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Draft Revised
Land and Resource Management Plan

Volume II –
Draft Land Management Plan

Lake Tahoe Basin Management Unit

Cover photo:

Lake Tahoe shoreline and public beach manged by the Forest Service at Logan Shoals, with Zephyr Cove, Nevada in the background. Looking southward toward Mt. Tallac and South Lake Tahoe.

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Lake Tahoe Basin Management Unit

Draft Revised Land and Resource Management Plan

Draft Land Management Plan

June 2012

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and
Douglas and Washoe Counties, and Carson City, Nevada

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This Proposed Land and Resource Management Plan (Forest Plan) describes the framework that will guide on-the-ground projects and program activities. We encourage your comments on all aspects of the Plan.

Public notification for commencement of the 90-day comment period has been published in the Federal Register.

A copy of the notice may be accessed from the LTBMU Forest Plan Revision website at: http://www.fs.usda.gov/goto/ltbmu/ForestPlanRevision

E-mail comments to: comments-pacificsouthwest-ltbmu@fs.fed.us

Subject: "Draft Land Management Plan"

Or submit written comments to: Draft Land Management Plan
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Draft Land Management Plan
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Introduction to the Land Management Plan

Purpose

The purpose of this Land Management Plan – also known as the Forest Plan – is to provide strategic guidance to the Lake Tahoe Basin Management Unit (LTBMU) for forest management over approximately the next 15 years. This plan guides the restoration or maintenance of the health of the land, to promote a sustainable flow of uses, benefits, products, services, and visitor opportunities.

The plan provides a framework for informed decision making, while guiding resource management programs, practices, uses, and projects. It does not include specific project and activity decisions. Those decisions are made later, after more detailed analysis and public involvement. The Forest Plan is adaptive in that it can be amended when appropriate, to update the management direction based on new knowledge and information.

The Forest Plan is strategic in nature and does not attempt to prescribe detailed management direction to cover every possible situation. While all components necessary for resource protection and restoration are included, the plan also provides flexibility needed to respond to uncertain or unknown future events and conditions such as fires, floods, climate change, changing economies, and social changes that may be important to consider at the time decisions are made for projects or activities.

The Lake Tahoe Basin Management Unit (LTBMU)

The Lake Tahoe Basin is situated on the eastern side of the Sierra Crest and extends across the state line between California and Nevada. Lake Tahoe is 12 miles wide and 22 miles long, with a maximum depth of 1645 feet. The lake is fed by 63 streams, but only one stream, the Truckee River, flows out. Elevation ranges from approximately 6,225 feet at lake level to 10,891 feet at Freel Peak. The basin topography is dominated by steep mountainsides with smaller areas of relatively flat land near the lake.

The LTBMU was established in 1973, to facilitate consistent management of National Forest System (NFS) lands within the Lake Tahoe Basin watershed. These lands were previously managed by three separate national forests: the Tahoe, the Eldorado, and the Toiyabe.

While the LTBMU is small in comparison to most National Forests, as the Tahoe Basin's largest land manager, its issues, resources and values are (in comparison) very large. The Forest Service manages 78% of all lands in the Lake Tahoe Basin; National Forest ownership in the Lake Tahoe Basin has grown from 35,000 acres in the 1950s to over 154,000 acres. NFS lands include 3,366 urban parcels on sensitive lands acquired through the Santini-Burton Act.

Natural resource management on the LTBMU is focused on restoring watershed and forest health and resiliency, fire and fuels management, providing ecosystem conditions that support native plant and animal communities, and protecting special status plant and animal species. All projects include erosion control components to maintain and improve water quality in lakes and streams. Many common forest activities such as mining, grazing, and timber harvesting are either not a part of LTBMU management or play a very small role.

The road and trail system provides access to the forest for natural resource management, including wildfire suppression, and enables forest visitors to access Lake Tahoe beaches and the surrounding backcountry areas.

Lake Tahoe is a destination of regional, national and international significance, with over 5.7 million annual visits. Visitors are primarily from California and Nevada (76%), with the remaining 24% from other parts of the United States and abroad. LTBMU staff members inform forest visitors about recreation opportunities and the natural environment through a variety of media at multiple locations throughout the Lake Tahoe Basin. Recreation and sightseeing opportunities are available in a wide range of alpine settings, from highly urbanized to remote environments. But while it is possible to find solitude, the LTBMU as a whole is far from isolated - approximately 5 million people live within a 4-hour drive, 25 million live within a 1-day drive, and public air and ground transportation is also available.

