than alternative 2 (Table 41). Alternatives 1 and 4 propose to designate the same miles of unauthorized route on moderate and severe erosion risk landscapes; alternative 3 would designate an additional 154 acres on moderate and 249 acres on severe erosion risk landscapes. The extra acres in alternative 3 are associated with access routes to yellow post campsites.

Stream crossings on native surface routes are a source of chronic sediment into a stream channel. The crossings associated with routes maintained for motorized public access are currently on the ground and receive use; each use has the potential to dislodge and transport erosional material. This is especially evident where the stream crossing approaches are eroded, gullied or composed of coarse sand. Routes with stream crossings have been identified (Watershed Project File Water and Soil Resource Report Appendix A Tables 2 and 3), the crossings field reviewed and needed mitigations proposed (Watershed Project File Water and Soil Resource Report Appendix A Table 3).

Mass Movement or Geologic Hazard

Other than the small slumps associated with the Cleghorn Route 2N47, (which is a designated non-highway legal route and not part of this analysis) and road cut slumps, no areas of mass movement were observed.

Slumps and rill/gully formation associated with road cuts or Mac drains would continue. Maintenance and stabilization of the toe of the road cut would reduce the amount of material that could be eroded and transported through the ditch and drainage system. Initiating energy dissipation structures within and downstream of Mac drains would reduce erosion energy generated by route ditches. These areas are identified on the annual maintenance reviews that are conducted by the Forest Motorized Trail Ranger and volunteer groups.

Changes to the existing NFTS

Routes decommissioned or restored provide positive effects for both soil and water resources, in the long-term, as vegetation becomes established and soils stabilize and rebuild. This effect is especially positive for unauthorized routes since many are not in desired locations nor were they constructed to Forest Service trail standards. Monitoring and maintenance would assure that drainage problems are corrected and that use is not occurring.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. More routes would be designated as administrative use only under alternatives 1 and 4 than for alternative 3. No routes would be changed to administrative use only under alternative 2.

Alternative 2 No Action, Water Direct and Indirect Effects

Addition of Motorized Facilities

Beneficial Uses and Listed Waterbodies

No change from current conditions would be realized. All NFTS routes are currently on the landscape and receive vehicle use. Maintenance, BMP implementation, monitoring and adaptive management techniques would be employed as part of Forest Plan implementation (USDA FS, 2006).

Stream Flow and Channel Morphology

No change to stream flow is expected. Designated routes are currently part of the Forest NFTS and receive vehicle use. No new construction is proposed. Change to stream flow regimes occurred when the routes were first constructed and used. Maintenance plans are developed and implemented for these routes.

Groundwater

No defined groundwater recharge areas have been identified with the route corridors. No change in groundwater is expected with implementation of alternative 2.

Water Quality

Erosion, stream sediment and water quality are linked and discussed under Soil Effects – Erosion Potential.

Riparian Areas, Wetlands, Floodplains

Route 2N25Y is currently a designated non-highway legal route adjacent to a moist meadow system, Rouse Meadow. No change to this designation is proposed, however the original roadbed is overgrown and difficult to find.

Changes to the Existing NFTS

No routes would be decommissioned, rehabilitated or changed to administrative or permit holder use only under alternative 2. Soil and water benefits providing by closing or restricting public access would not be realized.

Implementation of alternative 2 would continue Forest Plan direction and the Forest Order that restricts vehicle use on unauthorized routes. This effect would be beneficial since most unauthorized routes are not in desired locations nor constructed to Forest Service trail standards; passive recovery would occur over the long-term (greater than 20 years).

Alternative 2 No Action, Soil Direct and Indirect Effects

Addition of Motorized Facilities

Erosion Potential

Currently designated routes would be maintained for motorized public access; alternative 2 proposed no change to existing designations. This includes routes with stream crossings or within the 150 foot buffer of perennial or intermittent streams.

Erosion potential increases along routes maintained for motorized public access commiserate with the route maintenance, grade, width and level of use. Erosion potential is higher than would be realized under alternatives 1, 3 and 4 because no designated routes would be decommission, rehabilitated or use changed to administrative or permit holder only.

Mass Movement or Geologic Hazard

Mass movement and geologic hazard is similar to and discussed in alternative 1.

Changes to the existing NFTS

No routes would be decommissioned, rehabilitated or changed to administrative or permit holder use only under alternative 2. Soil and water benefits providing by closing or restricting public access would not be realized.

Implementation of alternative 2 would continue Forest Plan direction and the Forest Order that restricts vehicle use on unauthorized routes. This effect would be beneficial since most unauthorized routes are not in desired locations nor constructed to Forest Service trail standards; passive recovery would occur over the long-term (greater than 20 years).

Alternative 3 , Water Direct and Indirect Effects

Addition of Motorized Facilities

Beneficial Uses and Listed Waterbodies

Improvement in water quality may be realized in listed waterbodies within the Big Bear Lake and Santa Ana River Subwatersheds with the implementation of alternative 3; however, these improvements would be less than with alternatives 1 or 4 because additional unauthorized routes would be designated for access to yellow post dispersed campsites.

In the San Jacinto River headwaters, alternative 3, improvement to water quality would be limited since the proposal is to change vehicle type as well as open unauthorized routes for access to yellow post campsites. Route 4S06 is already designated for 4x4 vehicles and is wide enough to accommodate non-highway legal use. The yellow post campsite access routes and sites in this subwatershed are located along Coon Creek and contribute to erosion and sediment production because of their proximity to the perennial stream (campsite use is discussed in the Cumulative Effects section).

Stream Flow and Channel Morphology

No change to stream flow is expected. Both NFTS and unauthorized routes are currently on the landscape and receive vehicle use. Only 0.1 miles of new route construction is proposed under alternative 3. This new route is not connected to ephemeral, intermittent or perennial channels. Maintenance plans are developed and implemented for all new routes (Mitigation WAT 12).

Review of the unauthorized routes proposed to be added to the designated system (alternative 3) show that 0.7 miles of unauthorized routes are within 150 feet of intermittent channels and 0.1 miles within 150 feet of perennial streams. Most of these routes are associated with designated yellow post campsites. Though motorized routes and trails within 150 feet of stream channels may result in increased sedimentation and bank damage adding the yellow post campsite access

routes to the NFTS would provide a benefit since BMPs, maintenance and visitor controls (mitigations Watershed 11 and 22) would be applied to these routes.

Stream channel condition at perennial stream crossings would be improved under alternative 3, 14 existing perennial stream crossings are proposed to be closed to motorized public use (Table 42). Eleven intermittent stream crossings would be decommissioned, 22 would be restricted to administrative use only. This is three fewer crossings than either alternatives 1 or 4 for decommissioning and eight fewer for change of use to administrative only.

Groundwater

No defined groundwater recharge areas have been identified with the route corridors. The forest is considered a dispersed groundwater recharge area. Alternative 3 route designation would not change groundwater recharge.

Water Quality

Erosion, stream sediment and water quality are linked and discussed under Soil Effects – Erosion Potential.

Riparian Areas, Wetlands, Floodplains

Route 2N25Y is currently designated adjacent to a moist meadow system, Rouse Meadow. This route is proposed to be decommissioned under alternative 3. Removing use from the area would allow meadow hydrologic and landscape process to continue undisturbed.

Changes to the Existing NFTS

Alternative 3 proposes to decommission fewer miles of existing NTFS routes than alternatives 1 or 4 but more than alternative 2. Positive effects would be realized for both soil and water resources (long-term) as vegetation becomes established and soils stabilize and rebuild.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. Fewer routes would be designated as administrative use only under alternative 3 than either alternatives 1 or 4. No routes would be changed to administrative use only under alternative 2.

Alternative 3 , Soil Direct and Indirect Effects

Addition of Motorized Facilities

Erosion Potential

Erosion potential increases along routes maintained for motorized public access, similar to alternatives 1, 2 and 4. Approximately 0.1 miles of new route construction would have a negligible effect on erosion; route construction would include mitigations and the implementation of BMPs. In addition, the route is not adjacent to or connected to intermittent or perennial streams.

Alternative 3 proposes to add 14.7 miles of unauthorized routes to the NFTS, more than either alternatives 1 or 4. Approximately 5.6 miles are associated with access to yellow post dispersed campsites. The unauthorized routes to be designated occur on 154 acres of moderate and 249 acres of severe erosion risk landscapes. Positive benefits would be associated with these additions because of the application of BMPs and mitigations to these routes. The access routes would

provide vehicles to park at the designated campsites providing enhanced recreation opportunities. On the other hand, positive benefits would also be realized with the continued prohibition of use that allows for passive restoration to occur in the long-term.

Mass Movement or Geologic Hazard

Mass movement and geologic hazard is similar to and discussed in alternative 1.

Changes to the existing NFTS

Alternative 3 proposes to decommission fewer miles of existing NTFS routes than alternatives 1 or 4 but more than alternative 2. Positive effects would be realized for both soil and water resources (long-term) as vegetation becomes established and soils stabilize and rebuild.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. Fewer routes would be designated as administrative use only under alternative 3 than either alternatives 1 or 4. No routes would be changed to administrative use only under alternative 2.

Yellow Post Campsite Access Routes

Yellow post campsite access routes (approximately 5.6 miles) are being considered for designation in alternative 3. The selected yellow post campsite access routes are short, unauthorized road segments that access designated dispersed camping sites (yellow post campsites). Many of these campsites have been in place for decades and are off highway legal roads. Currently users walk into the site or defy the Forest Plan direction and Forest Order prohibiting the use of vehicles off designated routes and drive to the campsite. The yellow post campsite access routes are physically on the ground with a variety of roadbed conditions. The effects of yellow post campsites are discussed in the Cumulative Effects section below.

Alternative 3 would provide motorized access to the designated dispersed campsites and provide for the implementation of BMPs and mitigations along the access routes. Under alternatives 1, 2 and 4 these access routes would remain closed under Forest Order 5, pursuant to 36 CFR 261.56 (July 22, 1996) and the Forest Plan, Part 3, S35:8-9.

Alternative 4 , Water Direct and Indirect Effects

Addition of Motorized Facilities

Beneficial Uses and Listed Waterbodies

In the Big Bear Lake subwatershed improvements would be similar to alternatives 3 and 1 and greater than alternative 2. For the upper subwatersheds of the Santa Ana River, alternative 4 provides the highest potential for improvement through the decommissioning of an additional 2.3 miles of route crossing the Santa Ana River and Fish Creek and paralleling Fish Creek. In the San Jacinto River headwaters, alternative 4, no change in subwatershed condition would be expected.

Stream Flow and Channel Morphology

No change to stream flow is expected. About 0.5 miles of new route construction is proposed under alternative 4; similar to alternative 1 and more miles than either alternatives 2 or 3. The new routes have no connection to ephemeral, intermittent or perennial channels. Maintenance plans would be developed and implemented for these routes (Mitigation WAT 12).

Review of the unauthorized routes proposed to be added to the NFTS (alternatives 4 and 1) show that 0.01 miles are within 150 feet of or cross intermittent channels. No routes (alternatives 4 or 1) are within 150 feet of or cross perennial streams. Alternative 3 proposes to open 0.7 miles of unauthorized routes within 150 feet of intermittent streams and 0.1 miles within 150 feet of perennial streams. Under alternative 2, all unauthorized routes would remain closed by Forest Plan and Forest Order.

The effects of adding unauthorized routes to the NFTS where the routes are within 150 feet of stream channels may be increased sedimentation and bank damage. These potential effects are off-set by the application of BMPs, maintenance standards and visitor controls (mitigations Watershed 11 and 22).

Stream channel condition at perennial stream crossings would be improved under alternative 4, 14 existing perennial stream crossings are proposed to be closed to motorized public use (Table 42). Eight crossings would be on decommissioned routes while six crossings would be on routes proposed for administrative use only allowing for greater control of vehicle use. This effect is similar to alternatives 3 and 1. Alternative 2 does not change motorized public use of the crossings.

Stream channel condition at intermittent stream crossings would be improved along 98 crossings (similar to alternative 1, greater than alternatives 2 or 3). Of these crossings, 62 would be decommissioned or restored; 36 would have restricted use through administrative or permit holder use only.

Groundwater

No defined groundwater recharge areas have been identified with the route corridors. Implementation of alternative 4 for route designation would not change groundwater recharge since the routes are already present on the landscape.

Water Quality

Erosion, stream sediment and water quality are linked and discussed under Soil Effects – Erosion Potential.

Riparian Areas, Wetlands, Floodplains

Route 2N25Y is currently designated adjacent to a moist meadow system, Rouse Meadow. This route is proposed to be decommissioned under alternative 4. Removing use from the area would allow meadow hydrologic and landscape process to continue undisturbed.

Changes to the Existing NFTS

Alternative 4 proposes to decommission more miles of existing NTFS routes than alternative 1, 2 or 3. Positive effects would be realized for both soil and water resources (long-term) as vegetation becomes established and soils stabilize and rebuild.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. Alternative 4 is similar in effects to alternative 1.

Alternative 4 , Soil Direct and Indirect Effects

Addition of Motorized Facilities

Erosion Potential

Erosion potential increases along routes maintained for motorized public access. Alternative 4 has the fewest route acres on severe erosion risk soils maintained for motorized public access, adjusted for the differences in total miles between alternatives 1 and 3 (Table 41).

Alternatives 4 and 1 propose to designate the same miles of currently unauthorized route on moderate and severe erosion risk landscapes; alternative 3 would designate an additional 154 acres on moderate and 249 acres on severe erosion risk landscapes.

The 0.5 miles of new route construction would increase erosion slightly. Route construction would include mitigations and the implementation of BMPs. In addition, the routes are not adjacent to or connected to intermittent or perennial streams.

Alternatives 4, 1 and 3 close 14 crossing on perennial streams (Table 42). Alternatives 4 and 1 close more crossings on intermittent channels than either alternatives 2 or 3.

Mass Movement or Geologic Hazard

Mass movement and geologic hazard is similar to and discussed in alternative 1.

Changes to the existing NFTS

Alternative 4 proposes to decommission more miles of existing NTFS routes than alternative 1, 2 or 3. Positive effects would be realized for both soil and water resources (long-term) as vegetation becomes established and soils stabilize and rebuild.

Use on routes limited to administrative or permit holder only would provide positive effects to soil and water resources because of vehicle use controls. Monitoring and maintenance of the routes would assure that drainage problems are corrected. Table 46 shows a comparison of the alternatives relative to administrative use only. Alternative 4 is similar in effects to alternative 1.

Cumulative Effects

Cumulative Effects includes a discussion of combined, incremental effects of human activities. For activities to be considered cumulative, their effects need to overlap in both time and space with those of the proposed actions. A detailed cumulative effects analysis can be found in the Water and Soil Resource Report (project record, pages 47-51).

Cumulative Effects from Project Implementation, Ongoing and Reasonably Foreseeable Actions

The effects of project implementation are discussed above in the environmental consequences – comparison of alternatives section. Except for the 0.5 miles of new construction proposed in alternatives 1 and 4, the routes, exist on the ground and receive vehicle use. Most of the soil and water impacts occurred when the route was first constructed or initially used. The effect of having routes on the ground would continue into the reasonably foreseeable future.

