

**USDA Forest Service  
Lake Tahoe Basin Management Unit  
Fuels and Vegetation  
Management Review**



July 2002

# Summary

The US Forest Service (USFS) and the state of Nevada requested a review of the USFS Lake Tahoe Basin Management Unit's (LTBMU) fuels and vegetation management program and its relationship to the fuels objectives of the Lake Tahoe Restoration Act (LTRA, November 2000).

## Review Objectives

Objectives of the review were to (1) examine expended funds and effectiveness of fuel treatment projects accomplished to date, (2) review plans for future fuels treatments, (3) focus on integration of scientific findings into the LTBMU's program, and (4) provide recommendations to ensure that fuels and vegetation management projects successfully meet community protection and conservation goals.

## Review Team and Process

A multi-agency team, lead by the Director of Fire and Aviation Management for Pacific Southwest Region of the Forest Service conducted the review. The team included forestry and fire officials from Nevada and California Departments of Forestry, local fire chiefs, and other Forest Service representatives from the Pacific Southwest and Intermountain Regions. The review included extensive interviews, a field trip and a weeklong meeting of the review team in the Lake Tahoe basin. More than 100 people were contacted for interviews including residents of Lake Tahoe area communities; federal, state, and local government employees, federal and state legislators; and scientists working in and around the LTBMU. Over 50 interviews were conducted by phone and 25 in person.

## Review Findings

Overall, the people interviewed feel there is a serious fuels problem in the Basin. They support rapid fuels treatments to reduce the wildfire hazard. There is general agreement that everyone who lives/works in the Basin, and all agencies that have responsibilities in the Basin own a piece of the problem. Because the Forest Service is the largest land managing agency in the Basin, there is an expectation that the Forest Service will lead the way toward a solution to the fuels problem.

### **Expended funds and effectiveness of fuel treatment projects accomplished**

All of the recent expended funds are in the wildland urban interface, compatible with the concerns of the local public and the National Fire Plan. Program accomplishments in the fuels and vegetation management programs for 2001 were low compared to original targets. Forty-five percent of the 2830 urban lots managed by the USFS that need treatment have been treated. Less than 10% of the urban interface has been treated. There is a large backlog (approximately 1000 acres) of unburned piles. Timeframes for funding do not match timeframes for planning--dollars are available for limited periods.

All agencies conducting fuel treatments in the Basin find that unit costs are very high. This is apparently due to several contributing factors: a greater number of regulations and regulatory agencies to work with in the Basin; operators' reluctance to bid on LTBMU projects because of high costs and delays due to Basin-specific permits; and treatments on sub-acre size urban lots with increased per acre cost due to small size and associated land-line surveys.

The type and thoroughness of treatments needs to be improved to meet fire protection objectives. The LTBMU is an innovator in the use of new, low impact equipment and techniques and has improved the thoroughness and efficiency of recent treatments by changing from multi-phase projects to all-encompassing, contracted stewardship contracts.

The most consistent finding across all areas was the need to increase the amount and effectiveness of communications with the public and other agencies regarding the fuel reduction. There is a general perception that it is not clear what the accomplishments have been, what is being proposed, and what the objectives are for the planned or accomplished treatments. There is unanimous support from other agencies to work with the LTBMU staff to increase accomplishments through joint planning, assistance with project implementation, and sharing efficiency successes.

### **Review Plans for the Future**

The public does not perceive that the LTBMU, nor the Basin as a whole, has a long-term plan for treating and reducing fire hazard. There is no agreement among agencies on a desired future condition for fuel treatment, including a multi-ownership depiction of the urban-wildland interface.

### **Integration of scientific findings into the LTBMU program**

The LTBMU has lead and supported several key scientific endeavors that have and will enhance the scientific basis for fuels hazard reduction and vegetation management including: the Lake Tahoe Basin Watershed Assessment; the basin initiated and funded research on the nutrient outputs and effects on lake clarity from different types of fuel hazard reduction treatments; and fire history studies. Few persons in the Basin are aware of these works or their utility for fuels planning. Current research to quantify total daily maximum load for land-uses in the basin excludes fuel reduction activities.

## **Recommendations**

Most of the recommendations relate to the need to increase or improve communications with the public and other agencies. Effective communication with the public and other agencies would improve strategic planning, provide a better understanding of objectives of planned treatments and accomplishments, and ensure more coordinated, effective fuel treatments on all ownerships. Accurate and timely tracking of targets, accomplishments, and expenditures needs to occur. The LTBMU should work with other agencies and stakeholders to develop a basin-wide strategic plan for addressing fuel hazard, including a communication strategy. More focus and expertise needs to be applied to communications and public affairs in relation to fuel hazard.