Approximately 56,000 permanent residents choose to live at Tahoe because of the breathtaking scenery and wealth of outdoor recreation opportunities. The LTBMU contributes to the tourist-based economy through provision of recreation opportunities including skiing and other winter sports, hiking, beach access, camping, and sightseeing. Ongoing conservation education programs inform residents and visitors of all ages about the natural environment in which they live, work, and play.

The Lake Tahoe Basin is a mix of forested landscapes and urban communities surrounding the deep clear water of Lake Tahoe. The work of the Forest Service supports (and is supported by) many partners. Other federal, state, and local agencies, and members of the public, work together with the LTBMU to conserve and restore natural and cultural resources, and enhance the recreational values of Lake Tahoe.

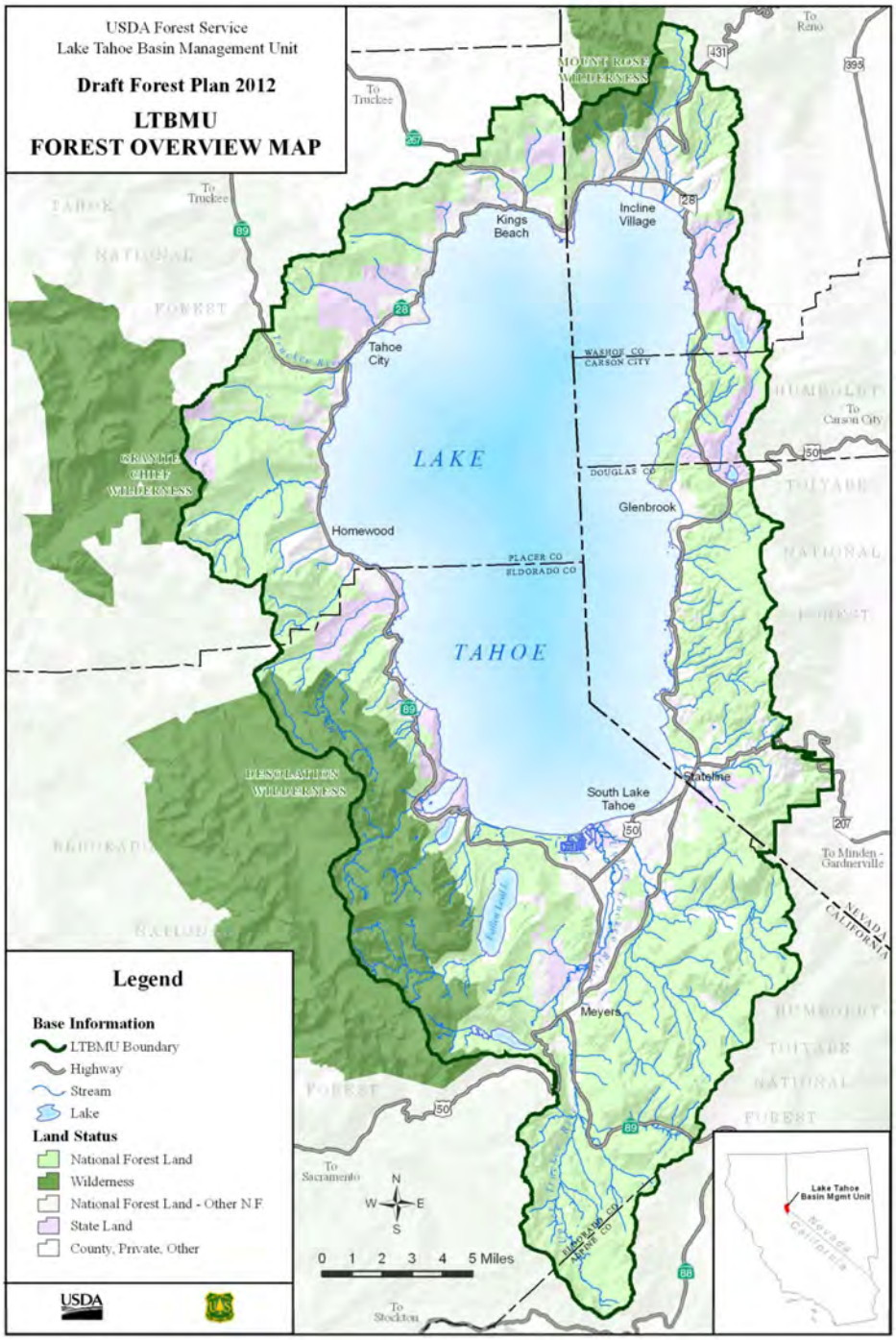


Figure 1. Map of Lake Tahoe Basin Management Unit – Forest Overview

Planning for Sustainability

The goal of this Forest Plan is to guide management of NFS lands in the Lake Tahoe Basin for sustainable multiple uses, so that NFS lands continuously provide ecosystem services and contribute to social and economic sustainability .