Project effects are based on the assumption that route maintenance, implementation of BMPs and monitoring would occur. It is also assumed that law enforcement and visitor controls are adequate to prohibit cross-country travel and no new unauthorized routes are established. Alternatives 1, 4 and to a lesser extent 3 would decommission or restore routes. In addition, these alternatives also

change use on selected routes to administrative or permit holder only. These actions would reduce the open (to public use) road density in six subwatersheds (effects common to all alternatives).

Monitoring

A monitoring plan for soil and water resources has been developed and is located in the Watershed Project File, WAT-8. The monitoring plan applies to alternatives 1, 3 and 4. The Forest has an existing non-highway legal trail monitoring program that would be applied under alternative 2.

Hydrologic and Soil Effects Summary

Related to route designation, benefits to the soil and water resource come from designated route maintenance, maintenance of administrative and special use permit routes, implementing BMPs, upgrading drainage structures and controlling erosion. Furthermore, monitoring and visitor controls ensure unauthorized routes are not created or used and that any decommissioning and restoration is successful.

Alternative 1 has the potential to provide a diverse motorized recreation experience on over 89 miles of designated routes while at the same time providing monitoring, mitigations and visitor controls to protect soil and water resources.. The routes identified in alternative 1 are located on moderate and severe erosion hazard landscapes. User controls, monitoring and maintenance would be crucial for minimizing the effects of motorized traffic on water and soil resources. Alternative 1 also provides for decommissioning of existing routes, restoration of unauthorized routes and the reclassifying of routes to administrative or special use permit use only. Over time (greater than 20 years), these actions would reduce erosion as vegetation becomes established and soil stabilization occurs.

Alternative 2 appears to have the least advantage to soil and water resources. This alternative does not result in a well-planned or comprehensive NFTS. It does not provide controls on sensitive landscapes except through the existing set of mitigations and monitoring established in the Forest Plan. Restoration of unauthorized routes and decommissioning of unneeded trails would occur on a case-by-case basis.

Alternative 3 appears to have few advantages for soil and water resources. This alternative provides more designated routes open to motorized public use and fewer miles of route decommissioning. However, visitor controls, monitoring and mitigations are proposed, similar to alternatives 1 and 4. These adaptive measures would allow the forest to protect soil and water resources as problems arise on the ground. This alternative also recognizes the existence and use of yellow post access routes and campsites. Unfortunately, some yellow post sites are affecting stream channel function due to proximity to the channel. If use of these sites is to continue into the future, alternative 3 recognizes the need for soil and water stabilization of both yellow post access routes and campsites.

Alternative 4 provides the best protection of the soil and water resource, although only slightly better than alternative 1. Alternative 4 decommissions routes 1N39A and 1N05A, both of which effect water quality in Fish Creek and the Santa Ana River (Table 44). Alternative 4 has the largest amount of decommissioning proposed. Visitor controls, monitoring and mitigations are proposed, similar to alternatives 1 and 3. These adaptive measures would allow the forest to protect soil and water resources as problems arise on the ground.

Table 47 provides a synthesis of effects by raking each alternative and soil and water resource indicator. The rankings are scored: 1 is the worst for the resource with 4 being the best.

Table 47. Soil and Water Effects Summary

Indicators – Watershed Resources	Rankings of Alternatives for Each Indicator1			
	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Miles of routes added to NFS system (net change) (EA Chapter 2)	3	1	2	3
Miles designated for motorized public use within 150 feet of perennial streams (Table 42)	3	1	2	3
Miles designated for motorized public use within 150 feet of intermittent streams (Table 42)	3	1	2	3
Miles proposed for decommissioning (EA Chapter 2)	3	1	2	4
Miles proposed for restoration of unauthorized routes (EA Chapter 2)	3	1	2	4
Acres to be closed to motorized public use on severe erosion risk soils (Table 41)	3	1	2	4
Miles designated for public use within Rouse Meadows, Route 2N25Y (EA Chapter 2)	2	1	2	2
Number of intermittent stream crossings to be closed to motorized public use (Table 42)	3	1	2	3
Summary (the larger the number the greater the benefit to the soil and water resource)	23	8	16	26

Transportation Facilities

This section of the environmental analysis examines the extent to which alternatives respond to transportation facilities direction established in the San Bernardino National Forest Land Management Plan. The Forest Plan transportation facilities direction was established under the implementing regulations of the National Forest Management Act (NFMA) and the National Forest Roads and Trails Act (FRTA). The National Forest Transportation System (NFTS) consists of roads, trails and airfields. The NFTS provides for protection, development, management and utilization of resources on the National Forests. There are other roads and trails existing on the Forest that are not currently part of the NFTS. Transportation facilities considered in this analysis include roads and trails that are suitable for motor vehicle use. This analysis considers changes needed to the NFTS to meet the purpose and need of this analysis. Decisions regarding changes in the transportation facilities must consider: 1) providing for adequate public safety and 2) providing adequate maintenance of the roads and trails that will designated for public use. The analysis in this section focuses primarily on these two aspects of the NFTS.

Regulatory Framework: Compliance with the Forest Plan and Other Regulatory Direction

Direction relevant to the proposed action as it affects transportation facilities includes:

Title 36, Code of Federal Regulations, Part 212 (36CFR212) is the implementing regulation for the FRTA and includes portions of the Travel Management Rule published in the Federal Register on November 9, 2005. Part 212 provides criteria for designation of roads and trails. Providing safe transportation facilities and considering the affordability of maintaining the transportation facilities are two of the criteria

Forest Service Manual Sections 2350 and 7700 contain agency policy for management of the National Forest Transportation System. The policy requires the development of trail management objectives (TMO's) and road management objectives (RMO's). The TMO's and RMO's document the purpose of each trail or road. The purpose for the trail or road sets the parameters for maintenance standards needed to meet user needs, resource protection and public safety. Forest Service Handbook 7709.58 describes the maintenance management system the Forest Service uses and the maintenance standards needed to meet road management objectives (RMO's) for the road system and include considerations for public safety.

Regional Forester's letters, file code 7700/2350, dated 08/26/06 and 06/20/07 contain procedures National Forests in Pacific Southwest Region will use to evaluate safety aspects of public travel on roads when proposed changes to the NFTS will allow both highway legal and non-highway legal traffic on a road (motorized mixed use).

The California Vehicle Code (CVC) regulates the use of motor vehicles in California, including motor vehicles used on the national forests. The CVC sets safety standards for motor vehicles and vehicle operators. It defines the safety equipment needed for highway legal and non-highway legal vehicles. It also defines the roads and trails where non-highway legal motor vehicles may be operated.

Forest Land Management Plan (LMP)

Roads (LMP, Part 2, pp. 34-35) – The Roads Program will emphasize managing the transportation system to accommodate increased user demand, to reduce conflicts between user groups, to protect the national forest and communities and other resource considerations. National

Forest System roads and trails will be maintained to reduce the level of adverse effects to species and watersheds while safely accommodating use.

Trails (LMP, Part 2, p. 35) – The Trails Program consists of maintaining, constructing and reconstructing the National Forest System trails and related facilities… The program will emphasize improving the national forest OHV system by designating OHV road and trail routes and effectively managing inappropriate use.

Trans 1 – Transportation Management (LMP, Part 2, p. 149) – Plan, design, construct and maintain the National Forest System roads and trails to meet plan objectives, to promote sustainable resource conditions and to safely accommodate anticipated levels and types of use. Reduce the number of unnecessary unclassified roads and restore landscapes.

Methodology

The California Vehicle Code (CVC) requires motor vehicles operated on roads be highway legal and be operated by licensed drivers. The CVC has exceptions to those requirements for off highway vehicles. The CVC allows the operation of non-highway legal vehicles operated by unlicensed drivers on roughly graded roads. The San Bernardino National Forest consider roads maintained for high clearance vehicles (Maintenance Level 2) as roughly graded and considers operation of OHV's on these roads to be consistent with state law. Roads maintained for passenger cars (Maintenance Level 3) are not considered roughly graded and operation of OHV's on those roads is not consistent with state law.

A Civil Engineer analyzed the NFTS roads listed in Table 48 for the effects to public safety of allowing non-highway legal vehicles to use these roads in addition to the current use by highway-legal vehicles (i.e. "mixed use"). The Civil Engineer reviewed all California Highway Patrol vehicle accident records on these roads for the past 10 years and drove each road and documented the average speed, road surface type, intersections with other roads and trails, roadside conditions and other roadway factors. Based on the accident history and the field data on road factors, he predicted the crash probability and crash severity with mixed use, both with and without mitigation measures. Risk analysis is based on the operation of vehicles by prudent drivers in compliance with all provisions of the California Vehicle Code. This analysis is documented in the Motorized Mixed Use Analysis Report, available in the project record and summarized here. A Qualified Engineer reviewed the analysis and concurred with all findings. The discussion below is based on the adoption of all mitigation measures, which are included in Appendix A.

Table 48. System Roads Analyzed for Mixed Use

Road Name	Road No.	Beginning Mile Post	Ending Mile Post	Objective Maintenance Level	Operational Maintenance Level
Crab Flats Loop	2N13Y	0.0	0.6	2	2
2N61Y	2N61Y	0.0	3.3	2	2
2N69Y	2N69Y	0.0	0.2	2	2
2N71Y	2N71Y	0.0	1.3	2	2
2N89Y	2N89Y	0.0	0.3	2	2
Tip Top Mtn.	2N90	0.0	1.7	2	2
Crab Flats	3N34	0.4	2.1	2	2
3N56	3N56	0.0	0.2	2	2
Carbine Flat Spur	3N59A	0.0	1.9	2	2
Grapevine Canyon	4N16	0.0	1.9	2	2
Broom Flats	2N01	6.0	6.3	3	3
Arrastre Creek	2N02	7.0	11.3	3	2
Rouse Ranch	2N25	1.6	2.8	3	3
Ash Meadow	2N75	0.2	1.8	3	3
Smarts Ranch	3N03	1.4	7.4	3	3
Coxey	3N14	5.5	14.7	3	3
Holcomb Valley	3N16	12.1	23.8	3	3

Environmental Consequences

Measurement Indicator 1: Public Safety

Direct and Indirect Effects of Adding Non-Highway Legal Vehicles to Highway Legal System Roads (Mixed Use)

No Action

Under the no action alternative, any temporary designations for mixed use on these roads would be removed so there would be no risk of accidents between highway legal and non-highway legal vehicles.

All Action Alternatives

All action alternatives are the same for mixed use, so the discussion below applies to each alternative.

All Level 2 Roads (2N13Y, 2N61Y, 2N69Y, 2N71Y, 2N89Y, 2N90, 3N34, 3N56, 3N59A, 4N16)

Designating mixed use on these Level 2 roads does not present a risk to public safety. All of these roads except 2N31Y and 3N56 are currently under temporary designation for mixed use and there have been no reported accidents. All of the roads with current temporary designations have adequate signing indicating level of difficulty. Roads 2N31Y and 3N56 should be signed

"Easiest." All of these roads should include signing that non-highway legal vehicles and unlicensed operators may be present.

2N01 (Broom Flats Road)

Crash probability is low and crash severity is low due to the excellent sight distance. There is no history of crashes on this section of road. If Broom Flats Road, Smarts Ranch Road (3N03) and Arrastre Creek Road (2N02) between Broom Flats Road and Smarts Ranch Road, are designated for mixed use, there will be continuous mixed use on 7.4 miles of smoothly graded, maintenance level 3 roads.

2N02 (Arrastre Creek Road)

The original Proposed Action called for mixed use between mile post 11.3 and the San Bernardino National Forest Boundary; however this was dropped from the current Proposed Action in alternative 1 (and all other action alternatives) because it would encourage illegal use on Burns Canyon County Road.

For designation of mixed use between mile post 7.0 and 11.3, crash probability would be medium and crash severity would be medium. There is no history of crashes on this section of road. If Smarts Ranch Road and Arrastre Creek Road from mile post 7.0 to mile post 11.3 are both designated for mixed use, there will be continuous mixed use on 10.5 miles of smoothly graded, maintenance level 3 roads. If a future NEPA project analyzed the widening of all curves where there is inadequate sight distance, crash probability and crash severity would drop to low.

2N25 (Rouse Ranch Road)

There have been three reports of crashes on this road, all involving highway legal vehicles. If this section of Rouse Ranch Road is designated for mixed use, crash probability is medium due to history of crashes and crash severity is low, due to the low speed, as long as the mitigation measures are followed. The connector from 2N25 to 2N 27Y must be obliterated because of the blind intersection.

2N75 (Ash Meadow Road)

There is no history of crashes on this road. If Ash Meadows Road is designated for mixed use, crash probability will be low due to the low volume of traffic and crash severity will be low due to the curvilinear alignment with adequate passing width on curves.

3N03 (Smarts Ranch Road)

There has been temporary designation of mixed use on a portion of 3N03 for several years without any reports of vehicle accidents on that portion of road. Adding mixed use from the connection to Cactus Flats Staging area to the segment currently temporarily designated for mixed use, mile post 1.4 to 3.9, will have a moderate increase in traffic. Crash probability will be low due to the width and good sight distance of the road and crash severity will be low due to the surface of the road.

If Smarts Ranch Road is designated for mixed use, there will be mixed use on 6.2 miles of smoothly graded maintenance level 3 road. Mixed use designation of various lengths of Arrastre Creek Road will add to the length of mixed designation of smoothly graded maintenance level 3 roads.

3N14 (Coxey Road)

According to Ranger District personnel, there was a fatal single vehicle ATV accident on 3N14 just north of Big Pine Flats Campground. CHP reports indicate nine accidents on 3N14 between Fawnskin and 3N16 (note: this section is not proposed for mixed use) in the last 10 years. If Coxey Road is designated for mixed use and if mitigation measures are adopted, Coxey Road will have a medium probability of crashes and a high crash severity based on the crash history on both Coxey Road and Holcomb Valley Road.

However, if mixed use was designated on Coxey Road only from mile post 11.0 (intersection with 4N16) to mile post 14.7 (Forest boundary), it result in a low probability of crashes and a medium crash severity. This would mean that Coxey Road from mile post 5.5 (intersection with 3N16) and mile post 11.0 (intersection with 4N16) remain as highway legal use only with no mixed use due to the high speed of traffic that is possible on this portion of road.

3N16 (Holcomb Valley Road)

The portion of 3N16 being analyzed is between Crab Flats Campground and Big Pine Flats Campground. There have been four reports of accidents on the project portion of 3N16 in the past 10 years. Two of these accidents involved ATV/motorcycles and passenger vehicles and resulted in severe injuries. One involved a head-on collision between two motorcycles which is not considered a mixed use accident. The fourth accident was a single passenger vehicle which ran off the road and resulted in no injuries.

This route has operated under a temporary mixed use designation for many years. Use is moderate with average daily use estimated to be less than 50 vehicles per day. Changing the mixed use designation from temporary to permanent is would not increase the volume of traffic. If Holcomb Valley Road is designated for mixed use and if mitigation measures are adopted, the road will have a medium probability of crashes and a high crash severity based on the history of traffic crashes on this section of road. The mixed use designation would result in 11.7 miles of smoothly graded maintenance level 3 road being designated for mixed use. If Coxey Road is also designated for mixed use, there will be 20.9 continuous miles of smoothly graded maintenance level 3 road designated for mixed use. Due to the adequate sight distances, adequate passing opportunities, low speeds and low traffic volume on this portion of road, there are no significant impacts or risks to public safety by designating mixed use on this portion of 3N16, with mitigation measures that include signing throughout the length of the route and increased presence of forest staff and OHV patrols.