In addition to improving communications, there needs to be clearer, quantitative fuels objectives, and agreed upon, streamlined operating procedures with regulatory agencies. A primary research liaison needs to be identified to ensure that current and future research includes tradeoffs between different types of fuel treatments and water quality. The level of expertise in fuel/fire planning needs to be increased to more effectively and rapidly plan and implement projects in the complex setting of the Basin.

# Introduction

The US Forest Service (USFS) and the state of Nevada requested a review of the USFS Lake Tahoe Basin Management Unit's (LTBMU) fuels and vegetation management program. A focus of the review was the USFS program in relation to accomplishing the fuels objectives of the Lake Tahoe Restoration Act (LTRA, November 2000). This report describes the review and its results. More information on the political and ecological complexities of the Basin can be found in the Lake Tahoe Case Study. <http://ceres.ca.gov/snep/>

## Objectives

Objectives of the review were to:

- 1 Examine expended funds and effectiveness of fuel treatment projects accomplished to date.
- 2 Review plans for the future.
- 3 Focus on integration of scientific findings into the LTBMU's program.
- 4 Provide recommendations to ensure that fuels and vegetation management projects successfully meet community protection and conservation goals.

## Review Team

A team of Forest Service, State (Nevada and California), and local agency representatives conducted the review. The team was lead by the Director of Fire and Aviation Management for the Forest Service in the Pacific Southwest Region. The following individuals were members of the review team:

**Pete Anderson**, Deputy State Forester, State of Nevada, Division of Forestry

**JoAnn Fites**, Adaptive Management Enterprise Team, Forest Service

**Sue Husari**, Deputy Director of Fire and Aviation Management, Forest Service Pacific Southwest Region

**Steve Harcourt**, Division Chief, Resource Management, Amador-El Dorado Unit, California Department of Forestry and Fire Protection

**Jim Linardos**, Fire Chief, North Lake Tahoe Fire Protection District

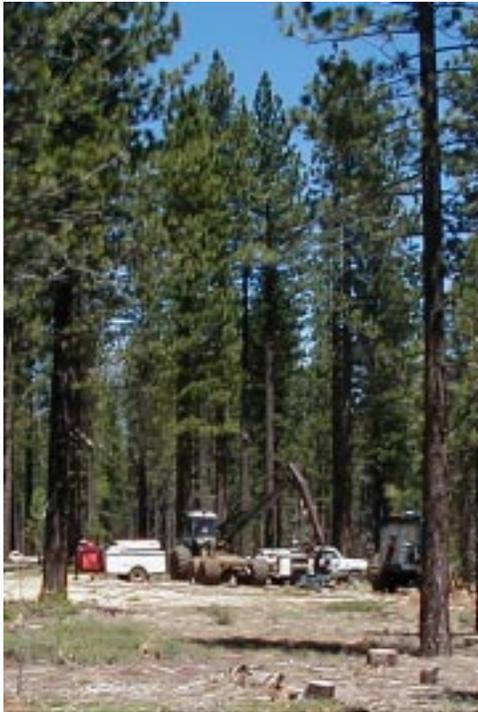
**George Lottritz**, Deputy Director of Ecosystem Planning, Forest Service Pacific Southwest Region

**Bob Russell**, Acting Deputy Forest Supervisor, Boise National Forest, Intermountain Region

**Brian Schafer**, Fire Chief, Lake Valley Fire District

**Ray Quintanar**, Director of Fire and Aviation Management for the Forest Service in the Pacific Southwest Region

Bruce Eisner, Program Manager, State of California, Tahoe Conservancy served as an adjunct review team member.



*Mechanical thinning and chipping in wildland urban interface.*



*Prescribed burn.*

## Review Approach

The review included three components: 1) an extensive series of interviews; 2) a field trip to view varied fuel projects in the field; and 3) a week long meeting of the review team in the Lake Tahoe Basin.

### Interviews

More than 100 people were contacted for interviews including residents of Lake Tahoe area communities; Federal, State, and local government employees; and scientists working in and around the LTBMU. Interviews were conducted with groups and individuals from the State of Nevada, county boards of supervisors, Lahotan Regional Water Quality Control Board (LWQB), Tahoe Regional Planning Agency (TRPA), Nevada Division of Forestry, California Department of Forestry and Fire Protection, state parks in the Basin, Humboldt Toiyabe National Forest, LTBMU, League to Save Lake Tahoe, and California Tahoe Conservancy. The review team also interviewed local fire chiefs, community and environmental leaders, industry and government representatives, scientists involved in the Lake Tahoe Watershed Assessment, state and county air quality regulators, congressional aides, and others. Interviews were conducted over the telephone as well as in person. Interviews by phone were conducted with a consistent set of questions. Interviews in person included more specific and varied questions. Appendix A displays the complete list of interviewees and the interview questions.



*Review team field trip*

### Meeting and Field Trip in the Lake Tahoe Basin

The review team met for most of a week in the Lake Tahoe Basin during which they conducted 25 interviews in person, visited eight fuel projects, received a briefing from the LTBMU staff, and wrote the initial review report.