Ecological, social, and economic systems are interdependent and cannot be ranked in order of importance. However, there is a difference in how the Forest Plan approaches these elements. Forest Plan management direction provides guidance to *maintain or restore* elements of ecological sustainability, and *guide the LTBMU's contribution* to social and economic sustainability. This is because the Forest Service has more influence over the factors that impact ecological sustainability on NFS lands (biodiversity, forest health, water quality, etc.) than it does for social and economic sustainability (employment, income, community well-being, etc.). National Forest System lands can provide valuable contributions to economic and social sustainability, but that contribution is just one in a broad array of factors that influence the sustainability of social and economic systems.

Climate change will influence local natural resource management and the ecological, social, and economic environments, and is thus a factor considered in planning for sustainability. Ecosystems will be managed for resiliency to prepare for uncertain future outcomes with approaches that support adaptation to changing future conditions.

The Forest Service is developing national policy for addressing the uncertainties associated with management in the face of a changing climate. The LTBMU climate change assessment and strategy will be updated as additional guidance is provided by the agency. The major adaptive management strategies for addressing climate change in this Forest Plan are:

- Building resistance to climate-related stressors such as drought, wildfire, insects, and disease.
- Increasing ecosystem resilience by minimizing the severity of climate change impacts, reducing vulnerability and/or increasing the adaptive capacity of ecosystem elements.

Plan Format and Content

This plan was prepared under the National Forest Management Act of 1976 (NFMA, 16 U.S.D. 1604, et seq.) and the provisions of the 1982 planning regulations (36 CFR Part 219). The use of the provisions of the 1982 regulations is allowed under the "transition provisions" of the 2000 planning rule (36 CFR Part 219.35, revised 2004). The 2012 planning regulations currently in effect allow use of the previous regulations for plan revisions initiated before the 2012 regulations took effect (36 CFR 219.17 (b) (3), 2012).

While this Forest Plan was drafted to comply with the 1982 NFMA planning regulations, nothing in the Forest Plan (or EIS) should be construed as incorporating any portion of the regulations themselves.

This Forest Plan does not grant, withhold, or modify any contract, permit or other legal instrument, and does not authorize projects or activities. Decisions to approve or authorize specific projects are considered separately from the plan when the time is ripe to make such decisions. Project decisions must be consistent with the applicable plan management direction.

NEPA compliance is required for any project level decision that may have an impact on the environment. Project level decisions must be informed by site-specific analysis through an open, public process. This allows the latest science and public input to be employed at the time decision is to be made.

Three-Part Format of the Forest Plan

One of the goals of this revision process is to create a strategic plan that is in step with contemporary planning theories and practices while adhering to the provisions of the 1982 planning regulation.

The Revised Forest Plan includes management direction (36 CFR 219.3, 1982), and explanatory material. The management direction is the Plan content that must be followed in planning and implementing management activities, and is also referred to as the Plan components. Management direction in the Draft Forest Plan includes:

- Desired Conditions
- Objectives
- Management Area and Suitability of Area direction
- Designated and Recommended Special Area guidance
- Standards and guidelines

The explanatory material includes introductory text, definitions (glossary), and other material. It also includes the Program Strategies, which describe the preferred means of accomplishing work to move the Plan area toward the desired conditions.

While some of the management direction applies to all NFS lands within the Lake Tahoe Basin, other direction applies only to specific areas, such as designated special areas or areas shown on the resource overlay maps. Relevant laws and regulations always take precedence over any Forest Plan direction.

The Draft Forest Plan is organized in three parts, described below.

Part 1: Vision

This section describes the aspirational picture for the future of the LTBMU. The **Desired Conditions** comprise the multiple-use goals (36 CFR 219.11(b), 1982). A desired condition is a description of specific ecological, social, and/or economic attributes toward which management of the land and resources should be directed. Desired conditions are specific enough to allow progress toward their achievement to be determined, but do not include completion dates.