Direct and Indirect Effects of Removing Non-Highway Legal Vehicles Use from Highway Legal System Roads

No Action Alternative

The no action alternative would make no changes to the existing system. It would have no effect on public safety, including no beneficial effect to 3N53 and 3N22 discussed below.

Action Alternatives

Removing non-highway legal vehicle use from 3N53 would improve public safety because this route parallels a railroad track and raises significant safety concerns of conflicts between trains and non-highway legal vehicles. Non-highway legal vehicle use on 3N53, as well as on the segment of 3N22 between Summit parking area and Highway 138, encourages users to cross Highway 138. These actions are in alternatives 1 and 4, so they would provide greater public safety on these routes than alternative 3 which would maintain their mixed use status.

The remaining proposals for removing mixed use (2N30, 2N40, 3N10, 2N28Y and the 4,000 foot road) would have no effect on public safety. These are included in alternatives 1 and 4, but not alternative 3.

Direct and Indirect Effects of Adding Unauthorized Routes to the NFTS

No Action Alternative

The no action alternative would not add any unauthorized routes to the system so it would be neutral on effects to public safety.

Action Alternatives

All action alternatives would add 8.25 miles of unauthorized routes to the trail system and 0.3 miles to the road system.

The 3.9 miles on Cleghorn Ridge and the 4 miles on Pilot Rock Ridge are a series of short segments that weave and out of the mixed use system routes 2N47 and 2N33, respectively. These segments would be designated as a trail for non-highway legal vehicle use only so there are no mixed use safety issues. Intersections would be signed to warn both trail and road users of merging traffic. Designating these segments would add a diversity of more difficult riding experiences, in keeping with Forest Plan strategy (LMP, Part 2, p. 149, Trans 1).

U2000 provides a 0.1 mile connection between trail systems in an area with low traffic volumes so it does not cause any effects to public safety. U6905 is a 0.3 mile replacement for a portion of 3W12 which will be decommissioned due to archaeological impacts. There have been no safety issues with 3W12 so none are anticipated for U6905. U2938 provides a 0.3 mile access to Quinn Flat off of 6S05 for equestrian users. Designation will allow it to be maintained such that there is less vehicle damage.

Direct and Indirect Effects of Constructing New Routes

No Action Alternative

The no action alternative would not construct any new routes to the system so it would be neutral on effects to public safety.

Action Alternatives

New construction in all alternatives totals only 0.45 miles, of which 0.23 miles is for a trail that would only be used by Forest Service staff and OHV volunteers to access the system from the North Shore work center. The 0.17 mile segment on 3W14 is proposed in order to bypass a difficult curve in order to remain consistent with the route's designation as "easy" so this will be an improvement to public safety. Overall, new construction will have no effect on public safety.

Direct and Indirect Effects of Restoring Unauthorized Routes

No Action Alternative

The no action alternative would not restore any unauthorized routes to the system so it would be neutral on effects to public safety.

Action Alternatives

Alternatives 1 and 4 restore 74.2 miles of unauthorized routes and alternative 3 restores only slightly less at 73.6 miles. These routes are not maintained to safe motorized trail standards and therefore may contain dangerous conditions that the Forest is not authorized and not funded to

correct. Restoration of these routes will improve public safety by blocking users ability to access them and thereby protecting them from any unsafe conditions that may be present.

Direct and Indirect Effects of Removing Public Use from NFTS Routes

No Action Alternative

The no action alternative would not remove any public use the system so it would be neutral on effects to public safety.

Action Alternatives

Alternatives 1 and 4 remove 50.6 miles of NFTS from public use. This would have a net positive effect on pubic safety by eliminating public travel on these routes, especially routes 1N34 and 1N35 which have a significant history of traffic accidents resulting in serious injuries and fatalities. Alternative 3 would not remove public use from routes 1N34 and 1N35 and would have a significantly less positive effect on public safety.

Direct and Indirect Effects of Decommissioning NFTS Routes

No Action Alternative

The no action alternative would not decommission any system routes so it would be neutral on effects to public safety.

Action Alternatives

Alternative 1 decommissions 18.5 miles of NFTS roads and motorized trails, alternative 3 decommissions 14.2 miles and alternative 4 decommissions 20.8 miles. Eliminating traffic on these routes would have a minor positive effect on public safety because there would be fewer opportunities for accidents. However, there is no history of serious accidents on the NFTS roads.

Cumulative Effects

The only reasonably foreseeable present/future project that would have a cumulative effect on the public safety of the NFTS is the Baldy Mesa Recreation Trails project. The Baldy Mesa project would designate mixed use on 2 miles of 3N24 and undesignated mixed use on 1.3 miles of 3N24. The project would also designate 11.7 miles of trail and construct 2.1 miles of trail for non-highway legal vehicle use. It is not anticipated that the Baldy Mesa project will have any impacts to public safety, so there are no cumulative effects to this project.

Measurement Indicator 2: Affordability

Direct, Indirect and Cumulative Effects

This project would be implemented over time as budgets permit. None of the action alternatives are expected to result in significant cost, nor do the action alternatives differ significantly in cost, so there are no direct or indirect effects and consequently no cumulative effects. The primary costs involved are signs for changes in designation, culvert removal and recontouring where roads are being decommissioned (offset by reduced maintenance costs), and gates where public use is being removed. Restoration and new trail construction would be accomplished primarily through OHV Volunteers (see Appendix F for description) and thus would not result in any significant additional cost since administrative oversight of the volunteers is already incurred. State of California OHV Program grants are also available for restoration.

Visual Resources

Affected Environment

Dramatic scenery defines the existing visual condition of the San Bernardino National Forest; a mountain refuge surrounded by rapidly growing, diverse urban communities. From the edge of busy metropolitan areas to rugged deserts, scenic canyons and backcountry wild lands of chaparral which rise to towering peaks, dense forests and cool lakes, the Forest offers many and varied natural recreation opportunities. There are green-cloaked mountains with deeply incised canyons and swift-flowing streams; steeply rising peaks that create a strong visual and physical edge to the urban development of the Inland Empire; and twisting, climbing roads along big-tree forested landscapes on the mountain sides – all unique visual attributes that quickly separate the mountain communities from the valley cities below.

The most attractive landscapes are located where the highest combination of landform, water form, rock form and vegetation variety occur. These locations are classified as Scenic Attractiveness Class A (SAC-A) and make up approximately 32 percent of the Forest. The more common landscapes—those classified as Scenic Attractiveness Class B (SAC-B)—consist of steep, chaparral-covered mountains intermixed with foothill and valley areas consisting of oak woodlands and grassland. These areas make up approximately 38 percent of the Forest. The remaining 30 percent are classified as Scenic Attractiveness Class C (SAC-C) or less distinctive landscapes.

“Key Places” as defined and discussed in the Forest Plan FEIS represent the most picturesque national forest locations. These Key Places possess their own distinctive landscape character and are particularly valued for their scenic quality. They generally serve as urban backdrops or recreation destinations or they contain scenic routes and byways. Key Places within the San Bernardino National Forest include:

- Arrowhead 36,663 acres
- Big Bear 39,078
- Big Bear Backcountry 63,889
- Front Country 13,079
- Garner Valley 38,451
- Idyllwild 44,361
- Lytle Creek 42,384
- San Bernardino Front 84,566
- San Gorgonio 99,925
- Santa Rosa and San Jacinto Mtns 63,726

See: http://www.fs.fed.us/r5/scfpr/projects/lmp/mapindex.htm.

There are two designated National Forest Scenic Byways, Rim of the World (State Highways 38, 18 and 138) and Palms to Pines (State Highways 74 and 243), with important viewsheds.

The National Visitor Use Monitoring (NVUM) survey of 2003 found that about 41 percent of Forest visitors participated in ‘Viewing Natural Features’ and 17 percent participated in ‘Driving for Pleasure’.

Environmental Consequences – Comparison of Alternatives

Introduction

This section of the Motorized Travel Management environmental analysis examines the extent to which alternatives respond to visual resources management direction established in the San Bernardino National Forest Land Management Plan (Forest Plan) and the Travel Management (TM) Rule.

Landscape management is used to meet people's scenery expectations for the management of national forest landscapes. In the development of the Forest Plan, the Forest's visual resources were inventoried to determine the landscape's scenic attractiveness. To ensure that scenic integrity is maintained, three Scenic Integrity Objectives (SIOs) were found applicable for the San Bernardino National Forest's selected Forest Plan alternative. They are derived from the landscape's attractiveness and the public's expectations or concerns. Each scenic integrity objective depicts a level of scenic integrity used to direct landscape management: Very High (unaltered), High (appears unaltered) and Moderate (slightly altered). Generally, landscapes that are most attractive and are viewed from popular travel routes are assigned higher scenic integrity objectives. SIOs are generally synonymous with the Visual Quality Objectives (VQOs) in the original land management plan.

Roads and trails create linear alterations in landscapes that can be mitigated through sound design. Unmitigated, they present uncharacteristic line qualities in forest landscapes. Landscapes with a dense canopy cover have the capability of masking these linear alterations; sparsely covered landscapes have less capability. An increase in unauthorized routes, particularly in sparsely covered landscapes, can adversely affect the Forest's visual resources.

Analysis Framework: Statute, Regulation, Forest Plan and Other Direction

Direction relevant to the proposed action as it affects visual resources includes:

National Forest Management Act (NFMA) The National Forest Management Act (NFMA) and its implementing regulations, required the inventory and evaluation of the forest's visual resource, addressing the landscape's visual attractiveness and the public's visual expectations. Management prescriptions for definitive lands areas of the forest are to include Scenic Integrity Objectives.

Travel Management Rule The TM Rule does not cite aesthetics specifically, but in the designation trails or areas, the responsible official shall consider effects on forest resources, with the objective of minimizing effects of motor vehicle use.

San Bernardino National Forest Land Management Plan The Plan contains Forest-wide management direction in the form of Scenic Integrity Objectives for visual resources and identification of "Key Places" for visual management emphasis.

Part 2 of the Forest Plan contains the following three landscape management objectives:

LM 1 - Landscape Aesthetics. Manage landscapes and built elements to achieve scenic integrity objectives:

- Use best environmental design practices to harmonize changes in the landscape and advance environmentally sustainable design solutions.

LM 2 - Landscape Restoration. Restore landscapes to reduce visual effects of nonconforming features:

- Prioritize landscape restoration activities in key places (Arrowhead, Big Bear, Big Bear Back Country, Front Country, Garner Valley, Idyllwild, Lytle Creek, San Bernardino Front Country, San Gorgonio and Santa Rosa and San Jacinto National Monument). Integrate restoration activities with other resource restoration.
- Restoration of landscape should consider not only the existing condition but the sustainable natural appearing landscape that is the desired condition of the mature forest.

LM 3 - Landscape Character. Maintain the character of "Key Places" (see LM2) to preserve their intact nature and valued attributes:

- Maintain the integrity of the expansive, unencumbered landscapes and traditional cultural features that provide the distinctive character of the place.
- Promote the planning and improvement of infrastructure along scenic travel routes.

Part 3 of the Forest Plan identifies the following two standards:

S9. Design management activities to meet the scenic integrity objectives (SIO) shown on the Forest Plan Scenic Integrity Objective (SIO) Map.

S10. Scenic integrity objectives will be met with the following exceptions:

(1) minor adjustments not to exceed a drop of one SIO level are allowed with the forest supervisor's approval; and

(2) temporary drops of more than one SIO level may be made during and immediately following project implementation providing they to not exceed three years in duration.

Indicator Measures

Indicator Measures are intended to address how each action individually (direct and indirect effects) and each alternative as the sum total of its proposed actions (cumulative effects) respond to the Forest Plan and the TM Rule.

Measurement Indicator: Compliance with the Scenic Integrity Objectives. The extent to which the NFTS proposals fall within the High or Moderate SIO (number of miles traversing landscapes that are to remain natural to slightly altered appearing in character) for each alternative is determined.

Within the San Bernardino National Forest, only those lands within existing or recommended wilderness are classified as having a Very High SIO. No portion of the motorized NFTS currently occurs within or is proposed for this SIO.

The entire rest of the Forest, with the exception of a few small scattered parcels of land with a Moderate SIO that are primarily located along the fringes of the Forest, is classified as having a High SIO. In a High SIO, the valued landscape character appears intact and management attempts to retain this character. Deviations may be present but must repeat form, line, color, texture and pattern common to the landscape so they are not evident.

See: http://www.fs.fed.us/r5/scfpr/projects/lmp/mapindex.htm.

All action alternatives (1, 3 and 4) propose changes to the NFTS that traverse landscapes classified with a High SIO. The NFTS in the no action alternative (2) also traverses landscapes classified with a High SIO. The NFTS in all alternatives also traverse several extremely small areas that are classified with a Moderate SIO, but for purposes of this analysis they are considered insignificant.

Direct, Indirect and Cumulative Effects

Effects Common to All Alternatives

Recreation and administrative transportation experiences will be somewhat different among the alternatives, all of which contain routes ranging from high standard surfaced roads already designated for public highway-licensed motor vehicle use to infrequently maintained native surface roads and trails. All of the action alternatives differ in motorized use mileage from that included in alternative 2 (no action). Management of the systems proposed in all of the action alternatives will represent a change from the current condition. The visual resources of the Forest would be maintained, altered or restored as described below. Opportunities for viewing scenery would vary. The construction of new transportation routes would generally create more chances for viewing scenery while some viewing may be decreased by road and trail closures. Landscapes would be managed to maintain a natural-appearing character in all alternatives and would meet their assigned SIOs; however, landscape restoration to achieve desired landscape character would change depending upon the theme of the alternative.

Cross-country motorized vehicle travel has been (since 1989) and will continue to be prohibited within the San Bernardino National Forest. The prohibition of cross-country motorized vehicles continues to have a positive effect on the Forest's visual resources. Improvement of the visual resource is on-going and long-term; unauthorized routes and impact areas gradually heal over time when use is controlled.

In all action alternatives, visual resources would not be affected by the modification of vehicle class or the addition of mixed use.

The viewshed is the unit of spatial analysis for determining all effects. For the San Bernardino National Forest, viewsheds are in Key Places and Scenic Byway corridors.

The short-term timeframe is one year (not applicable in the cumulative effects analysis) and the long-term (and cumulative effects) timeframe is 20 years.

Alternative 1

Alternative 1 would change the NFTS as described in Chapter 2. It has the second most motorized road and trail mileage of the three action alternatives. Options for motorized travel are proposed to provide greater access and diversity of motorized riding experiences.

The motorized recreation opportunities in alternative 1 would directly and indirectly affect the natural appearance of the forest landscapes.

All of the proposed NFTS falls within the High Scenic Integrity Objective, traversing landscapes that are to be retained - remaining natural in appearance and character. The addition of unauthorized routes and the re-classification or decommissioning of existing routes would not affect visual resources as these improvements are already in place on the landscape. The new construction proposed is very minor and would not significantly affect the SIO. And the restoration of unauthorized routes would greatly enhance the SIO. Overall, alternative 1 complies with the Forest SIO of High.