For the briefing, LTBMU Supervisor Maribeth Gustafson and Vegetation, Fire, and Fuels Staff Officer Dave Marlow summarized existing fuels conditions in the Basin, accomplishments for the urban lot program, hazardous fuel reduction projects and fuels treatment strategy, vegetation management program, and out year program of work. In addition, the LTBMU hosted a one-day field trip to allow the review team to observe a variety of fuels and vegetation management treatments throughout the LTBMU, including commercial and biomass thinning and pile burning and underburning projects, in a variety of treatment zones (urban lots, wildland urban interface zone, and general forest areas).



*Salvage and prescribed burn with rejuvenated understory plants*

## Results of the Review

This report documents the review team's findings, commendations, and recommendations. The content is organized by the four review objectives. Areas that have been identified for improvement will be addressed in an action plan developed by the LTBMU in cooperation with other agencies in the Basin.

***The public and other stakeholders feel there is a serious fuel problem in the basin and support rapid work on reducing the fire hazard.***

### Interview Responses

Over 50 persons were interviewed by phone and 25 people interviewed in person. Some of the questions were geared to yes or no answers and are summarized below (Table 1). The remainder are captured in the following sections by review objective.

Overall, the public and other stakeholders feel there is a serious fuels problem in the basin and support rapid work on reducing the fuel hazard. There is general agreement that everyone who lives/ works in the Basin, and all agencies that have responsibilities in the Basin own a piece of the problem. Because the Forest Service is the largest land managing agency in the Basin, there is an expectation that the Forest Service will play a lead role in finding a solution to the problem.

Table 1. Results of the yes/no questions from the phone interviews, 51 responses

Question	Yes	No	Don't Know
Do you think there is a fire problem in the Lake Tahoe Basin?	96%	4%	
Do you know what kinds of treatments the Lake Tahoe Basin uses on National Forest lands to reduce fuels and vegetation?	88%	12%	
Do you think fuel reduction and vegetation treatments on National Forest lands in the Lake Tahoe basin are effective?			
On urban lots? (lots within cities or towns)	72%	28%	
In the urban intermix? (at the edge of town)	80%	20%	
In the general forest?	70%	30%	
Are you satisfied with the quality and quantity of information you receive about the National Forest fuel and vegetation management program on the Lake Tahoe Basin?	50%	50%	
Do you think that new scientific information about fire and fuels management is being incorporated into National Forest management at the Basin?	27%	18%	55%

***Program accomplishments in the fuels and vegetation management programs for 2001 were low compared to original targets.***

***All agencies conducting fuel hazard reduction work in the Lake Tahoe Basin find that unit costs are very high compared to other areas.***

## **Objective (1)**

### **Examine expended funds and effectiveness of fuel treatment projects accomplished to date**

Much of the review was focused on objective one and the results have been subdivided into five categories for clarity: expended funds, communications, interagency cooperation, program accomplishment, and organization. Program effectiveness is addressed in the latter four categories.

#### **Expended Funds**

##### **Findings:**

- Program accomplishments in the LTBMU fuels and vegetation management programs for 2001 were low compared to original targets. In 2001 the target was 2088 acres and the LTBMU reported that they accomplished 1100 acres. The LTMBU reports completion of 43 acres for \$201,500 in Nevada and 422 acres completed with \$952,000 in California. This does not agree with the numbers in the Management Attainment Report (MAR) target reporting or the National Fire Plan (NFP) reporting. It is unclear how much accomplishment is pending under contracts.
- The LTMBU reports completion of 200 acres for \$266,700 in Nevada and 168 acres for \$884,000 in California so far in 2002. It is unclear how much accomplishment is pending under contracts.
- The average cost to reduce fuel hazard on urban lots is approximately \$5,000/acre (including overhead, indirect costs and contract administration). Part of the high cost is due to landline surveys. The funding for management of urban lots is inadequate to treat fuels after acquisition.
- The average cost for fuel treatments in the wildland urban interface is an estimated \$3500/acre (including overhead, indirect costs and contract administration). Of this, direct project costs average \$1,500/acre.
- All agencies conducting fuel hazard reduction work in the Lake Tahoe Basin find that unit costs are very high compared to other areas. The sensitive environment at the Basin has made fuel projects more costly and complex.
- Unit costs are not an accurate measure of success in the urban wildland interface. Unit costs may be overemphasized.
- Forest Service process makes it difficult to track the different sources of funding used for fuel hazard reduction activities.