Part 2: Strategy

The Strategy section describes how the Forest intends to move the Plan area toward the desired conditions. This part of the Plan includes the Program Strategies and Objectives, the Management Emphasis Areas and Suitable Uses, and descriptions of the Designated and Recommended Special Areas on the LTBMU.

The **Objectives** are specific goals to be accomplished in a specified time period (36 CFR 219.11 (b), 1982). Objectives represent milestones on the path to achievement of the desired conditions. Objectives are based on reasonably foreseeable budgets.

The **Management Area** and **Suitability of Areas** sections provide broad guidance about the kinds of activities and uses that are appropriate in a given area. Resource overlays (see Forest Plan maps), such as the Wildland Urban Interface (WUI) or the Protected Activity Centers (PACs) for goshawks and California Spotted Owls focus the scope of appropriate activities and uses while Standards and Guidelines provide more specific boundaries and constraints on activities and uses. This body of prescriptive direction (36 CFR 219.11(c), 1982) guides management towards attainment of objectives and desired conditions.

Designated and Recommended Special Areas are lands within the National Forest System that receive special management consideration because of their unique or special characteristics, such as wilderness, research natural areas, historic sites, or national scenic trails. While most of the management direction for these areas is found in the Forest Service Manual, Handbooks, and site-specific management plans, the Forest Plan also includes specific management direction (desired conditions, objectives, standards and guidelines) that applies to designated special areas.

In addition to the above management direction, the LTBMU Draft Forest Plan also includes **Program Strategies,** which describe the principal management approaches the responsible official is inclined to use in implementing the Forest Plan. This explanatory material provides clarification and informs the project managers and decision makers.

Part 3: Design Criteria

Design criteria are the sideboards and safeguards that guide activities and uses. Standards and guidelines (36 CFR 219.11c) establish constraints and boundaries for management activities.

A **Standard** is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

A **Guideline** is a constraint on project and activity decisionmaking that allows for departure from its terms, so long as the intent of the guideline is met. Guidelines are established to help achieve a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

Where a project or activity has the potential to result in a temporary setback to a desired condition, the Design Criteria set limits and prescribe actions intended to preserve the opportunity of attaining the desired condition in the future.

It is important to note that the Design Criteria are not intended to cover every management circumstance, but provide a basic set of resource protections. Individual projects or activities often require additional resource protection measures in the decision document, contract provisions, or special use permit requirements to account for unique or site-specific conditions and maintain consistency with the Forest Plan, and applicable laws, regulations, and policies.

Some of the most frequently used management direction found in public laws, regulations, Forest Service manuals, and handbooks is referenced in this section as “Other Sources of Information,” but the direction itself is generally not repeated in this Plan, nor does this section provide and exhaustive list of all applicable law and regulation