No viewsheds in key places have the potential to be negatively affected by the proposed NFTS in this alternative. However, the Big Bear Backcountry Place has the potential to be very positively affected through the restoration of unauthorized routes to allow the return of a more natural landscape. Over time, natural revegetation would occur within these unauthorized routes, obscuring the constructed appearance and reducing contrast with the surrounding landscape. This

more natural appearing landscape across the Place would result with less evidence of human activity. No views from Forest Scenic Byways would be affected by alternative 1.

Non-characteristic line quality created by new trail segments is the greatest direct impact to the Forest landscape visual resources. Although not significant for alternative 1 (less than one half mile), the location and design of these segments would significantly reduce their visual impact through best environmental and design practices.

The NFTS additions in alternative 1 that contribute to the continuity of motor touring would have a beneficial effect on visual resources, since it is assumed that dead-end route situations would be reduced.

Alternative 2

This no action alternative would propose no change to the NFTS.

There would be almost no direct or indirect effects other than the continued beneficial effects of the prohibition of motorized cross-country travel. Under this alternative the agency will take no affirmative action (no change from current management or direction). The use of all unauthorized routes will continue to be illegal and no changes will be made to the current NFTS. The no action alternative is a proposal to ‘do nothing’ and maintain the ‘status quo’.

The only direct effect would be negative - that no unauthorized routes would be rehabilitated and therefore no natural revegetation would occur to obscure the constructed appearance and contrast with the surrounding landscape.

Alternative 3

Alternative 3 would change the NFTS as described in Chapter 2. It has the highest motorized road and trail mileage of the three action alternatives and proposes the greatest addition to the non-highway legal vehicle system and the most highway legal mileage. Additional options for motorized travel are proposed in alternatives to provide greater access and diversity of motorized riding experiences.

The motorized recreation opportunities in alternative 3 would directly and indirectly affect the natural appearance of the forest landscapes.

All of the proposed NFTS falls within the High Scenic Integrity Objective, traversing landscapes that are to be retained - remaining natural in appearance and character. The addition of unauthorized routes and the re-classification or decommissioning of existing routes would not affect visual resources as these improvements are already in place on the landscape. The new construction proposed is very minor and would not significantly affect the SIO. And the restoration of unauthorized routes would greatly enhance the SIO. Overall, alternative 3 complies with the Forest SIO of High.

No viewsheds in key places have the potential to be negatively affected by the proposed NFTS in this alternative. However, the Big Bear Backcountry Place has the potential to be very positively affected through the restoration of unauthorized routes to allow the return of a more natural landscape. Over time, natural revegetation would occur within these unauthorized routes, obscuring the constructed appearance and reducing contrast with the surrounding landscape. This more natural appearing landscape across the Place would result with less evidence of human activity. No views from Forest Scenic Byways would be affected by alternative 3.

Non-characteristic line quality created by new trail segments is the greatest direct impact to the Forest landscape visual resources. Although not significant for alternative 3 (less than one quarter

mile), the location and design of these segments would significantly reduce their visual impact through best environmental and design practices.

The NFTS additions in alternative 3 that contribute to the continuity of motor touring would have a beneficial effect on visual resources, since it is assumed that dead-end route situations would be reduced.

Alternative 4

Alternative 4 would change the NFTS as described in Chapter 2. It has the lowest motorized road and trail mileage of the three action alternatives and proposes the least addition to the non-highway legal vehicle system and the most highway legal mileage. Additional options for motorized travel are proposed in alternatives to provide greater access and diversity of motorized riding experiences.

The motorized recreation opportunities in alternative 4 would directly and indirectly affect the natural appearance of the forest landscapes.

All of the proposed NFTS falls within the High Scenic Integrity Objective, traversing landscapes that are to be retained - remaining natural in appearance and character. The addition of unauthorized routes and the re-classification or decommissioning of existing routes would not affect visual resources as these improvements are already in place on the landscape. The new construction proposed is very minor and would not significantly affect the SIO. And the restoration of unauthorized routes would greatly enhance the SIO. Overall, alternative 4 complies with the Forest SIO of High.

No viewsheds in key places have the potential to be negatively affected by the proposed NFTS in this alternative. However, the Big Bear Backcountry Place has the potential to be very positively affected through the restoration of unauthorized routes to allow the return of a more natural landscape. Over time, natural revegetation would occur within these unauthorized routes, obscuring the constructed appearance and reducing contrast with the surrounding landscape. This more natural appearing landscape across the Place would result with less evidence of human activity. No views from Forest Scenic Byways would be affected by alternative 4.

Non-characteristic line quality created by new trail segments is the greatest direct impact to the Forest landscape visual resources. Although not significant for alternative 4 (less than one quarter mile), the location and design of these segments would significantly reduce their visual impact through best environmental and design practices.

The NFTS additions in alternative 4 that contribute to the continuity of motor touring would have a beneficial effect on visual resources, since it is assumed that dead-end route situations would be reduced.

Cumulative Effects

The Forest Plan provides guidance to reduce unauthorized routes over time. However, alternative 2 (no action) has the greatest potential for having a negative cumulative effect for visual resources. The continued presence of un-restored unauthorized user-created routes in the Big Bear Backcountry Place would create uncharacteristic visual quality in that forest landscape.

There are no other cumulative effects in alternatives 1, 3 or 4. All would comply with the Forest SIO of High. A more natural appearing landscape across the Forest would result with less evidence of human activity in those areas where unauthorized restoration has occurred. No viewsheds in key places or scenic byway views would be significantly affected in any alternative.

Compliance with the Forest Plan and Other Regulatory Direction.

All alternatives would meet the goals and objectives of the San Bernardino National Forest Land Management Plan (Forest Plan).

- Although there are NFTS changes by alternative within the Scenic Integrity Objectives in alternatives 1, 3 and 4, no SIO would be compromised in any alternative.
- Part 2 of the Forest Plan contains the LM 1,2,3 objectives for Visual Resources. All alternatives would meet these objectives. In particular, alternatives 1, 3 and 4 would to varying degrees as described above meet the objectives of managing and restoring landscapes and maintaining the character of Key Places.
- And all action alternatives would plan, design, construct and maintain the National Forest System roads and trails to meet Plan objectives, promote sustainable resource conditions and safely accommodate anticipated levels and types of use. Unnecessary unclassified roads would be eliminated and landscapes would be restored. Finally, unclassified roads would be added to NFTS in alternatives 1, 3 and 4 to improve the user experience as described above.

All alternatives would meet the Regulatory Direction (NFMA, NEPA and TM).

- Off-highway vehicle use would be planned and implemented to protect land and visual resources, promote public safety and minimize conflicts with other uses of the NFS lands.
- Areas have been described that would be affected by the alternatives under consideration; the environmental impacts of the alternatives including the proposed action, any adverse environmental effects that cannot be avoided and the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity and any irreversible or irretrievable commitments of resources which would be involved in the proposal should it be implemented.
- In designating NFS roads and trails, responsible officials have considered visual resources.

Chapter 4 – Consultation and Coordination

The Forest Service consulted with the following Federal, State and local agencies and tribes, during the development of this environmental assessment. Complete lists of individuals and organizations who were included in scoping and those who provided comments are available in the project record.

Federal, State and Local Agencies

Big Bear City Community Services District
Big Bear City Fire Department
Big Bear Municipal Water District
Big Bear Valley Recreation and Park District
Calfire
California Attorney General's Office
California Coastal Commission
California Department of Transportation
California Department of Fish and Game
California Department of Water Resources
California Highway Patrol
California State Parks
City of Big Bear Lake
City of Big Bear Lake Fire Department
City of Palm Springs
City of Palm Desert
City of San Jacinto
City of Victorville
City of San Bernardino
County of San Bernardino
County of Riverside
Idyllwild Fire Protection District
Idyllwild Water District
Lahontan Regional Water Quality Control Board
Lake Arrowhead Fire Department
Mount San Jacinto State Park
National Marine Fisheries Service
Palm Desert Planning Department
Riverside County Parks/Open Space
Riverside County Fire Department
San Bernardino County Fire Department
San Bernardino County Supervisors
San Bernardino County Sheriff
San Bernardino County Planning Department
San Bernardino County Fish and Game
Silverwood Lake State Recreation Area
US Army Corp of Engineers
US Bureau of Land Management
US Environmental Protection Agency
US Fish and Wildlife Service
US Geological Survey
US Natural Resources Conservation Service

Tribes

Agua Caliente Band of Cahuilla Indians
Cahuilla Band of Mission Indians
Morongo Band of Mission Indians
Ramona Band of Cahuilla
San Manuel Band of Mission Indians
Soboba Band of Mission Indians

Appendices

Appendix A – Design Features

Table 49. Design Features Common to All Action Alternatives

Concern	Design Feature
Botanical and Wildlife Resources	
Riparian areas, water bodies, wetlands, seeps, springs and meadows	R-1 The Five Step project screening process will be used to identify riparian conservation areas (RCAs) (S-47, Forest Plan Part 3, p. 11) wherever designations and/or transportation management actions intersect riparian areas. R-2 New construction will avoid identified RCA's to the maximum extent possible. R-3 Decommissioning of roads and restoration of unclassified routes, wherever they are within identified RCAs, will be implemented with minimal impact to the RCA and associated botanical and wildlife resources. To the extent possible, snags and downed logs will be retained within the RCA.
Botanical Resources	B-1 New construction will avoid impacts to Threatened, Endangered and Sensitive (TES) plant species. Prior to construction, coordination will occur with the district botanist or forest botanist to ensure that route alignments are chosen that will not impact TES plants. B-2 New construction should minimize impacts to Watch list plant species to the extent feasible. Prior to construction, coordination will occur with the district botanist or forest botanist to help select alignments to minimize impacts to Watch list plants. Watch list species and other species of interest may be flagged and avoided where they co-occur with TES species or riparian conservation areas. Any impacted Watch list plant occurrences will be monitored during and after implementation to the extent possible. B-3 All decommissioning and restoration will be planned and implemented to avoid impacts to TES species.
Invasive Plants	IP-1 For new construction, decommissioning and restoration, all mechanized heavy equipment to be used off of system roads will be cleaned prior to entering the project area. This is to reduce the likelihood of introduction or spread of non-native invasive plants. In all project-related contracts, include provisions that require equipment cleaning before project implementation. IP-2 Where available, any plant materials used for decommissioning and restoration will be from on site sources (e.g., chipped wood, etc.). All plant material from off site sources (straw, mulch, etc.) must be certified weed free. (S-6, Forest Plan Part 3, p. 5) IP-3 A handout will be prepared for the project administrator to use to identify target weed species and to use to educate the permit holder and contractors. IP-4 Information and training will be provided to field-going OHV and resources patrol employees and volunteers regarding invasive non-native plant species to help identify new introductions before they become inordinately expensive or impossible to eradicate.
Restoration	RE-1 Decommissioned roads and restored routes should be restored using locally collected plant materials and seeds (S-6, Forest Plan Part 3, p. 5). Seed mixes and planting palettes must be approved by a Forest Service botanist prior to application.

Concern	Design Feature
General - Wildlife	WG-1 For new construction, decommissioning and restoration, known occurrences of Sensitive and Watch animals and/or habitat features that support sensitive animals will be flagged and avoided. These areas may be buffered to prevent indirect impacts. A qualified biologist will work with the project administrator to avoid known occurrences. WG-2 For new construction, decommissioning and restoration, no night time work (and use of artificial lighting) during construction will be allowed. Night time is defined as the period between sunset and sunrise. WG-3 Use of water sources from National Forest System (NFS) lands for dust abatement or other project operations would be evaluated on a site-specific basis. If use is approved, it would be in excess of National Forest needs and such that flows would not be substantially altered.
Nesting Birds	B-1 For new construction, decommissioning and restoration: To comply with the Migratory Bird Treaty Act, prior to onset of implementation between March 1st and August 31st, surveys will be conducted for nesting birds no more than two weeks prior. If nesting birds are found, the project administrator will work with the biologist to minimize impacts and ensure consistency with the Act. B-2For new construction, decommissioning and restoration: active and inactive raptor nest areas will be avoided, using buffers and LOPs as needed (S-18, Forest Plan Part 3, p 7). Nest trees will be flagged for avoidance during implementation.
General – trees with high wildlife value and for stand diversity	WT-1 For new construction, decommissioning and restoration: Live and dead western junipers and black oaks that are 14” or greater in DBH and single-leaf pinyon pines 12” or greater in DBH will be retained where possible, unless they must be removed because they pose falling hazards. WT-2 For new construction, decommissioning and restoration: Mountain mahogany (*Cercoparpus*) and manzanita (*Arctostaphylos*) shrubs with any stem greater greater than 6” total basal stem diameter will be retained where possible. WT-3 For new construction, decommissioning and restoration: Retain live and dead trees with signs of wildlife (visible cavities, acorn woodpecker storage trees, sapsucker feeding holes, etc.) unless they are a safety hazard. A Wildlife Biologist will help guide selection of leave-trees.
Rare terrestrial reptiles and amphibians	HE-1 For new construction, decommissioning and restoration: Protect rock outcrops, springs, seeps and riparian areas from mechanical disturbance where possible. HE-2 For new construction, decommissioning and restoration: When needed, temporary mesh barriers may be installed to prevent southern rubber boas and other species from moving into high activity areas.

Concern	Design Feature
Monitoring	M-1 The project area will be monitored periodically for non-native invasive plants. If weeds are found, a plan for eradication/control will be developed as a component of the WHPP/HMP. M-2 The San Bernardino NF will continue to provide field staff and well as continue to cultivate volunteers, to patrol, enforce and monitor uses of the non-highway legal and highway legal motorized transportation system to the maximum extent possible. M-3 New non-highway legal routes designated as a part of this project will be evaluated and appropriate monitoring will be carried forward to the next WHPP/HMP. M-4 Special Attention in monitoring will be paid to insuring new unauthorized routes are quickly identified and disguised in the Soboba new designation on 4S19 and the road to TipTop Mountain 2N90 A and B. 2N90 C will be monitored as well to discourage off route use.
Yellow Post Sites	YP-1 Any currently unclassified routes that are brought into the Forest Transportation System under this project to access existing yellow post dispersed camping sites will meet the following conditions: 1.The route will follow a single well-used alignment to the extent possible so that no new construction would be needed. 2. In coordination with district or San Bernardino National Forest biologists and botanists, a route will be defined that avoids or minimizes impacts to TES plants and wildlife habitat. 3. The route will be clearly delineated on the ground and on maps and any secondary (unclassified) routes into the campsite should be blocked and/or disguised. 4. A new set of maps will be prepared that clearly indicates locations of all yellow post sites with authorized vehicle access. These maps will replace all existing yellow post site maps and will be used by the districts to direct the public to these sites. 5. Former yellow post sites with no authorized vehicle access will be discontinued, not shown on maps and not improved/maintained for camping uses (e.g. firerings, picnic tables)
Soil and Water	
Pursuant to San Bernardino NF Forest Plan Supplement 2509.22 Stream Protection Measures, Section 3.21:20) all applicable forestwide standards and guidelines, design criteria for the Southern California Forests and guidelines in 2509 apply. The mitigations, monitoring and maintenance plans associated with this analysis constitute the Pollution Prevention Plan for the San Bernardino NF Route Designation Project. Design Criteria and Mitigations may change following consultation and acceptance of the Pollution Prevention Plan with the State of California Santa Ana Regional Water Quality Control Board.	