***The public is largely unaware of the location and scope of projects.***



*Meadow in urban interface with very heavy standing fuels.*

***Regulators understand the individual implications of the regulations for which they are responsible. They appear to not be aware of the synergism of all of the regulations impinging on the fuels program.***

## Program Effectiveness - Communications

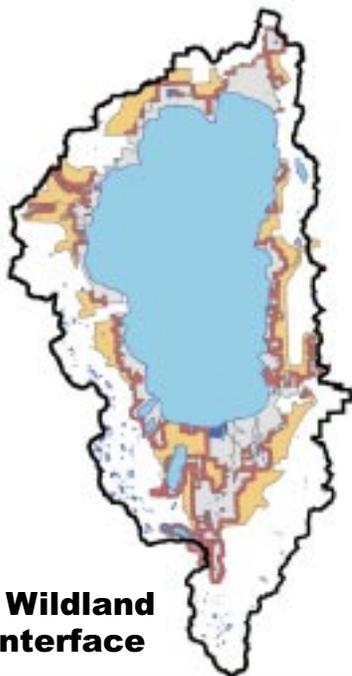
### Commendations:

- The Lake Tahoe Basin staff did an excellent job of preparing for the fuels review and provided a wide variety of information to support the team.
- The current Forest Supervisor has worked successfully to improve communication with special interest groups in the Basin through regular meetings and open dialogue.
- The LTBMU participated in an annual Stewardship Day hosted by The League to Save Lake Tahoe to provide public demonstrations of different low impact fuel treatment methods.

### Findings:

- The public is well informed about the fire hazard in the Lake Tahoe Basin and is universally supportive of a speedy response to mitigate the problem.
- The public is largely unaware of the location and scope of projects planned and implemented in the LTBMU as a whole.
- Public contact by the LTBMU is sometimes done at the project level, and residents are usually aware of what the Forest Service is doing in the vicinity of their homes.
- The objectives for fuels and vegetation management projects are not clearly communicated, and messages concerning objectives are sometimes tailored to meet individual groups.
- Most regulators understand the individual implications of the regulations for which they are responsible. They appear to not be aware of the synergism of all of the regulations impinging on the fuels program. The LTMBU has not conveyed to other agencies or the public the level that regulations restrict implementation of projects when combined with other requirements such as limited operating periods and air quality restrictions.
- Initial and continued success of Tahoe ReGreen occurred through identifying some things people could agree on, so that they could move forward.

***There is conceptual agreement at the executive level in all agencies concerning the need to support and expedite fuel treatment.***



**LTBMU Wildland  
Urban Interface**

***Interagency cooperation to plan and conduct fuel and vegetation treatments is not comprehensive enough to ensure strategic and effective fuel treatments across jurisdictional boundaries.***

## Program Effectiveness - Interagency Relationships

### Commendations:

- There is conceptual agreement at the executive level in all agencies concerning the need to support and expedite fuel treatment.
- The recent successes in the urban lot program are due to excellent interagency cooperation and this was further expanded as part of the ReGreen project.
- There is an open relationship with the Washoe Tribe that could lead to use of prescribed fire for cultural and ecosystem enhancement.

### Findings:

- The relationship between the local fire departments and the LTBMU has been inconsistent but is starting to improve. The LTBMU does not seek or use feedback from fire protection districts on whether completed treatments meet the community protection objectives.
- While there is some interagency cooperation to plan and conduct fuel and vegetation treatments, it is not comprehensive enough to ensure strategic and effective fuel treatments across jurisdictional boundaries or to maximize use of all available resources to complete fuel treatments.
- The regulatory structure and environmental oversight is more intensive around Lake Tahoe than in most other wildland areas and makes accomplishment of hazardous fuels reduction and forest health projects difficult. There is a lack of a common vision regarding fuels management between the Forest Service and some regulators. The single purpose focus of regulatory agencies often impedes the ability to conduct fuel hazard reduction treatments. There is a perception that an adversarial environment for program accomplishment exists between some regulators and implementers at the ground level.
- The LTBMU deals with four different air quality regulatory agencies that have different reporting requirements and approaches to issuing permits for prescribed burning.
- A unified approach to regulation of water quality would assist in program development. Sometimes, LTBMU receives conflicting or different regulatory reviews and acceptable project mitigations from different regulatory agencies.

## Program Effectiveness - Program Accomplishments

### Commendations:

- The LTBMU fuels, urban lots and vegetation management programs are very compatible with National Fire Plan. They all focus treatments on national forest land adjacent to communities.
- 1170 urban lots have been treated since 1995, with 215 lots treated in 2002 alone.
- The Pioneer project in the wildland urban interface is perceived as successful and is well received by the public and regulators.
- Incline Village program is recognized as a model program for fuel treatment and community protection at the Basin.
- The LTBMU is an innovator in the use of new low impact equipment and techniques, such as cut to length systems.
- Prescribed broadcast burn treatments have successfully reduced fuels and invigorated vegetation.
- The LTBMU has improved thoroughness and efficiency of recent treatments by changing from multi-phase projects to all-encompassing, stewardship contracts.