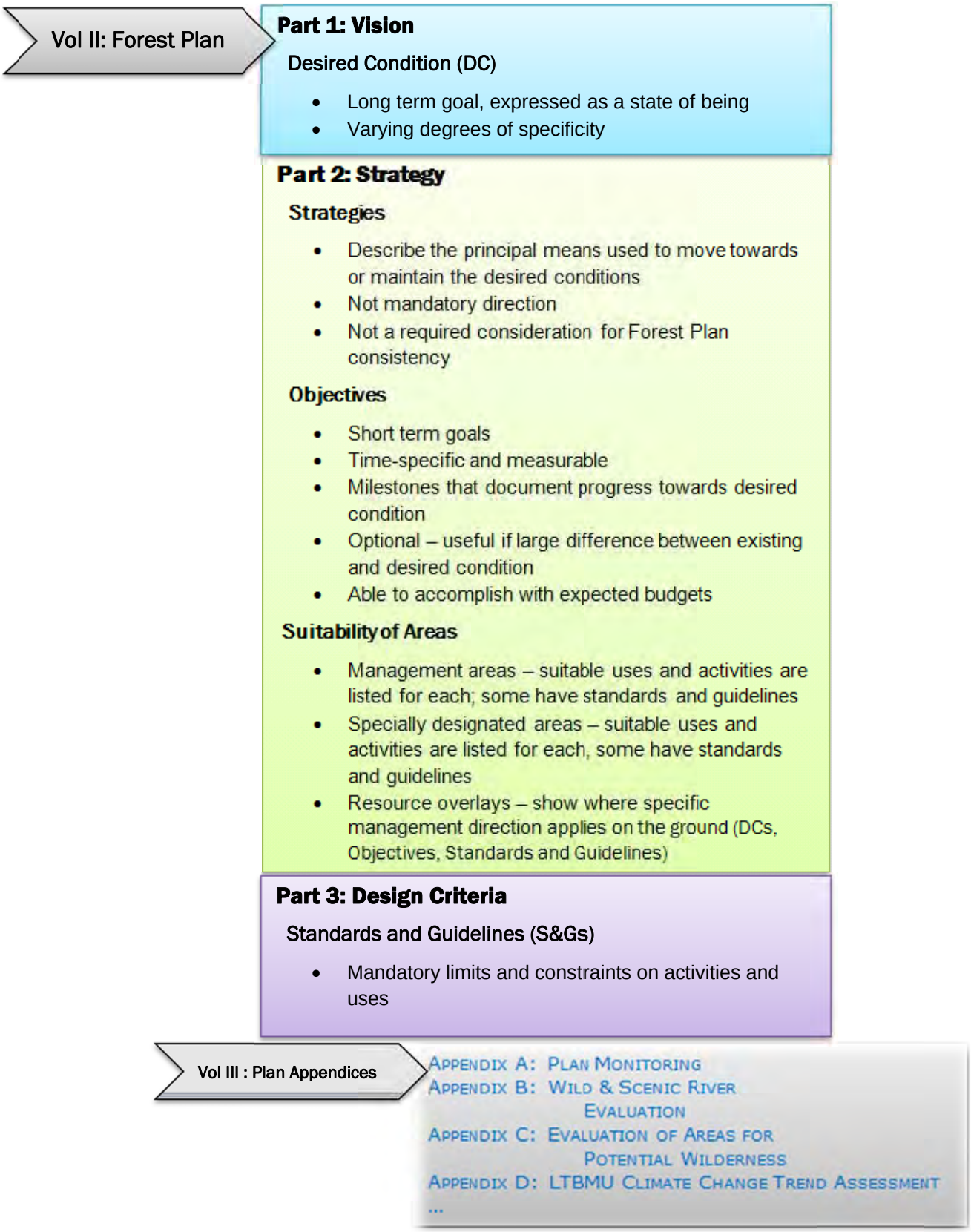


Figure 2. Draft Plan Content and Structure

Monitoring and Evaluation Plan

The Forest Plan Monitoring and Evaluation Plan (Appendix A) utilizes status and trend monitoring and effectiveness monitoring to measure the degree to which on-the-ground management is maintaining or making progress toward the desired conditions and objectives for the plan. The monitoring plan will be adjusted as needed to respond to new information and unanticipated changes in conditions.

The Forest Plan Monitoring and Evaluation Plan is a subset of the monitoring for the LTBMU. Additional, project-specific monitoring may be required for some projects. While inventories and implementation monitoring are important and will continue to be implemented, they are not included in this monitoring plan because they only indirectly inform progress towards the objectives and desired conditions in the Forest Plan. Inventories describe how much or how many of a given resource is present, while implementation monitoring describes how well management direction and intent was followed in projects and activities.

Forest Plan Consistency

As required by NFMA and the planning regulations, all projects and activities authorized by the Forest Service must be consistent with the Forest Plan (16 USC 1604 (i); 36 CFR 219.10(e), 1982). A project or activity must be consistent with the Forest Plan by being consistent with the desired conditions, objectives, standards and guidelines, and suitability of areas management direction. A Forest Plan consistency analysis is completed for each project and activity during the planning process. The following paragraphs describe how a project or activity is consistent with Forest Plan management direction.

Desired Conditions: A project or activity is consistent with the desired conditions if it contributes to attainment or maintenance of the applicable desired condition or does not foreclose the opportunity for maintenance or attainment of the applicable desired conditions over the long term.

It is not possible to make progress towards every desired condition on every project. For example, a desired condition for aspen is irrelevant in a project area with no aspen or suitable habitat for aspen.

Additionally, many projects by their nature may emphasize some desired conditions over others. To illustrate this point, a fuels reduction project might result in temporary disruptions to recreation activities. Specific trails or areas may be temporarily closed to enhance public safety while heavy equipment is in use. These activities would again resume when the fuels reduction work is complete. So the desired conditions for recreation in the project area would be temporarily compromised to accomplish the fuels reduction work.

Objectives: A project or activity is consistent with the objectives if it contributes to or does not prevent the attainment of one or more applicable objectives.