Concern	Design Feature
Channel Buffers and Stream Crossings	WAT-1 Provide 100-foot (30 meter) buffer around all wetlands, springs or seeps adjacent to non-highway legal routes. Re-route non-highway legal trail sections as needed. WAT-2 Provide 330-foot (100 meter) buffer on each side of a perennial stream for any new construction or non-highway legal trail re-route. WAT-3 Provide 100-foot (30 meter) buffer on each side of an intermittent stream for any new construction or non-highway legal trail re-route. WAT-4 Provide 50-foot (15 meter) buffer on each side of an ephemeral stream for any new construction or non-highway legal trail re-route. WAT-5 Span perennial or intermittent stream channels with bridges, vented and/or hardened fords or culverts sized to accommodate the 50-year storm event plus debris. Crossing would be delineated and vehicle use restricted to the route to prevent widening. WAT-6 Span ephemeral draws with a hardened rolling dip or constructed ford so that upstream and downstream portions of the draw is connected. Objective: get water across the road and reduce risk of water diverting down the road or trail. WAT-7 Harden the outside edge of the road at all stream crossings. Objective: prevent erosion and damage to the downstream side of the road or trail. WAT-8 When stabilizing damaged streambanks, use methods that emphasize natural stream restoration designs and vegetation (e.g., bio-engineering techniques).
Water Quality Pollution Prevention Plan	WAT-9 Implement the Soil and Water BMPs found in Appendix D. Applicable BMPs are highlighted and include comments related to their application. WAT-10 Implement any additional Soil and Water BMPs upon the recommendation of the San Bernardino National Forest Hydrologist or Soil Scientist. WAT-11 Visitor use and route maintenance activities would be controlled. Vehicles would be restricted to the designated travelway. Undeveloped areas within 15 feet of designated travel routes would be kept as free from trampling as possible to encourage the maintenance and development of 60 percent effective soil cover, to reduce hillslope erosion and to reduce streambank damage.

Concern	Design Feature	
Route Maintenance	WAT-12 Implement route maintenance plans. WAT-13 Add energy dissipation structures below the "Mac" drains to slow and disperse water and catch and store sediment. Place slash, erosion matting or erosion fencing below the drains. Objective: spread the concentrated drain flow to reduce erosion and encourage the capture and storage of erosional material and flows on the hillslope. WAT-14 Keep route width the minimum needed for the specified vehicle. Delineate the road surface. Objective: keep vehicles on established treads. WAT-15 Avoid berms on the downhill side of road if road is outsloped. Objective: allow water to sheet off the road rather than collect in a rill or gully or be confined within the tread. WAT-16 Stabilize the cut and fill slopes with bioengineering structures, for example erosion control blankets, log grids, contour logs, etc. Objective: prevent erosion and provide microsites for vegetation establishment and water collection. WAT-17 Reduce overland flow and sheet erosion above the road by dispersing water with slash, contour logs, log contour basins. WAT-18 Drain dips and water bars: Place drain dips and/or waterbars as recommended by the immediate route terrain and slope. Rather than rely on a "distance between structures" chart, place drain dips or waterbars frequently enough so water energy does not increase or concentrate. Construct the water diversion feature where water can be safely dispersed onto undisturbed ground and so that it doesn't run back onto the route. Objective: get water off the route surface quickly to prevent erosion and gully formation.	
Route Decommissioning, Restoration or Stabilization	WAT-19 Implement route decommissioning, restoration or stabilization recommendations.	
Monitoring and Reporting	WAT-20 Implement the monitoring and reporting recommendations found in Appendix E.	
Other	WAT-21 Follow any recommendations found in FS Manual 2080 related to the weed management program. WAT-22 Prepare and distribute conservation education materials for soil, geology, water and wetlands to non-motorized recreation users Heritage Standard Resource Protection Measures (SRPMs) or Other Protective Measures	
Region 5 Supplement 2500-92-2 to FSM 2526 and The San Bernardino Supplement to 2509.22 – Soil and Water Conservation Practices Handbook, FSH 2509.22-2005-1. **Stream Protection Measures (FSH 2509.22-2005-1:20-33)**		
2.5	RIPARIAN CONSERVATION AREAS (RCA)	5-Step Process completed, PF-WAT-11.

Concern	Design Feature	
3.21-1	All applicable BMP should be identified and followed in all ground disturbing Forest Management Actions	BMPs are included by reference in the Soil and Water mitigations. They are specifically listed in the Water Pollution Prevention Plan for this project, PF-WAT-9
3.21-2	Prevent or limit activities that could cause channel aggradation or disaggradation (incisions)	Route decommissioning and restoration are proposed but would have a positive affect on channel morphology because roadbed use would not generate sediment. No other route changes in RCAs are proposed.
3.21-3	Limit any activities on defined ground water recharge areas that may introduce contaminant to the groundwater, prevent or significantly reduce water infiltration, or that prevent ground water from reaching wells.	N/A – the routes currently exist on the ground, changing use or vehicle type or adding a limited number of unauthorized routes with corresponding BMP implementation would not affect groundwater
3.21-4	Limit any chemical applications in or near RCAs and use containment methods that minimize risk of entry to surface and ground water	Discussed in the Water and Soil Specialist report and EA
3.21-5	Limit disturbance on incised slopes, meadows, streams, and rehabilitate damage caused by the activity to restore and improve riparian areas.	Discussed in the Water and Soil Specialist report and EA
3.21-6	When stabilizing damaged stream, preferentially use methods that emphasize nature stream restoration designs and vegetation stabilization. Use native vegetation for stream restoration whenever possible	Discussed in the Water and Soil Specialist report and EA. Restoration techniques and references are described in PF-WAT-6
3.21-7	Existing uses, activities, or occupancy within RCAs should be evaluated for risks or impacts and mitigated during special use renewal or re-issuance.	Discussed in the Water and Soil Specialist report and EA
3.21-8	Living native woody riparian vegetation should not be cut or removed except during road trail or facility maintenance and where riparian management objects can be met	No new routes are proposed in RCAs which would including the cutting or removing of LWM. Maintenance of existing routes would occur and are excepted.
3.21-9	Maintain vegetation where practicable to provide adequate shade to meet riparian objectives.	No new routes are proposed in RCAs which would including the cutting or removing of LWM. Maintenance of existing routes would occur and are excepted.

Concern	Design Feature	
3.22-1	Protective Ground Cover requirements	N/A, soil cover is not required on system roads and trails. This Standard and Guideline applies to areas outside the road corridors. There are no proposed changes to areas outside of the existing route corridors except for 0.5 miles of new construction
3.29-1	S34 and S50 applied to project along with Appendix D	Adaptive Mitigation for Recreation Uses process was applied; see PF-WAT-10. Mitigation WAT #22 recommended.
3.29-2	Apply protection measures to special designation areas.	NA, travel routes do not go through special designation areas.
3.30-1, 2, 3	Obtain all required permits	NA, no permits are required
3.30-Road Guidelines	Follow all road guidelines (1-16) and BMP (Appendix A).	Pollution Prevention Plan PF-WAT-9 as well as BMPs implemented as mentioned in the watershed mitigations
1	When new or existing routes through RCAs (including meadows) negatively affect riparian-dependent resources, repair, re-route, remove or redesign them to the greatest extent possible.	
2	Design routes to minimize the use of berms, in-sloping, and ditches in order to reduce sources of erosion and sediment contribution to RCAs	
3	Keep road construction to the minimum necessary for approved operating plans or contracts. Construct and maintain roads to minimize damage to riparian and aquatic resources. Roads in and adjacent to RCAs should receive priority for analysis of continued use. When determined that a road is no longer needed through NEPA analysis decommission, obliterate, stabilize, restore, and barricade as necessary (FSH 7709).	
4	New culverts, bridges and other stream crossing structures should be designed to accommodate at least a 50-year flood event, including associated bedload and debris movement. Temporary roads (scheduled for less than 1 year of use) do not need to meet this standard, but should follow FSH 7709 regarding schedule for removal procedures. Priority for upgrading existing structures should be based on the potential impact to and the ecological value of the riparian/aquatic resources affected. Crossings should be designed and maintained to prevent diversion of streamflow out of channel. Structures should be designed and maintained to accommodate aquatic species passage (for example: fish, amphibians, and reptiles).	
5	Access to work sites should be via pre-existing routes to the greatest extent possible. If new temporary routes are needed, these routes should be reviewed by an earth scientist or biologist prior to approval. All new ground disturbances should be held to the minimal amount necessary to accomplish the job	
6	Minimize removal of existing willows or other native woody riparian species within the project site. After temporary road construction and use is terminated, the site should be returned to pre-existing contours and revegetated where deemed appropriate by the earth scientist or biologist.	

Concern	Design Feature	
7	The Forest Service and/or contractor(s) should develop a Water Pollution Control Plan. This plan should specify details related to sediment and hazardous materials control, dewatering or diversion structures, fueling and equipment management practices, and other factors determined by the forest project engineer and earth scientist or biologist	
8	Designate debris/sediment disposal sites in advance and follow procedures outlined by the earth scientist.	
9	Equipment storage, fueling and staging areas should be located on upland sites and use spill containment measures that result in minimal risks of direct drainage into RCAs	
10	Erodible fill material should not be deposited into actively flowing water unless completely unavoidable. Appropriate diversion or sediment control measures should be used to minimize sedimentation of surface water	
11	Equipment or temporarily stored materials should be removed from the stream channel following daily completion of work	
12	Brush, loose soils, or other similar debris material should not be stockpiled within the stream channel or on its banks where it may impact federally listed (threatened, endangered, proposed or candidate) species or wash into the stream	
13	All vehicles and equipment operated within active streams should be inspected daily to insure they are free of any leaks of fuel, cooling, or lubricating fluids	
14	When needed, diversions of stream flows should be conducted using sandbags or other methods requiring minimal instream disturbance. Silt fencing or other sediment trapping materials should be installed at the downstream end of construction activity to minimize the transport of sediment off-site. Settling ponds, where sediment is collected, should be cleaned out with the sediment deposited on upland areas to prevent the sediment from entering the stream with the onset of the rainy season. Care should be exercised while removing silt fences, to the extent feasible, to prevent debris or sediment from entering the stream.	
15	Hazardous materials should be stored at safe distances from RCAs in a designated location designed to contain any spills. All refueling of vehicles should be conducted at designated sites outlined in the project spill plan to prevent any spillage from entering the stream. Cleanup of all project related spills of hazardous materials should follow the Forest Hazardous Materials Response Plan. Spills of hazardous materials should be cleaned up immediately and contaminated soils removed to approved disposal areas (see section 3.33 also).	
16	Asphalt or cement equipment should not be rinsed in, or excess products dumped into any creek or other waterway. Asphalt or concrete effluent should not be allowed to enter into wetted stream or RCAs. Remove effluents from standing water before diverting the streambed back to its natural channel. Take all necessary precautions to prevent release of asphalt, cement, or other toxic substances into surface waters. Where work is contracted, refer to Cal Trans, Storm Water Quality Handbooks for guidance and specifications (California Department of Transportation 2003).	
3.38-1	Locate structures, support facilities, and roads outside RCAs where practicable.	No new facilities with RCAs are proposed with this project.

Concern	Design Feature	
3.38-2	Adverse impacts associated with occupancy, modification, or development of floodplains shall be avoided or mitigated	No occupancy, modification, or development of floodplains is proposed with this project
Engineering		
Mitigation Measures for Mixed Use	ENG-1 2N01: Signing should be installed to advise all drivers of the presence of non-highway legal vehicles and unlicensed operators. ENG-2 2N02: Signing is necessary to advise drivers that non-highway legal vehicles and unlicensed operators will be present on designated portions of mixed use. Depending upon the alternative selected except for alternative one, minor construction/maintenance work will be necessary as described in the each of the alternatives. ENG-3 2N25: Signing is necessary to advise drivers of licensed vehicles that non-highway legal vehicles and unlicensed operators will be present. The connector from Rouse Ranch Road to 2N27Y must be obliterated because of the blind intersection with 2N25. ENG-4 2N75: Signing is necessary to advise drivers that non-highway legal vehicles and unlicensed operators will be present on designated portions of mixed use. ENG-5 3N03: Signing is necessary to advise drivers that non-highway legal vehicles and unlicensed operators will be present on designated portions of mixed use. ENG-6 3N14: Signs should be installed to warn drivers of the presence of non-highway legal vehicles and unlicensed operators. At intersections and at the San Bernardino National Forest Boundary, SHARE THE ROAD signs depicting a large truck with an ATV should be installed. The two blind combination horizontal and vertical curves should be signed with curve and speed advisory signs, in accordance with the Manual on Uniform Traffic Control Devices. ENG-7 3N16: Signs should be installed throughout the route to warn drivers of the presence of non-highway legal vehicles and unlicensed operators. At intersections, SHARE THE ROAD signs depicting a large truck with an ATV should be installed. Forest staff and OHV patrol presence will be increased.	
Cultural Resources		
Restoration of Unauthorized Routes	**Route Identifier**	
	Mountaintop Ranger District: Routes identified in a legal settlement agreement through the Southern California Conservation Strategy where field surveys are already complete (S. Baldwin Ridge, Arrastre/ Union Flat, Broom Flats, Holcomb Valley, Cactus Flats, Sugarloaf)	When any of these routes, identified during the prior Big Bear Unauthorized Road Project Heritage Survey as having heritage properties, are restored, a qualified archaeologist must be present to monitor for damage and to record on DPR forms any sites that were not recorded during the Big Bear Unauthorized Road Project survey. Both the San Bernardino National Forest Archaeologist and the Mountaintop district archaeologist must be notified prior to restoration of any routes identified in this portion of the projects

Concern	Design Feature	
Decommissioning	Mountaintop Ranger District: 3N95 (currently no public access) 3N98 (portion south of 3N99 junction – currently no public access) 3N99 (portion south of 3N98 junction – currently no public access) 3W12 south end 3W12 north end to 3N34 3W13, south of 3N34 2N26 (North Shore Lake Arrowhead) 2N26A 2N64Y	The district archaeologist must be notified prior to any proposed restoration and an archaeological monitor must be present during restoration.
New Construction	Mountaintop Ranger District: Reroute portion of 3W13 south of 3N34 to avoid archaeological impacts	The district archaeologist must be notified prior to any proposed restoration and an archaeological monitor must be present during restoration.
Alternative 3	Add highway legal spurs to yellow post sites. Add non-highway legal also if spur is off a non-highway legal route.	Front Country Ranger District: Lytle Creek yellow post sites: CA-SBR-1379H straddles the spurs to yellow post sites 5 and 8. The site should be evaluated for the National Register and if eligible, the project should be redesigned or mitigation measures proposed.
		San Jacinto Ranger District: Apple Canyon yellow post sites: yellow post 3 is located adjacent to two archaeological sites, which is documented in ARR 05-12-SJ-166. The spur leading into the yellow post site does not affect historic properties, but several UR's leading away from the camping area pass through RIV-7699. These UR's should be blocked or restored to prevent further damage to the site. An archaeological monitor needs to be present during any proposed restoration.