### Findings:

- Out of the total of 2830 USFS urban lots that need treatment, 45 percent have been treated. Less than 10 percent of the wildland urban interface has been treated.
- Objectives are not always clear, specific or focused in regards to fuel hazard reduction.
- There is a lack of follow-through to bring projects to final completion, particularly surface fuels treatment.
- There is a large backlog (approximately 1000 acres) of unburned piles.
- There is a large backlog of untreated surface fuels from extensive salvage operations and dead and dying trees left in the 1990's.
- There is a common perception that the number of allowable burn days continues to decline each year.
- The Forest Service does not have very good credibility with some of the public, who think that the agency does not provide consistent, adequate oversight of vegetation management projects and follow through.



*Urban lot before treatment*



*Urban lot after treatment*



*backlog of burn piles to treat*

***The size of the Basin belies the complexity of the program and the need for highly skilled staff.***

- Timeframes for funding do not match timeframes for planning. Sometimes the time necessary for regulatory compliance and oversight is incompatible with the time period for which project funds are available to the LTBMU. Regulation and oversight causes lengthy delays. The dollars are available for limited periods.
- Operators may be reluctant to bid on work on the LTBMU because of high costs and delays due to permits that are not required in other areas.
- Implications for implementation of the Sierra Nevada Forest Plan Amendment are not always well understood by LTBMU staff.
- Forest specialists sometimes contribute to delays in analysis of fuels projects.

**Program Effectiveness - Fuels and Vegetation Management Organization**

**Commendation:**

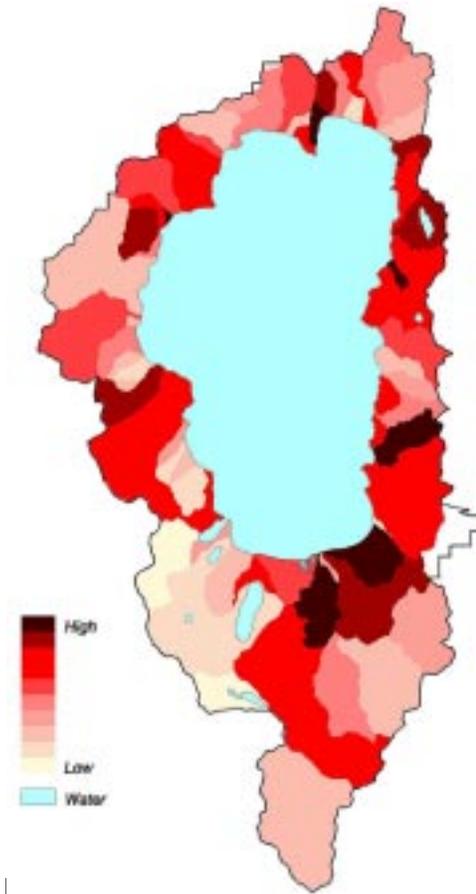
- Recent organizational changes to consolidate the fire, fuels, urban lots and vegetation management programs under a single leader are improving efficiency and internal communications and accomplishment.

**Findings:**

- The size of the Basin belies the complexity of the program and the need for highly skilled staff.
- The LTBMU has insufficient organizational capacity to respond to the myriad of demands placed on them, particularly in the areas of public education, media relations and direct public contacts.
- LTBMU staff members are involved at both planning and implementation levels and consequently the planning work suffers.
- The small staff is frequently redirected to deal with other emergencies and high priority tasks which delays accomplishment in the fuels, urban lots and vegetation management programs.
- The cost of housing makes it difficult to recruit and hire employees.



*Research by UNR on nutrient outputs from different fuel treatments.*



*Map from science team watershed assessment*

## Objective (2)

### Review plans for the future

#### Findings:

- The public does not perceive that the LTBMU has a long-term plan for treating and reducing fire hazard.
- There is no shared, cohesive vision of where and how fuels treatments should be conducted in the Basin. There is no agreement among agencies on a desired future condition for fuel treatment.
- There is an extensive planning framework underlying fuels and vegetation management project planning (environmental impact statements and landscape analysis) but the public is largely unaware of it.

## Objective (3)

### Integration of scientific findings into the LTBMU program

#### Commendations:

- The Lake Tahoe Basin Watershed Assessment is an effective tool that summarizes currently available science as it applies to activities around the Basin.
- The LTBMU refers to portions of the Lake Tahoe Basin Watershed Assessment for planning the fuels program.
- The LTBMU initiated and funded focused research on the nutrient flux and effects on lake clarity from different types of fuel hazard reduction treatments.

#### Findings:

- The Lake Tahoe Basin Watershed Assessment is not being interpreted and/or communicated to groups around the Basin who could use it to better understand the current situation.
- There is no quantitative monitoring of fuel hazard reduction treatments to measure erosion and reduction of fuels to determine whether objectives are met.
- There is no longer a research liaison to ensure that research conducted in the basin addresses fuel hazard reduction activities. Specifically, the current extensive research to quantify total maximum daily load (TDML) contributions by different land-uses in the basin does not include any fuel reduction activities.