Management Areas and Suitable Uses: The project or activity must be suitable for the proposed location as follows:

1. **Management area suitable uses and activities -** A project or activity would occur in an area that the Plan identifies as suitable for that type of project or activity, or for which the plan is silent with respect to its suitability for that type of project or activity.
2. **Management area standards and guidelines** – The project or activity complies with any applicable standards and guidelines for the management area.
3. **Management direction for specially designated areas** – If there are any specially designated areas within the proposed project or activity area, the project must be consistent with the management direction (Desired Conditions, Objectives, Standards and Guidelines, Standard Operating Procedures) for the specially designated area.
4. **Management direction related to resource overlays –** The project or activity must be consistent with the management direction related to the applicable resource overlays. For example, if there is a Protected Activity Center (PAC) for California spotted owls or northern goshawks in the project area, the project must be consistent with the Desired Conditions, Objectives, Standards and Guidelines, and Standard Operating Procedures related to PACs. It is important to note that locations of features and areas shown on the resource overlay maps are approximate and often must be verified on the ground.

Standards: The project or activity complies with applicable standards.

Guidelines: The project or activity:

- Is designed to comply with applicable guidelines as set out in the plan; or
- Is designed in a way that is as effective in carrying out the intent of the applicable guidelines in contributing to the maintenance or attainment of relevant desired conditions and objectives, avoiding or mitigating undesirable effects, or meeting applicable legal requirements.

Other Plan Content: Projects and activities need not be consistent with other material in the Plan, but responsible officials may consider this content in a decision. Examples include program strategies and emphasis, background information, introduction, and glossary.

Previous Decisions: This plan identifies previous decisions that remain in place (Appendix K). Projects and activities must be consistent with the applicable previous decisions that remain in place.

Ensuring Project or Activity Consistency with the Forest Plan: Where a project or activity as proposed would not be consistent with the Forest Plan as described above, the Responsible Official has the following options:

1. Modify the proposal so that the project or activity will be consistent;
2. Reject the proposal or terminate the activity;
3. Amend the plan contemporaneously with the approval of the project or activity so that the project or activity is consistent with the plan as amended. The amendment may be specific to the project or activity or may apply more broadly to a portion of the plan.

Consistency Requirements for Management Indicator Species (MIS) and Species Viability: MIS status and species viability are monitored at the bioregional level. There is no requirement for monitoring or evaluation of MIS and species viability at the project level. A project or activity is consistent with the Forest Plan with respect to MIS and species viability if it is consistent with the Standards and Guidelines.

Relationship to Plans of Other Agencies

Tahoe Regional Planning Agency, Regional Plan

The Tahoe Regional Planning Agency (TRPA) is a land use planning and regulatory entity that works toward the achievement of environmental thresholds within the context of a regional plan and corresponding code of ordinances. TRPA policies cross political boundaries and encompass the entire watershed within the Lake Tahoe Basin. The TRPA regional plan is available online at www.trpa.org.

Public Law 96-551, the revised Tahoe Regional Planning Compact, established the TRPA. Often referred to as the Bi-State Compact, it is the agreement between the States of Nevada and California on goals for the Lake Tahoe Basin. Findings in the Compact reaffirmed that the Lake Tahoe region has outstanding environmental and recreational values that are being threatened by increasing urbanization. Congress originally gave consent to the compact through PL 91-148 in 1969. Weaknesses in that agreement brought about the revision in 1980.

Directed by the compact, the TRPA established Environmental Threshold Carrying Capacities (Thresholds) for the Basin. The Compact defines Thresholds as "an environmental standard necessary to maintain a significant scenic, recreational, educational, scientific or natural value of the region or to maintain public health and safety within the region." (Article V.b.) The TRPA has established Thresholds for nine resource areas: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation. The Compact also directs the TRPA to prepare a Regional Plan implemented through agency ordinances, rules and regulations that "achieves and maintains the adopted Thresholds." (Article V.c.)

Under Article X. Sec. 2 of the Compact, "The Secretary of Agriculture and the heads of other appropriate agencies are authorized, upon request of the Tahoe Regional Planning Agency, to cooperate with the Tahoe Regional Planning Agency in all respects compatible with carrying out the normal duties of their agencies." The Federal role in the Lake Tahoe Basin is further defined by Executive Order 13057 (July 26, 1997) and the subsequent *Agreement of Federal Departments and Agencies on Protection of the Environmental and Economic Health of the Lake Tahoe Region* and *A Memorandum of Agreement Between the Federal Interagency Partnership on the Lake Tahoe Ecosystem, the States of California and Nevada, the Washoe Tribe of Nevada and California, and the Tahoe Regional Planning Agency*. This Executive Order directs federal agencies having principal management or jurisdictional authorities in the Lake Tahoe Region to establish a Partnership that will, among other things, "support appropriate regional programs and studies needed to attain environmental threshold standards." E.O. 13057 Section 1-101, 103(d).