Appendix B – Present and Reasonably Foreseeable Future Actions

San Bernardino National Forest, Schedule of Proposed Actions

Project Name	Location (District)	Estimated Decision Date
Post fire Non-native Species Eradication Project	Forestwide	10/2008
Recreation Residence Special Use Permit Analysis	Forestwide	12/2008
Travel Management/ OHV Route Designation	Forestwide	11/2008
Rim of the World Trail	Mountaintop	On hold
Santa Ana Landscape Fuels Reduction	Mountaintop	01/2010
Butler II/ Slide Post Fire Fuels Reduction	Mountaintop	10/2008
Running Springs Shaded Fuelbreak and Forest Health	Mountaintop	12/2008
Snow Valley Well	Mountaintop	On hold
Lakeview Recreation Residence Tract, Water Transmission Pipeline Permit Renewals (2)	Mountaintop	On hold
Moonridge Animal Park Relocation Analysis	Mountaintop	02/2009
North Shore Community Protection Zone	Mountaintop	09/2009
SMI- Marble Canyon Expansion	Mountaintop	03/2009
South Big Bear Fuels Reduction and Forest Health	Mountaintop	12/2008
Team Big Bear Special Use Permit	Mountaintop	On hold
Baldy Mesa Recreation Trails Project EA	Front Country	12/2008
Boa Prescribed Burn	Front Country	12/2009
Middle Fork Recreation Residence Tract	Front Country	12/2008
Unavco Tectonic Monitoring	Front Country	11/2008
Invasive Plant Eradication in Wilderness Areas	Front Country	On hold
Angelus Oaks Understory Burn	Front Country	12/2009
Oak Glen Banning Community Protection Project	Front Country	12/2009
Santa Ana Fuelbreak Maintenance	Front Country	01/2010
Anza Electric Permit Renewal	San Jacinto	12/2008
Deer Springs Hazardous Fuels Reduction Project	San Jacinto	01/2009
Keenwild Helibase Hazardous Fuels Reduction Project	San Jacinto	12/2008
May Valley Hazardous Fuels Reduction	San Jacinto	09/2009

May Valley Non-Motorized Trail System	San Jacinto	06/2010
Palm Canyon Tamarisk Removal	San Jacinto	10/2008
Range Allotment NEPA	San Jacinto	11/2008
Ranger Peak Communications Site	San Jacinto	01/2009
Red Mountain Emergency Communications Antenna	San Jacinto	01/2009
San Jacinto Hazard Tree Removal	San Jacinto	01/2009
Santa Rosa Mountain Fuels Treatment Project	San Jacinto	03/2009
Saunders Meadow Road Hazardous Fuels Reduction Project	San Jacinto	07/2009
Thomas Mountain Fuels Reduction	San Jacinto	11/2008
Vista Cell Phone Tower Special Use Permit – Alandale Station	San Jacinto	10/2008
Vista Cell Phone Tower Special Use Permit – Lake Hemet	San Jacinto	06/2009
Vista Grande Road Project	San Jacinto	11/2008

Additional ongoing actions include:

- Honda Ride for Kids – An annual one-day event staged on private land with up to 200 motorcycles using routes on the Front Country and Mountaintop Ranger Districts.
- Mountain Bike races occur twice a year in the Big Bear area utilizing roads on the Mountaintop Ranger District.

Additional actions that are reasonably foreseeable in the future:

- The San Bernardino National Forest may analyze site-specific projects for the designation of non-highway legal staging areas (parking areas with minimal facilities) at Miller Canyon, Big Pine Flat, Crab Flat, Summit and Vista Grand.

Appendix C – Literature Cited and References Used ___

Ayala, R.D., P. Srivastava, C.J. Brodbeck, E.A. Carter and T.P. McDonald. 2005. *Modeling Sediment Transport from an Off-Road Vehicle Trail Stream Crossing using WEPP Model*. In: Proceedings of the 2005 Watershed Management Conference, American Society of Civil Engineers (Glenn Moglen ed), July 19-22, 2005. Paper Number 052017.

Barrows, David Prescott.1976. *Ethno-Botany of the Cahuilla Indians [1900]*. Banning: Malki Museum Press.

Bean, Lowell J. 1974. *Mukat's People: Cahuilla Indians of Southern California*. Berkeley: University of California Press.

_____. 1978. "Cahuilla," in *Handbook of North American Indians*, Vol. 8, edited by Robert F. Heizer. Washington D.C.: Smithsonian Institution. pp. 575-587.

Bean, Lowell J. and Katherine Siva Saubel. 1972. *Temalpakh: Cahuilla Indian Knowledge and Usage of Plants*. Banning: Malki Museum Press.

Bean, Lowell J., Sylvia Brakke Vane and Jackson Young. 1991. *The Cahuilla Landscape: The Santa Rosa and San Jacinto Mountains*. Menlo Park: Ballena Press.

Castetter, Edward F., Willis H. Bell and Alvin R. Grove. 1938. "The Early Utilization and the Distribution of Agave in the American Southwest" *Ethnobiological Studies in the American Southwest*, No. 6. Albuquerque: University of New Mexico Press.

Chavez, D.; Knap, N. 2004. *Management Problems of and Strategies for Off-Highway Vehicle Management: National Forest in California*. USDA Forest Service, Pacific Southwest Research Station, Riverside, CA. 225 p.

Chin A., D.M Rohrer, D.A. Marion and J.A. Clingenpeel. 2004. *Effects of All-Terrain Vehicles on Stream Dynamics*. In Ouachita and Ozark Mountains Symposium: Ecosystem Management Research (Guldin, J.M. (tech comp)). Gen. Tech. Rep. SRS-74. Asheville, NC: USDA Forest Service, Southern Research Station. 321 pp.

Cole, D.N. and D.R. Spildie. 2007. *Vegetation and Soil Restoration on Highly Impacted Campsites in the Eagle Cap Wilderness oregon*. USDA Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-185. 26 pp.

Douglass, K.S., J. Hamann and G. Joslin. 1999. "Vegetation, Soils and Water," *Effects of recreation on Rocky Mountain Wildlife: A Review for Montana*. Committee on Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society, G. Joslin and H. Youmans, coordinators. Pages 9.1-9.11

Eckert Jr., R.E., M.K. Wood, W.H. Blackburn and F.F. Peterson. 1979. "Impacts of Off-Road Vehicles on Infiltration and Sediment Production of Two Desert Soils," *Journal of Range Management* 32(5):394-397.

Foltz, R.B. and D.L. Meadows. 2007. "Impacts of ATV Traffic on Undesignated Trails," *Stream Notes*. USDA Forest Service, Rocky Mountain Research Station; Stream Systems Technology Center. April 2007. 3pp

Forman, T.T., Sperling, D., Bissonette, J.A., Clevenger, A.P., Cutshall, C.D., Dale, V.H., Fahrig, L., France, R., Goldman, C.R., Heanue, K., Jones, J.A., Swanson, F.J., Turrentine, T., Winter, T.C.. 2003. *Road Ecology: Science and Solutions*. Washington DC: Island Press.

Harrison, R. ; Clark, R. ; Stankey, G. . 1980. *Predicting Impact of Noise on Recreationists*. 8023 1202. USDA Forest Service, San Dimas Technology and Development Center. San Dimas, CA. 43 p. http://www.fs.fed.us/eng/pubs/pdfimage/80231202.pdf

Harrison, R. ; Makel, W ; Besse, L. . 1993. *Sound Levels of Five Motorcycles Travelling Over Forest Trails*. 9323 1802.: USDA, Forest Service, San Dimas Technology and Development Center. San Dimas, CA 10 p. http://www.fs.fed.us/eng/pubs/pdfimage/93231802.pdf

Hilty, J.A., Lidicker, W.Z. Jr., Merenlender, A.M. 2006. *Corridor Ecology, the Science and Practice of Linking Landscapes for Biodiversity Conservation*. Washington DC: Island Press.

Hooper, Lucile. 1920. *The Cahuilla Indians*. University of California Publications in American Archaeology and Ethnography 16(6):315-380.

Hund, K.C. 2003. *Can We Tread Lightly? A Study of the Environmental Effects Of Different Types Of Vehicle Use On Forest Roads*. Report presented to the Forest Service March 9, 2007.

Knight, R.L., Gutzwiller, K.J. 1995. *Wildlife and Recreationists: Coexistence Through Management And Research*. Washington DC: Island Press.

Kroeber, Alfred L. 1908. "Ethnography of the Cahuilla Indians," *University of California Publications in American Archaeology and Ethnography* 8:29-66.

_____. 1925. "The Cupeño and Cahuilla," *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78:689-708.

Kroeber, Alfred L. and Lucile Hooper. 1978. *Studies in Cahuilla Culture: Ethnography of the Cahuilla Indians*. Banning: Malki Museum, Inc.

Ladley. 2008. Personal Communication with Ladley, USDA Forest Service, San Jacinto Ranger District Recreation Staff and Scott Eliason, Forest Service Botanist. April 2008.

Ladley and Kramer. 2008. Personal Communication with Ladley and Kramer, USDA Forest Service, San Jacinto Ranger District Recreation Staff and Scott Eliason, Forest Service Botanist. April 2008.

Luce, C.H. and T.A. Black. 2001. "Spatial and Temporal Patterns in Erosion from Forest Roads," *Influence of Urban and Forest Land Uses on the Hydrologic-Geomorphic Responses of Watersheds*. Water Resources Monographs, American Geophysical Union, edited by M.S. Wigmosta and S.J Burges Washington, D.C. pp. 165-178.

Marion, J.L. 1998. *Recreation Ecology Research Findings: Implications for Wilderness and Park Managers*. In: Proceedings of the National Outdoor Ethics Conference, April 18-21, 1996, St. Louis, MO. Gaithersburg, MD: Issak Walton League of America. pp.188-196.

Ouren, D.S., C. Hass, C.P. Melcher, S.C. Stewart, P.D. Ponds, N.R. Sexton, L. Burris, T. Fancher and Z.H. Bowen. 2007. *Environmental effects of off-highway vehicles on Bureau of Land Management lands: A literature synthesis, annotated bibliographies, extensive bibliographies and internet resources*. US Geological Survey, Open File Report 2007. 1353:225 p.

Patencio, Francisco. 1969. *Stories and Legends of the Palm Springs Indians, as told to Margaret Boynton* [1943]. Palm Springs: Palm Springs Desert Museum.

Sheridan, G.J., P.J. Noske, R.K. Whipp and N. Wijesinghe. 2006. "The effect of truck traffic and road water content on sediment delivery from unpaved forest roads" *Hydrological Processes* 20:1683-1699.

South Coast AQMD. 2007. *2007 Air Quality Management Plan*. http://www.aqmd.gov/aqmp/07aqmp/index.html Accessed January 16, 2008.

State of California, Department of Environmental Quality (DEQ). 2005. TMDL and 303(d) List Information: www.waterboards.ca.gov/santaana

State of California, Department of Parks and Recreation. 2002. *California Outdoor Recreation Plan 2002*. http://www.parks.ca.gov/pages/22545/files/2002CORP.pdf

State of California, Department of Parks and Recreation. 2002a. Taking the High Road: The Future of California's Off-Highway Recreation Program. http://www.parks.ca.gov/pages/712/files/022002.pdf

State of California, Department of Parks and Recreation, Off-Highway Motor Vehicle Recreation Division. 2006. *Estimating the State Fuel Tax Paid on Gasoline Used in the Off-Highway Operation of Vehicles for Recreation*. Survey Results, September 2006. http://ohv.parks.ca.gov/pages/1140/files/fuel%20tax%20survey%20report.pdf

State of California, State Water Resources Control Board. 2005. Porter-Cologne Water Quality Control Act. www.swrcb.ca.gov/water_laws Jan 1, 2005

State of California, Santa Ana Regional Water Quality Control Board. 1995. *Santa Ana Basin Water Quality Control Plan*. www.waterboards.ca.gov/santaana

Switalski, T.A., J.A. Gissonette, T.H. DeLuca, C.H. Luce and M.A. Madej. 2004. "Benefits and impacts of road removal" *Front Ecology Environment* 2(1):21-28.

Trombulak, S.C. and C.A. Frissell. 2000. "Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities" *Conservation Biology* 14(1):18 pp.

Tuttle, M. and G. Griggs. 1987. "Soil Erosion and Management Recommendations at Three State Vehicular Recreation Areas, California" *Environmental Geology and Water Science* 10(2):111-123.

U.S. Environmental Protection Agency (EPA). 2007. *Particulate Matter*. http://www.U.S.EPA.gov/air/particlepollution/. Accessed January 15, 2008.

USDA Forest Service (FS). 1994. *Off-Highway Vehicle Program, Strategic Plan 1994 – 1998*. Pacific Southwest Region, San Bernardino National Forest. February. 69 p.

_____. 1989. San Bernardino National Forest Plan. Pacific Southwest Region, Vallejo CA.

_____. 2000. *Water Quality Management for Forest System Lands in California Best Management Practices*. Pacific Southwest Region, Vallejo CA. September.

_____. 2002. *Investigating Water Quality in the Pacific Southwest, Best Management Practices Evaluation Program (BMPEP User's Guide).*" Pacific Southwest Region, Vallejo CA. June.

_____. 2003. San *Bernardino National Forest - National Visitor Use Monitoring (NVUM) Results*, Pacific Southwest Region. http://www.fs.fed.us/recreation/programs/nvum/

_____. 2004. "Four Key Threats to the Health of the Nations Forests and Grasslands" speech by Forest Service Chief Dale Bosworth. June.

_____. 2004a. *Best Management Practices Evaluation Program 1992-2002 Monitoring Results*. Pacific Southwest Region, Vallejo CA. November

_____. 2005. Final *Environmental Impact Statement, Volume 1And 2, Land Management Plans, Angeles, Cleveland, Los Padres and San Bernardino National Forests*. R5-MB-074-A. Pacific Southwest Region, Vallejo CA.

_____. 2006. *Record of Decision, San Bernardino National Forest Land Management Plan*. Parts 1,2,3. R5-MB-084.Pacific Southwest Region, Vallejo CA. April 2006 Revision.

_____. Unpublished Draft 2007. *Effects of All Terrain Vehicles (ATV) on National Forest Lands and Grasslands*. San Dimas Technology and Development Center. CA. [accessed on line 4/16/2007].

USDA NRCS. 1981. *Soil Survey of the San Bernardino National Forest Area California*.