***Research to quantify total maximum daily load (TDML) contributions by different land-uses in the basin does not include any fuel reduction activities.***

***The most important overarching recommendation is to capitalize on this wealth of interagency and public willingness to work with the Forest Service to reduce fuel hazard.***

- There are three different metrics for reporting lake clarity.
- Lake clarity is receiving the focus of most of the research without incorporating other disciplines in integrated research, such as fire and fuels.

## **Recommendations to ensure that fuels and vegetation management projects successfully meet community protection and conservation goals**

There are many challenges to successfully implementing a successful fuels and vegetation management program in the Basin. These challenges include the complex set of regulations and number of agencies involved, and the critical issue of lake clarity. There is an extensive urban and wildland urban interface area that crosses many jurisdictional boundaries. This is where most of the fuel hazard is. Despite the challenges, there is a wealth of agencies and the public willing to partner with the Forest Service to address fuel hazards. The most important overarching recommendation is to capitalize on this wealth of interagency and public willingness to work with the Forest Service to reduce fuel hazard. Recommendations to this effect are repeated in every category below.

### **Expended Funds and Program Effectiveness**

Accurately track and account levels of progress toward accomplishment. This would include all sources of funding.

- Resolve discrepancies between NFP, MAR and LTRA reporting of expenditures and accomplishments.
- Use NFP information to update project accomplishment on a monthly basis.
- Consider a fiscal review of the program.
- Actively seek to develop new markets for excess fuels to reduce treatment costs including: explore development of cogeneration plants in the local area to utilize material from the Basin; small, multipurpose timber sales; and Christmas tree and firewood sales.
- Develop a comparative cost study of treatments to improve the cost efficiency of treatments. Subdivide by urban lots, wildland urban interface (WUI) and general forest. Compare costs between agencies and treatment types.

***Seek to streamline permit processes and regulatory review to reduce project costs and implementation time.***

***Increase efficiency and effectiveness through interagency project planning coordination and implementation.***

- Examine and compare the costs of fuel treatments in Nevada with California to determine what the fiscal effects are of differences in regulatory structure.

Seek to streamline permit processes and regulatory review to reduce project costs and implementation time.

- Integrate permit process into National Environmental Planning Act (NEPA) process to streamline project implementation.
- Seek a means to combine NEPA and California Environmental Quality Act (CEQA) analysis to streamline planning and development of interagency projects that do not stop at jurisdictional boundaries.
- Enhance partnerships for implementation with regulatory agencies. Rapidly develop approaches that reduce erosion and fuel accumulations through cooperative and compatible efforts.
- Revisit or establish memorandums of understanding (MOU's) with all regulatory agencies to establish operating norms for project planning and permits. The MOU with the Lahontan Regional Water Quality Board should be updated as soon as possible to reflect the current needs and situation.
- Pursue establishment of a unified approach to regulation of air quality in the Lake Tahoe Basin.
- The LTBMU should seek to involve scientists in problem solving and in resolving interagency disagreements over methodologies for assessing environmental impacts of fuel treatments.
- Clearly define roles and responsibilities at all levels, including when and how to rapidly move conflict resolution to the executive level. Elevate areas of disagreement to higher levels with predefined timeframes.

Increase efficiency and effectiveness through interagency project planning, coordination and implementation.

- Interagency coordination and creativity is needed from planning through implementation. Need to leverage LTBMU projects with those that have interagency and community involvement.
- Coordinate fuels reduction projects between agencies and public through fire safe council or fire-wise concept.
- An MOU with local fire departments, adjacent Forest Service

***Actively seek to develop interagency projects and to involve other agencies throughout development and implementation of projects.***

units, California Department of Forestry (CDF) and Nevada Division of Forestry (NDF) around implementation of projects could assist in development of a strategic approach to reduction in fire hazard.

- The pooling of resources and cooperative projects between local government, local fire departments, NDF, the state of California and the Forest Service should be explored as a method of improving efficiency. Actively seek to develop interagency projects and to involve other agencies throughout development and implementation of projects. Coordinate these with compatible grants on private lands.
- Coordinate prescribed burns among agencies to be more cost-effective and treat more acres.
- Use consistent, interagency group to meet monthly to expedite projects and solve problems that threaten to slow the process.
- The fire management officer for the LTBMU should participate in the Nevada Fire Board meetings and efforts.

Improve effectiveness of communication regarding the program to ensure the accomplishments of the program are visible and to reduce delays due to lack of stakeholder involvement and understanding.