The Executive Order also directs the Forest Service (as a party to the Tahoe Federal Interagency Partnership) to establish a Memorandum of Agreement (also referred to as a Memorandum of Understanding (MOU)) with the TRPA that facilitates coordination and documents areas of mutual interest and concern and opportunities for cooperation, support or assistance. The current MOU defines, at the project analysis level, the cooperative framework between the Forest Service and the TRPA and how findings regarding Threshold attainment will be applied. The

1988 MOU (as amended in 2009) will remain in effect until a revised MOU is adopted that reflects this Forest Plan and the TRPA Regional Plan.

The Forest Service will continue to work cooperatively with the TRPA in the attainment and maintenance of applicable thresholds. The Forest Service expects that over time, the achievement of the desired conditions through the application of the strategies and management direction identified in the Forest Plan will contribute to the attainment and maintenance of applicable thresholds.

Lahontan Water Quality Control Board, Basin Plan

The primary responsibility for the protection of water quality in California rests with the *State Water Resources Control Board* (State Water Board) and nine *Regional Water Quality Control Boards* (Regional Boards). The State Water Board sets statewide policy for the implementation of state and federal water quality laws and regulations. The Lahontan Regional Board (LRWQCB) adopts and implements water quality standards and control measures for surface and ground water, including the *Water Quality Control Plan for the Lahontan Region* (Lahontan Basin Plan). The Lahontan Basin Plan outlines water quality conditions, actual and potential beneficial uses, and water quality problems associated with human activities, including those within the Lake Tahoe Basin.

The Basin Plan designates beneficial uses for water bodies and establishes water quality objectives, waste discharge prohibitions, and other implementation measures to protect those beneficial uses. Water quality control measures include *Total Maximum Daily Loads* (TMDLs), which may be adopted as Basin Plan amendments. The Forest Service's Land Management Plan is consistent with the Basin Plan and addresses TMDLs established in the Lake Tahoe Basin, including the California Lake Tahoe TMDL, approved by EPA on August 16, 2011.

Nevada Division of Environmental Protection, Nevada Administrative Code

The *Nevada Administrative Code* outlines the responsibilities of the Nevada Division of Environmental Protection (NDEP) for cooperating with federal agencies in managing public land and quantifying existing water rights, monitoring water use, distributing water, reviewing water availability for new development, reviewing the construction and operation of licensed facilities, reviewing flood control projects, monitoring water resource data and records, and providing technical assistance to the public and governmental agencies. The Forest Service cooperates with NDEP on projects in Nevada. The Forest Service's Land Management Plan is consistent with the Basin Plan and addresses TMDLs established in the Lake Tahoe Basin, including the Nevada Lake Tahoe TMDL Report, approved by EPA on August 16, 2011.

Part 1: Vision

1.1 Pathway Regional Vision Statement

An interagency and public collaborative process called Pathway 2007 (Pathway) was initiated in 2004 to develop a common vision for the Lake Tahoe Basin and to coordinate planning efforts of the Forest Service (Forest Plan revision), the TRPA (Regional Plan Update), and the Lahontan Regional Water Quality Control Board/ Nevada Department of Environmental Protection (Lake Tahoe TMDL).

The Pathway process led to a regional vision statement for the Lake Tahoe Basin. *Desired conditions* and *vision statements quoted and adapted from Pathway* in this Forest Plan are shown *in italics.*

A Look into the Future *– The Lake Tahoe Basin is an exceptional place where communities thrive in harmony with the natural environment. The overwhelming presence of nature is apparent. The Lake is blue and clear, the air is clean, the region's ecosystem health, and natural sounds evident. Within communities, the economy is strong and sustainable; the population diverse and vital, the richness of everyday life is obvious. Based on mutual respect and the integration of human and natural communities, a balance exists that inspires and motivates residents, businesses, visitors, and governments alike to work together to maintain the Lake's value as a national and international treasure. Lake Tahoe is a truly unique and special place.*

Air Quality *– Air quality in the Lake Tahoe Basin is healthful for residents, visitors, ecosystems, and supports excellent visibility.*

Noise *– Noise levels provide for community and neighborhood serenity, abundant quiet recreational areas, and are not harmful to wildlife.*