Appendix D – Route Analysis Summary Report for Unauthorized Routes Proposed for Addition to the NFSTS_____

Resource	Routes:				
	Cleghorn Ridge	Pilot Rock Ridge	U2000	U6905	U2938
Air Quality					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).	No specific visit. Based analysis on knowledge of general area and GIS analysis.	No specific visit. Based analysis on knowledge of general area and GIS analysis.	No specific visit. Based analysis on knowledge of general area and GIS analysis.	No specific visit. Based analysis on knowledge of general area and GIS analysis.	No specific visit. Based analysis on knowledge of general area and GIS analysis.
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).					
The route was considered, a field visit was made and site-specific mitigation is prescribed.					
Biological Resources - Wildlife					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).				Very minor work with no critical issues based on knowledge of the general area and GIS review	No specific visit. Based analysis on knowledge of general area and GIS analysis.
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).	Yes	Yes	Yes		

Resource	Routes:				
	Cleghorn Ridge	Pilot Rock Ridge	U2000	U6905	U2938
The route was considered, a field visit was made and site-specific mitigation is prescribed.					
Biological Resources - Plants					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).					No specific visit. Based analysis on knowledge of general area and GIS analysis.
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).	Yes	Yes	Yes	Yes	
The route was considered, a field visit was made and site-specific mitigation is prescribed.					
Cultural Resources					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).					
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).		yes	yes		yes
The route was considered, a field visit was made and site-specific mitigation is prescribed.	yes			yes	

Resource	Routes:				
	Cleghorn Ridge	**Pilot Rock Ridge**	**U2000**	**U6905**	**U2938**
Recreation/Visual Resources					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).				Very minor work with no critical issues based on knowledge of the general area and GIS review	Very minor work with no critical issues based on knowledge of the general area and GIS review
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).	Yes	Yes	Yes		
The route was considered, a field visit was made and site-specific mitigation is prescribed.					
Soil/Water Resources					
The route was considered; a field visit was not necessary (state reason); the effects of adding the route to the NFTS will be negligible (routine maintenance is assumed).					

Resource	Routes:				
	Cleghorn Ridge	**Pilot Rock Ridge**	**U2000**	**U6905**	**U2938**
The route was considered, a field visit was made and the effects will be negligible (routine maintenance is assumed).			(11/20/2006: TC) Desert environment with high sensitivity to erosion and loss of groundcover. With visitor controls, effects will be negligible	(7/10/2008 GH) Low sensitivity (slope <10%, soils moderate erosion hazard), replaces an existing route within the Willow Creek Riparian Zone	(7/10/2008 GH) Existing Route with heavy use. Low sensitivity (slope <10%, soils moderate erosion hazard). Desert environment with sensitivity to erosion and loss of groundcover; with visitor controls, effects will be negligible
The route was considered, a field visit was made and site-specific mitigation is prescribed.	(11/18/2008 TC&GH) High on-site erosion hazard because of soil texture, lack of internal cohesion, no drainage structures and presence of gullies in trail tread. Erosion control plan and maintenance needed	(11/18/2008 TC&GH) High on-site erosion hazard because of soil texture, lack of internal cohesion, no drainage structures and presence of gullies in trail tread. Erosion control plan and maintenance needed			

Appendix E – San Bernardino Travel Management Monitoring Plan

The San Bernardino National Forest Off Highway Vehicle Program Wildlife Habitat Protection Plan (WHPP) and Habitat Management Plan (HMP)

The San Bernardino National Forest Off Highway Vehicle Program Wildlife Habitat Protection Plan (WHPP) and Habitat Management Plan (HMP) provides for monitoring of designated motorized recreation areas with potential impacts and provide for follow-up corrective actions to protect the various sensitive species when problems are discovered. The WHPP/HMP is summarized here, but the complete plan can be found in the project record.

The WHPP will deal with those species that are known to exist on or adjacent to the NFTS where impacts are potentially occurring. Species not known to occur on or adjacent to the system will not be addressed. Since the non-highway legal system covers a large portion of the San Bernardino National Forest on designated routes, the system goes through many habitats. Many of these species and habitats can be protected by the general monitoring and corrective actions that are being taken to make sure that non-highway legal vehicless are staying on the designated trails. San Bernardino National Forest field staff and volunteers use checklists to identify problem areas. Most of these are taken care of on the spot at the time they are found.

The WHPP includes species-specific needs that are known at the time of creation and provides a plan for their protection. The WHPP includes monitoring of all 24 inch and 50 inch 4-wheel drive roads designated for non-highway legal vehicle use and maintenance level 2 roads designated for non-highway legal vehicle use that intersect occupied habitat for the threatened, endangered, proposed, State and Federal species and Forest sensitive, special status species (TEPS) and management indicator species (MIS) (see project record). The WHPP addresses 191 special status species with potential occurrences in motorized vehicle use areas.

The monitoring programs include two sections; general monitoring and implementation monitoring. General monitoring outlines the Forest Service Programmatic Monitoring Strategy, a statewide Forest Service monitoring strategy that includes some focused studies. Implementation monitoring outlines the San Bernardino National Forest wildlife habitat monitoring program and specific species inventories that are occurring.

Monitoring Program

The monitoring program for the WHPP/HMP focuses on baseline inventory and implementation monitoring. Implementation monitoring will determine whether the management actions identified are implemented. When monitoring shows that management actions are not implemented or not implemented correctly, corrective measures will occur as described below. Specific methods for the inventory efforts and implementation monitoring are also described below.

Some effectiveness monitoring and validation monitoring was conducted via the Pacific Southwest Region Forest Service OHV/OSV (Over Snow Vehicle) Programmatic WHPP/HMP Monitoring Program. The Monitoring Program is a statewide programmatic monitoring effort designed to efficiently determine whether OHV/OSV use is adversely affecting species and/or their habitat. Target information monitored at all or a subset of the sites includes: habitat,

OHV/OSV use, plant and animal species composition and specific species of interest or concern. By using random site selection, index (non-use or control) sites and a nested design across a large geographic area, the program will provide information on population and habitat conditions associated with different types, intensities and seasons of OHV/OSV use. Over time, this information will indicate threshold effects of OHV/OSV use associated with differing types and intensities of use. These thresholds can then be used to make informed management decisions, including assessing whether management actions are meeting their objectives and whether underlying management assumptions are correct.

In addition, focused studies for the species of concern (e.g., species already at risk and with the potential to be highly affected by OHV/OSV use) will be integrated as much as possible with the programmatic monitoring program. Integrated focused studies will enable us to more quickly and accurately determine if there are specific adverse effects from OHV/OSV use on these species and, if so, explore appropriate management thresholds under which to manage OHV/OSV use to avoid adverse effects. Focused studies have been developed for northern goshawk, American marten and vertebrate assemblages; with an emphasis on the primary species of marten, goshawk and spotted owl (a focused study is currently underway for the northern spotted owl).

Implementation Monitoring

San Bernardino National Forest OHV staff will continue to conduct habitat monitoring quarterly and have results reviewed by staff biologists. The monitoring will be conducted in November, February, May and August. Weather conditions in winter may necessitate a modification to this schedule. The monitoring will include use of WHPP monitoring and stream crossing forms. Concerns will be documented with digital images that record before and after treatment conditions. Any off trail habitat damage will be treated as soon as possible. This damage includes direct off trail disturbance by motorized vehicles and indirect excessive trail damage that leads to off trail erosion. Concerns noted during regular maintenance and patrol will be dealt with as well.

The following process will be implemented when trail maintenance or restoration is needed:

- Treatments that involve handwork (raking, slashing, water bars, trash removal) within 25 feet on either side of the trail in TEPS plant or wildlife habitat will proceed without notification of a botanist or biologist. Formal consultation with the USFWS has been completed for trail maintenance in TE plant and wildlife habitat.
- In locations where treatments are needed (further than 25 feet on side of the trail) or where mechanical treatment is needed, notification of a botanist or biologist will occur. In this situation the botanist or biologist will work with OHV staff to develop necessary rehab measures and determine if consultation with the USFWS is necessary.
- If trees need to be felled within spotted owl protected activity centers (1/4 mile from nest sites), a wildlife biologist will be contacted prior to any work. Trees that present an immediate hazard to the public (i.e., those about to fall on the trail) will be felled by San Bernardino National Forest maintenance staff.
- Follow-up monitoring sessions will note the effectiveness of slashing/disguising, erosion control and restoration treatments.

Monitoring sites are identified on a set of five GIS Monitoring Plan maps (see WHPP Wildlife and Botany Maps). TEPS plant and wildlife habitat that overlaps non-highway legal routes is also located on district maps for monitoring purposes. These monitoring sites are identified by route and habitat type. Further monitoring of restoration sites funded in the past by the OHV State grant will be conducted annually by San Bernardino National Forest botany staff. Thirty-one sites will

be monitored in 2008. Restoration site monitoring will be conducted annually in the spring. Assessment of overall restoration effectiveness will be documented and this information will be used to improve effectiveness of successive restorations. All monitoring results will be summarized in the WHPP monitoring and detailed information will be kept on file at the Big Bear Ranger Station.

Water Quality and Erosion Monitoring

Water quality and erosion monitoring is proposed to meet monitoring requirements outlined in Region 5 BMPs (# 7-6).

Road Erosion, Sediment Generation and Transport

Monitoring Objective:

> To detect sediment generation or transport at selected route locations (2205.22 Section2.5:17).

Type of Monitoring:

> Effectiveness of erosion control plan.

Methods and Monitoring Interval:

> 1. Perform Route Soil Loss Monitoring on all open non-highway legal routes (50 inch or less) at least once every 5 years using the San Bernardino NF OHV Route Soil Loss Monitoring Checklist.
>
> 2. Motorized Vehicle Photo Points. At 13 locations, take photographs and analyze for visual changes every 5 years.
>
> 3. Erosion Bridge Procedure. Take measurements at both approaches to Willow Creek (Route 3W12) and Coxey Creek (Route 2W01) every 5 years.

Threshold for Change or Action:

> Erosion across 50 percent or more of the route profile greater than 3 inches (7 cm) deep or the beginning of erosion that will be difficult to stabilize in the future (e.g., gully formation with direct input into a drainage system or erosion on slopes greater than 15 to 20 percent). This threshold for change would consider the existing condition of the route with the realization that on some routes, e.g. The Pilot Rock (2N33 parr) and Cleghorn Route (2N47 parr) erosion will continue due to the gullied road prism.

Adaptive Actions to be taken if Needed:

> Determine cause of erosion and work towards stabilizing the road with drainage structures and surface hardening (Maintenance Plan implementation).
>
> Ensure the land adjacent to the route is vegetated to the extent possible (Maintenance Plan implementation).
>
> Ensure vehicles stay on the designated routes (information, education and enforcement).
>
> Implement seasonal route restrictions if use of the road during the wet season is a causal factor in the erosion (mitigation).
>
> Implement vehicle size restrictions if use of the route by a specified class of vehicles is a causal factor (mitigation).

Close the route segment and reroute if possible. If it is not possible to reroute, close the route at logical intersections (mitigation and restoration).

If it is not possible to regularly maintain the routes for drainage structures, vegetation and erosion; close the route (mitigation and restoration).

Details regarding this monitoring item can be found in the Soil and Water Project record.

Route Restoration and Stabilization Monitoring

Monitoring Objective:

Evaluate the effectiveness of route restoration and stabilization techniques.

Type of Monitoring:

Route restoration and stabilization implementation and effectiveness

Method:

Randomly select five closed, restored and stabilized routes for long-term monitoring.

Every 5 years, survey the entire route for stabilization using the OHV Route Soil Loss Monitoring Protocol.

Along the five routes, identify three randomly selected points for long-term monitoring transects. Every 5 years use a combination of photo points, erosion bridges and vegetation transects at these three points to evaluate the success of stabilization and vegetation success.

On all other closed, restored and stabilized routes, survey the route every 5 to 10 years using the OHV Route Soil Loss Monitoring Protocol.

Threshold for Change or Action:

Adaptive actions to be taken if needed:

Determine cause of any erosion or vegetation failures and perform needed maintenance and repair. Include these needs in the annual Maintenance Plan (Maintenance Plan implementation).

Adaptive Actions to be Taken if Needed:

Ensure route is closed to vehicles (information, education and enforcement).

If continued use of route by hikers or horses is resulting in erosion or vegetation failure, close the route to all uses until stabilized (mitigation and restoration).

Details regarding this monitoring item can be found in the Soil and Water Project record.

BMP Monitoring

Monitoring Objective: Evaluate the implementation and effectiveness of:

- T06 (Special Erosion Prevention Measures on Disturbed Land, # 1-14);
- E08 (Road Surface, Drainage and Slope Protection, # 2-2, 2-4, 2-5, 2-7, 2-10, 2-22, 2-23);
- E09 (Stream Crossings, # 2-1, 2-4, 2-5, 2-7, 2-10),
- E10 (Road Decommissioning #2-26),

- E13 (In-Channel Construction Practices, # 2-14, 2-17); and
- R22 (Developed Recreation Sites, # 4-9)

Type of Monitoring:

BMP implementation and effectiveness

Method:

Region 5 protocol (USDA FS, June 2002). Repeat the BMP monitoring every 5 years to ensure that BMPs continue to be implemented and are effective.

Threshold for Change or Action:

Threshold for action: If a practice was not implemented or effective (NI-NE) or if the practice was implemented but not effective (I-NE).

Adaptive Actions to be taken if Needed:

If the threshold for action is identified, take the corrective actions identified during the monitoring.

Details regarding this monitoring item can be found in the Soil and Water Project record.

Appendix F – Law Enforcement

Introduction

US Forest Service Law Enforcement and Investigations (LEI) personnel are responsible for protecting the public, employees, natural resources and other property under the agency's jurisdiction. Additionally, LEI investigates and enforces applicable laws and regulations that affect the National Forest System (NFS) lands and prevents criminal violations. The new Travel Management Rule is one such regulation.

The Travel Management Rule requires designation of roads, trails and areas open to motor vehicle use and the prohibition of cross-country motorized vehicle travel by the public. This is a considerable change in public motorized access management from previous conditions where most forests were managed as "open to cross-country travel." The San Bernardino National Forest has been managed as "closed to cross-country travel" since 1989. The implementation of designated routes and areas for motorized vehicles will be the responsibility of all agency employees, especially in the area of education and enforcement. The law enforcement program is primarily responsible for issuing violations to the Travel Management Rule.

The national LEI budget is funded by appropriated dollars from Congress to provide law enforcement services on the NFS lands. The Travel Management program is one of many San Bernardino National Forest programs to benefit from Federal law enforcement funding. For the past few years, law enforcement funding has increased and that has translated into an increase in field law enforcement personnel[2].

To enhance enforcement of the Travel Management Rule, Region 5 Forest Recreation Programs have applied for and received grant dollars (green sticker funding) from the State of California Off-Highway Motor Vehicle Recreation Division Grants Program. These State funds are earmarked specifically for enforcement of off-highway vehicle laws and regulations on the various forests and are performed primarily by Forest Protection Officers (FPO). In addition, Law Enforcement Officers (LEOs) support the FPOs as needed, especially if serious violations have occurred. In recent years, State law enforcement grants have ranged from 3 to 4 million dollars annually with similar funding anticipated for the 2008-2009 grant cycle.

Authority and Jurisdiction

The Forest Service exercises its law enforcement authority when violation of laws or regulations occurs on NFS lands or when incidents affect the NFS. The existing authorities for enforcement are completely adequate and no new laws will be needed to implement the Travel Management Rule.

Every National Forest has a law enforcement plan that is updated annually. All Forest Service employees have a duty to know and understand their authorities and responsibilities and to properly enforce laws and regulations relating to the forest within their authority and capability. LEI and agency personnel provide a regular and recurring presence on vast amounts of public land, roads, trails and areas and take appropriate action if illegal activity is discovered. Violations involving motorized vehicles are primarily enforced FPOs, which patrol off-highway use roads,

[2] Region 5 Law Enforcement budget figures for the past 4 years have increased and the number of law enforcement officers has increased by 65.

trails and areas. These include violations such as operating a motor vehicle in violation of Federal regulations and California vehicle code, parking improperly, resource damage to soils, vegetation or wildlife and disorderly or unruly behavior. LEOs have discretion when deciding what type of action to initiate when handling violations to the following Federal laws that pertain specifically to motor vehicle use.