***Improve effectiveness of communication regarding the program to ensure the accomplishments of the program are visible and to reduce delays due to lack of stakeholder involvement and understanding.***

- Communicate successes and progress of the fuels program in more venues and ways.
- Define stakeholders and work to gain their support through active public involvement from the earliest stages of project development. Hold personal scoping meetings with the local neighborhood leaders early in fuels project development. This should be defined in an interagency communication strategy concerning projects to reduce fire hazard.
- Develop a plan to work effectively with interest groups and homeowner groups to bring them into the process as advocates for a fuels program at both the conceptual and project level.
- Use monitoring of fuels, urban lots and vegetation management projects as a communication vehicle with regulators and public.
- Add public affairs expertise and seek input from other agencies in evaluating applicants. Fill the Public Affairs Officer position as soon as possible and make fuels one of the priorities of the public affairs program.
- Utilize local marketing experts for advice on improving

communication.

***Increase the level of expertise in fuel/fire planning***

Improve effectiveness of projects in reducing fuel hazard through more specific and quantitative project planning.

- Mesh the objectives of the fuels, vegetation management and urban lots under a single overarching fuels plan. Hazardous fuels treatment objectives should be expressed in terms of desired wildfire behavior and effects.
- Forest health and fuels management should be integrated where possible but fuels management should not be compromised in high hazard areas. The distinction between objectives should be clearly discussed in project design. A common message concerning the purpose of projects is needed.
- Develop clear, quantitative objectives for fuel hazard reduction for projects.

Increase the level of expertise in fuel/ fire planning to more effectively and rapidly plan and implement projects in the complex setting of the Basin (multi-jurisdictional, many environmental regulations and regulators, high proportion of wildland urban interface).

- The LTBMU staff should be augmented with higher levels of expertise in technology transfer, setting research priorities, planning expertise and fire ecology.
- Use external experts in the areas fire behavior and fire modeling from the Forest Service and elsewhere.
- Form cooperative relationships to use expertise available from other agencies such as fire departments and the two states.
- Offer increased interagency training in fire behavior, fuel hazard, and fire ecology.

Increase effectiveness and speed of progress in reducing fuel hazard through strategic planning.

- Complete a Fire Management Plan for the LTBMU that implements the Forest Plan as amended. Input five-year list of planned projects into the NFP database.
- Develop a common plan for treating urban wildland interface that includes the general public, state, local government, fire departments, and other land managers. Include project descriptions, a maintenance schedule, priorities, funding estimates and timeframes for completion.
- The LTBMU should be heavily involved in updating the

***Develop a common plan for treating urban wildland interface that includes the general public, state, local government, fire departments, and other land managers.***

Environmental Improvement Plan to be consistent with National Fire Plan objectives to improve watershed condition through a strategic approach to reducing fire hazard.

***Work with the research consortium conducting the TDML research to incorporate the outputs from fuel hazard reduction activities.***

Proactively use science to increase efficiency and effectiveness of fuel treatments, improve communication, and resolve fuel treatment-environmental impact issues.

- Conduct quantitative monitoring of effectiveness and environmental effects of fuel hazard reduction activities.
- Reestablish a point of contact for researchers working in the basin.
- Work with the research consortium conducting the TDML research to incorporate the outputs from fuel hazard reduction activities in addition to the currently funded forest background levels.
- Work with the Forest Products Lab to explore uses for sub-merchantable wood and /or establish a fund to create a market for wood products.
- Provide resources for monitoring and research for the Washoe Tribe in the management of Meeks meadow to take advantage of the learning opportunity for fuels management in streamside environment zones (SEZ's).
- Seek to expand the current research on effects of varied fuel treatments on nutrient outputs to include SEZ's.

# Appendix

## Interview Questions:

1. Do you think there is a fire problem in the Lake Tahoe Basin?
  - a. If yes, why do you think there is a problem (describe)?
  - b. Whose problem is it?
2. Do you know what kinds of treatments the Lake Tahoe Basin uses on national forest lands to reduce fuels and vegetation?
3. What do you think about prescribed fire, including both pile and burn, and broadcast burning? (pile and burn is where fuels such as thinned logs or sticks and shrubs are piled and then burned, broadcast burning is done where there are no piles and the fire is lit across the whole area in stages)
4. Do you think fuel reduction and vegetation treatments on national forest lands in the Lake Tahoe basin are effective?
  - a. On urban lots? (lots within cities or towns)
  - b. In the urban intermix? (areas between cities or towns and forest)
  - c. In the general forest?
5. How do you learn about what is going on with fuel reduction and vegetation management activities on the National Forest?
6. Are you satisfied with the quality and quantity of information you receive about the national forest fuel and vegetation management program on the Lake Tahoe Basin?
7. What do you think of the scientific studies that address fire hazard, and fuel or vegetation management at the Basin?
8. Do you think that new scientific information about fire and fuels management is being incorporated into national forest management at the Basin?
9. Do you have any recommendations or comments?