- The Act of June 4, 1897 (Title 16 United States Code 551) is the authority for issuing regulations at Title 36 Code of Federal Regulations, Part 261 (36 CFR 261). Specific travel management regulations are in sections 261.9 – Property, 261.13 –Motor Vehicle Use and 261.15 –Use of Vehicles Off-Road (see Attachment X). These CFR's cover a wide array of misdemeanor infractions.
- The Act of March 3, 1905 (Title 16 United States Code 559) authorizes all employees of the Forest Service to make arrests for violation of the laws and regulations pertaining to National Forests. Normally, arrest authority is limited to trained law enforcement personnel. (Any employee may take immediate action when necessary to protect life and prevent serious damage to or destruction of property, escape of a suspect or loss of material evidence when such action can be done with reasonable safety.)

Cooperation

The Forest Service shares responsibility and cooperates with local, State and other Federal agencies in the execution of its law enforcement program. The authority for cooperation among agencies, especially as it pertains to Travel Management, is within the following laws:

- The act of August 10, 1971 (Title 16 United States Code 551A) authorizes the Secretary of Agriculture to cooperate with and provide reimbursement to, any State or political subdivision thereof, for the enforcement of their laws within NFS. This law does not deprive any State or local law enforcement agency from exercising its criminal and civil jurisdiction on lands that are part of the NFS.
- The California Penal Code, Section 830.8 provides that Forest Service law enforcement personnel may exercise State Peace Officer authority where the sheriff of the county wherein the officer works has provided specific written permission for the officer.
- The State vehicle code section 38301 allows State law enforcement officer to enforce any of the Federal CFRs related to motor vehicles on NFS lands[3].

Each forest maintains close working relationships with many State and local law enforcement agencies that have law enforcement responsibilities within/and or adjacent to the San Bernardino National Forest boundary. Significant cooperating agencies relative to the Travel Management Rule include the local county sheriff departments, the California Department of Fish and Game, California Highway Patrol, California Department of Forestry and Fire Protection and occasionally one or more Federal agencies depending on the violation. Forest Service law enforcement personnel cooperate fully with these agencies in carrying out their law enforcement responsibilities by providing assistance; liaison, advice and information.

[3] State Vehicle code section 38301. (a) It is unlawful to operate a vehicle in violation of special regulations which have been promulgated by the governmental agency having jurisdiction over public lands, including, but not limited to, regulations governing access, routes of travel, plants, wildlife habitat, water resources and historical sites.

Forests maintain Cooperative Law Enforcement Agreements with their respective county sheriff's office. In Region 5, the total cost for the 2008 Cooperative Law Enforcement Agreements is $891,397.[4] These dollars are for performance of duties in addition to the normal activities in which the sheriff's deputies handle crimes against persons and their property that may occur within the NFS boundary. In these agreements, both parties recognize that public use of NFS lands is usually located in areas that are remote or sparsely populated and the enforcement of State and local law is related to the administration and regulation of NFS lands. Within the Cooperative Law Enforcement Agreements, an Operating Plan is developed outlining the supplemental work to be performed by the cooperating agency. Relative to the Travel Management Rule, operating plans may provide:

- Supplemental patrols in areas of high use.
- Supplemental patrols on weekends or during particular months of high use.
- Additional officers for large group gatherings or events (enduros).
- Vehicle checkpoints for vehicle registration spark arrestors and other miscellaneous items.

OHV Volunteers

The San Bernardino National Forest Association has two programs to promote compliance with route designations: OHV Volunteers and OHV Education Outreach. The OHV Programs field more than 300 OHV Patrol Volunteers who contribute ten thousand hours every year to teaching visitors trail ethics and land and resource stewardship, maintaining and patrolling trails, as well as special projects.

OHV Volunteers are a group of trained volunteers and enthusiasts on motorcycles, all terrain vehicles or in 4x4 vehicles that greet fellow OHV enthusiasts, share information about back-country travel on public land managed by the Forest Service and assist in handling emergencies. These friendly and knowledgeable volunteers encourage safety, stewardship and respect for public lands. In 2007, OHV Volunteers made over 1,000 public contacts and contributed over 10,000 hours of trail patrol service. The OHV Volunteer program operates under a volunteer agreement between the National Forest Association and the Forest Service. OHV Hosts represent the Forest Service but with the express purpose of educating visitors to the National Forest. They carry no law enforcement authority to enforce regulations beyond that of any other citizen. Instead they use their influence, a product of their experience and training, to encourage responsible off-highway travel on public lands thereby creating a culture of responsibility that will help promote continued access to public lands for off road enthusiasts for generations to come.

The OHV Education Outreach program strives to emphasize land ethics, safety, interpretive educational information and environmental stewardship to all public land visitors, with a primary focus on motorized recreation.

Implementation and Tracking

Implementation of the Forest Service law enforcement program is continually adapting as law enforcement personnel assess the changing patterns of visitor use and attitudes and the trends in violations, especially for property and resource damage. One method of assessment is the analysis

[4] Region 5 Law Enforcement Cooperative Agreement 2008 spreadsheet.

of Law Enforcement and Investigations Management Attainment Reporting System (LEIMARS) data. LEIMARS tracks all known violations of criminal law or regulation on NFS lands (FSH 5309.11, chapter 40 and FSM 5340). Additionally, imbedded in LEIMARS is the Case Tracking System, which tracks all felony and serious misdemeanor cases. These tracking systems:

- Capture and record information on location, volume, damages and type of violations occurring on NFS lands.
- Provide a retrieval system of data on incidents and violations that is responsive to the needs of all organizational levels.
- Provide agency managers with a means to identify and monitor law enforcement activities.
- Specifically identify problem areas and periods of activity.
- Provide a method to record and analyze incidents involving violations or suspected violations on NFS lands.

Trends in violations related to the Travel Management Rule can be analyzed and appropriate action(s) taken, if needed. Appropriate action(s) may involve one or more techniques or adaptive strategies. In the law enforcement community, this is often referred to as the "three E strategy" of engineering, education and enforcement. With the change in the Travel Management Rule, it is anticipated that the law enforcement program will use a combination of strategies, especially during the first five years of the rule implementation.

Implementation Strategy

Engineering – Education – Enforcement

The Engineering strategy is designed to prevent or reduce inadvertent violations, resource damage and crime vulnerability. The strategy's goal is to remove the opportunity to commit a violation. LEI personnel work with each forest, particularly the recreation and engineering programs, to implement some or all of the following specific tactics:

- Proper design of improvements and facilities.
- Facility security measures such as installation of barricades, gates and other natural obstacles.
- Forest signing, both directional and informational, to assist the public to ensure they stay on designated trails and out of the wilderness and other sensitive areas.
- Physically close and restore decommissioned roads and trails.

The Educational strategy focuses on specific user groups, school groups, recreation users and the public. The goal is to develop responsible and concerned public land use attitudes in forest users; it's violation prevention. Forest LEOs and FPOs make regular contacts in the field informing the users of the regulations and need for the prohibition. The LEI personnel work with each forest, particularly the recreation and public information programs, to identify and implement some or all of the following specific tactics.

- Have motor vehicle use maps easily available to public.
- Have route numbers visually marked on the ground.

- Distribute maps and brochures promoting responsible use.
- Conduct environmental interpretation activities in local communities, at schools and with special interest groups.
- Use of all forms of the media (television, radio and newspapers), especially prior to and during, the high use periods.
- Ensure all employees understand the Travel Management Rule.
- Utilize high visibility prevention patrols and public information checkpoints, especially during the peak use periods.
- Encourage cooperating law enforcement agencies to make visitor contacts and provide violator information to Forest Officers.
- Ride with other agency officers to demonstrate solidarity to the public.
- Issue news releases of arrests and successful prosecutions, including offender names, criminal penalties and court ordered restitution.

The Law Enforcement strategy is to affect crime prevention measures that are designed to reduce specific criminal activity, deter potential and repeat offenders, maximize enforcement actions and visibility and increase prosecutorial successes. All enforcement actions should result in a better understanding of regulations pertaining to the management of NFS lands. LEI personnel work with each forest, to identify and implement some or all of the following specific tactics:

- Schedule officers to work during the identified problem periods, including holidays and weekends.
- Utilize high profile “saturation patrols” and stationary surveillance posts in the identified problem areas.
- Utilize the most effective and efficient means of patrol, including foot, horseback, all-terrain vehicle, snowmobile, watercraft and aircraft.
- Aerial over-flights to enforce restriction under Travel Management Rule.
- Enlist the aid of volunteers.
- Initiate an awards program.
- Supplement patrols with cooperating law enforcement agencies in areas of concern.
- Use technical investigative equipment (cameras, monitors, sensors) to assist officers with detecting and monitoring violations at known or suspected violation sites.
- Conduct planned and approved compliance checkpoints.
- Follow-up on complaints to document violations, damages and identify suspect vehicles or persons.
- Require cooperating law enforcement agencies to assist with reporting and/or enforcing violations within their authority.
- Patrol with other cooperating law enforcement agency officers.
- Conduct unpredictable patrol schedules.

- Conduct special enforcement actions (unmarked vehicle deployment, surveillance, traffic check points).
- Utilize LEIMARS and Central Violations Bureau databases along with the State motor vehicle data, to identify repeat offenders for enhanced prosecution.
- Pursue court ordered restitution or civil collections for resource and property damages.
- Encourage prosecutorial and judicial support.
- Execute bench warrants related of off-highway vehicle violations.

Assumptions

Based on many years of enforcing off-highway vehicles, implementation of the Travel Management Rule from a law enforcement perspective assumes the following to be true. Additionally, these assumptions are based on several case studies in R5 (see Attachment 1). These assumptions may change in time with analysis of the LEIMARS database.

Enforcement Assumptions:

- Enforcement of the laws and regulations related to Travel Management will be enforced equally in authority and weight as with all other Federal laws and regulations.
- As with any change in a regulation on NFS lands, there is usually a transitional period for the public to understand the changes. It is anticipated there will be a higher number of violations to the Travel Management Rule the first few years and the number of violations will decline as the users understand and comply with the rules. It is assumed :
    - Users in communities adjacent to the forest will comply within 1 to 2 years.
    - Frequent users but further in distant from the forest will comply within 2 to 3 years.
    - Infrequent users regardless of distant may take up to 5 years to comply.
- Law enforcement officer and agency personnel's presence and enforcement actions will positively affect motorized recreation users' behaviors and attitudes.
- The Travel Management Rule and associated motor vehicle use map clearly define the designated routes; therefore, making violations to the rule unequivocal.
- Once the motor use vehicle map is published, the implementation of the established dedicated network of roads, trails and areas with signs and user education programs, will reduce the number of violations.
- FPOs spend a large percentage of their time on Travel Management issues and depending on the forest the estimate range from 30 to 50 percent. LEOs spend approximately 10 to 20 percent of their time on enforcement of off-highway vehicle issues.[5]

Agency Funding Assumptions:

- Appropriated program funding levels and number of law enforcement personnel does not affect enforcement of the Travel Management Rule. All laws and regulations are enforced equally.

[5] Barnett, G. 2004-2005 Law Enforcement Workload Analysis.

- Appropriated funds will remain level or increase slightly in the next five years.
- The State of California Off-Highway Motor Vehicle Recreation Division Grants Program (green sticker funding) enhances and provides additional law enforcement presence in the field at the forest level.

Public Attitude and Compliance Assumptions:

- Forest users want to do the right thing and will obey the rule[6] , once they understand the rule and motor vehicle use map.
- User compliance[7] is based on the State of California Off-Highway Motor Vehicle Recreation Division data and is anticipated to be:
    - 95 percent of the users are fully compliant.
    - 2 to 3 percent of the users think about and may violate a law.
    - 1 to 2 percent of the users will violate the law.

Measure of Success

Measuring the success of the Travel Management Rule from a law enforcement perspective will be done using the LEIMARS database. An analysis of the data may alert a forest to a particular problem area for violations such as a group campsite area that may be surrounded by flat meadow areas inviting riders to potentially violate the regulation. A successful program will see a positive change in the following measures:

- Measure 1: A reduction in the number of off-route travel violations.
- Measure 2: A reduction in the number of resource damage violations

[6] Tyler, Tom R. *Why People Obey the Law*, Princeton University Press, 2006, p. 320
[7] User compliance was computed by using the State Vehicular Recreation Area Fiscal year 2006/2007 data: 4.2M SVRA visitors divided by the 210,000 citations written, is approximately 5 percent non-compliant and 95 percent compliant.

Appendix G – Maps

Figure 2. Map Legend, All Alternatives

Figure 3. SBNF Route Designation Map 1 – Alternative 1

Figure 4. SBNF Route Designation Map 2 – Alternative 1

Figure 5. SBNF Route Designation Map 3 – Alternative 1

Figure 6. SBNF Route Designation Map 4 – Alternative 1

Figure 7. SBNF Route Designation Map 5 – Alternative 1

Figure 8. SBNF Route Designation Map 6 – Alternative 1

Figure 9. SBNF Route Designation Map 7 – Alternative 1

Figure 10. SBNF Route Designation Map 8 – Alternative 1

Figure 11. SBNF Route Designation Map 9 – Alternative 1

Figure 12 SBNF Route Designation Map 1 – Alternative 3

Figure 13. SBNF Route Designation Map 2 – Alternative 3

Figure 14. SBNF Route Designation Map 3 – Alternative 3

Figure 15. SBNF Route Designation Map 4 – Alternative 3

Figure 16. SBNF Route Designation Map 5 – Alternative 3

Figure 17. SBNF Route Designation Map 6 – Alternative 3

Figure 18. SBNF Route Designation Map 7 – Alternative 3

Figure 19. SBNF Route Designation Map 8 – Alternative 3

Figure 20. SBNF Route Designation Map 9 – Alternative 3

Figure 21. SBNF Route Designation Map 1 – Alternative 4

Figure 22. SBNF Route Designation Map 2 – Alternative 4

Figure 23. SBNF Route Designation Map 3 – Alternative 4

Figure 24. SBNF Route Designation Map 4 – Alternative 4

Figure 25. SBNF Route Designation Map 5 – Alternative 4

Figure 26. SBNF Route Designation Map 6 – Alternative 4

Figure 27. SBNF Route Designation Map 7 – Alternative 4

Figure 28. SBNF Route Designation Map 8 – Alternative 4

Figure 29. SBNF Route Designation Map 9 – Alternative 4

Figure 30. Unclassified Route Restoration – Big Bear Area Index Map

Figure 31. Unclassified Route Restoration – Big Bear Area Map 1

Figure 32. Unclassified Route Restoration – Big Bear Area Map 2

Figure 33. Unclassified Route Restoration – Big Bear Area Map 3

Figure 34. Unclassified Route Restoration – Big Bear Area Map 4

Figure 35. Unclassified Route Restoration – Big Bear Area Map 5

Figure 36. Unclassified Route Restoration – Big Bear Area Map 6