State	Agency/ Organization	Person
NV	Division of State lands	Pam Wilcox, State Director
	Legislative Council Bureau	Jim Lawrence, Nevada Tahoe Resource Team
	Division of Forestry	Fred Weldon, Staff
		Bob Ashworth,
		Robert Ruffridge, Regional Forester,
		Rick Jones, Resource Mgt Officer
		Suzanne Sturtevant, NFP/Grants Coord.
	Nevada Dept. of Environmental Protection	Curtis Payne
	Humboldt-Toiyabe National Forest	Gary Schiff, District Ranger, Carson RD
	Nevada Fire Safe Council	Elwood Miller, Coordinator
CA	California Department of Forestry	Rich Green, Unit Chief
	State Parks	John Knott, Superintendent, Sierra Dist.
		Esther Mandeno, Vegetation Program Manager
		Rich Adams, Vegetation Program Manager
	Lahontan Regional Water Quality Control Board	Harold Singer, Executive Officer
	California Tahoe Conservancy	Dennis Machida, Executive Director
		Bruce Eisner, Acquisition & Management Staff
	Forest Service - Region 5	Berni Bahro, Fuels Specialist
	Forest Service - LTBMU	Maribeth Gustafson, Forest Supervisor
		Ed Gee, Deputy Forest Supervisor
		Dave Marlow, Veg, Fire, & Fuels Staff
		Scott Parsons, Vegetation Program Manager
		Mark Johnson, Fuels Program Manager
		Brian Garrett, Urban Lot Program Manager
		Robert McDowell, Forest Planner
		Kit Bailey, Fire Management Officer
	Forest Service-Other	Scott Vail, Fire Management Officer, Eldorado NF
		Kathy Murphy, Fuels Officer, Truckee RD
CA/NV	Washoe Tribe of California and Nevada	Marie Barry, Environmental Director
	Tahoe Regional Planning Agency	Juan Palma, Executive Officer
		Steve Chilton, Director, Compliance
		Lyn Barnett, Director, Project Review
		Jesse Jones, Forester, Compliance
	Placer Air Resources Board	Ann Hobbs
	Lake Tahoe Board of Supervisors	Dave Solaro, Chair El Dorado County (CA)
		Kathleen Farrell, Tahoe-Douglas Chamber of Commerce
		Don Miner, Chair Douglas County (NV)
	Local Government	Bob Baer, General Manager; South Tahoe PUD
		Bill Horn, General Manager; Incline Village GID;
		Candi Rohr, General Manager Kingsbury GID;
		Cindy Gustafson, Asst General Manager; Tahoe City PUD
	Lake Tahoe Fire Chiefs	Duane Whitelaw, Chief North Tahoe FPD
		John Pang, Chief Meeks Bay FPD
		Mike Chandler, Fire Chief City of South Lake Tahoe
	Local Environmental Leaders	Rochelle Nason, Exec Director League to Save Lake Tahoe
		League to Save Lake Tahoe staff
		League to Save Lake Tahoe staff
	Lake Tahoe Federal Advisory Committee	Steve Teschera, Chair
		Jim Baetge, National Environmental Group Rep
		Leo Poppoff, Science & Research Rep
	Community Leaders	Duane Wallace, Chair, So Lake Tahoe Chamber of Com
	Industry Reps	Jon Hoefler, Consulting Forester
		Steve Bowman, President, Fire Stop
		Rick Mapes, Timber Operator, Tree Service Owner
		Dave Early, Forestry Professor

State	Agency/ Organization	Person
CA/NV	Scientists	Dennis Murphy, Univ. of Nevada-Reno Chris Knopp, USFS - WO Wally Miller, Univ. of Nevada-Reno Michael Barbour, UC Davis John Tracey, Desert Research Institute Scott Stephens, UC Berkeley Tom Miexner, UC Riverside Todd Caldwell, UNR Desert Research Institute Charles Goldman, UC Davis
	Congressional Aides	
	Congressman John Doolittle (CA)	Brian Jensen, Field Rep
	Senator Dianne Feinstein (CA)	Chris Norem, Field Rep
	Congressman Jim Gibbons (NV)	Betty Jo Gerber, Field Rep
	Senator Harry Reid (NV)	Mary Connolly, Field Rep
	Senator John Ensign (NV)	Kevin Kirkeby, Field Rep
	State Legislators (CA)	Assemblyman Tim Leslie
	Members of the Public at Large	Shirley Taylor, South Shore Property Owner Bob Attinger, Lake Valley FPD Board Member Doug Jones, President, Glenbrook Homeowners Assn. Frank Moffett, Exec. Dir., Sugar Pine Project, Glenbrook Charlene Meenen, Board Member, NV Fire Safe Council Dr. Jack Harrington Fritzi Huntington, Glenbrook Community Carl Gustafson, Ward Valley, Jamie Ziegler Robert Jordan, North Shore Property Owner