Recreation *– The Lake Tahoe Basin's unique natural, cultural, and human environments provide sustainable recreation opportunities consistent with public desires and natural resource capacities. Recreation is linked to irreplaceable natural assets, the regional economy, and social well-being.*

Scenic Quality *– The Lake Tahoe Basin is internationally recognized for its outstanding natural beauty and is a resource of national significance. Characteristic views within the Basin are of the natural appearing forest, meadows, mountains, and expansive blue lake. The built environment harmonizes with this natural appearing setting in a sustainable manner that supports a vibrant community and healthy economy.*

Socio-Economics *(Social and Economic Systems) – There is a sustainable balance between environmental protection and conservation practices that provide the basis for the region's unique natural characteristics, a base recreation and tourism economy, other diverse economic sectors, attractively built communities, diverse social populations, and an exceptional quality of*

life. The Lake Tahoe Basin is an international model for sustainable alpine communities that apply the best-known practices in economic development, environmental protection, regulatory and planning process, community design, and inclusive resident and visitor communities.

***Soil Conservation** – Soil resources are conserved for the betterment of the environment and public. Soils function naturally, and land-use activities are assigned to suitable soils and landscape settings. Risks to life and property from natural hazards are reduced to acceptable levels.*

***Stream Environment Zones (SEZ)** – SEZs function at natural levels within the context of the watershed, and provide values commensurate with their functions. Societal and beneficial uses of SEZs, such as water management, cultural and scientific purposes, limited agriculture and recreation, are compatible with the naturally functioning conditions of SEZ lands.*

***Transportation** – An innovative multimodal transportation system is in place that gives priority to viable alternatives to the private automobile, appeals to users, and serves mobility needs, while improving the environmental and socioeconomic health of the Lake Tahoe Basin.*

***Vegetation** – Vegetation in the Lake Tahoe Basin is healthy and dynamic with the full complement of native plant communities, wildlife habitats, and ecological processes.*

***Water Quality** – Exceptional water quality provides restored clarity, environmental and human health, and human enjoyment of Lake Tahoe waters.*

***Wildlife and Fisheries** – Environmental conditions in the Lake Tahoe Basin support healthy and sustainable native terrestrial and aquatic animal populations and vegetation communities.*

1.2 Desired Conditions

Desired conditions (DCs) are long term goals, expressed as a state of being. The desired conditions form the base of the Plan and help to shape the other Plan components. They express the ecological, social, and economic management goals towards which the LTBMU directs management activities.

Some resources may currently be at or near the state described in the desired condition, requiring little more than maintenance, while achievement of the desired conditions for other resources may require many decades.

The desired conditions in this Plan were developed either as part of the Pathway process (those shown in *italics*), or specifically for the LTBMU. The Pathway desired conditions are more general than most of the desired conditions developed specifically for the LTBMU, and there is often overlap between content of the Pathway DCs and other DCs in this Plan; this is intended to clarify how the aspirational statement applies specifically to management by the Forest Service.

For example, consider the two DCs below. The concepts in the Pathway DC for Aquatic Ecosystems are included in the LTBMU DC, which adds detail for specific ecosystem elements:

> *The functional, physical, chemical, and biological integrity of the Lake Tahoe Basin's aquatic ecosystems are maintained at or above a sustainable level. (Pathway)*
>
> In-stream flows and floodplain inundation frequencies sustain aquatic habitats. Perennial flowing streams and associated lakes support a community of macro-invertebrates indicative of healthy aquatic habitat conditions, and naturally reproducing populations of native plant and animal species. Aquatic habitats are free of aquatic organism barriers and provide habitat characteristics needed for all life-history requirements.

Ecological Sustainability

Desired conditions for natural resources are included in this section, and include the physical resources (air, water, soil, watersheds), forest vegetation, fuels and fire management, aquatic and terrestrial habitats and species, and invasive species.

Physical Resources

Physical resources in the Lake Tahoe Basin are a key management emphasis for the Forest Service as well as our partner agencies. Physical resources include air quality, natural hazards, and physical components of watershed health, which include soil quality, surface and ground water quality, and geomorphic and hydrologic watershed processes.

Air quality management direction is found in several places throughout the Plan. Maintenance of air quality in the Class I airshed over Desolation Wilderness is discussed under Special Areas. The degree of darkness of the night sky is partly dependent on air quality – particulates in the air reflect light, making the night sky appear less dark and the stars less visible than under clear conditions. The dark night sky is discussed under Scenic Quality and Built Environment. Direction to mitigate air quality impacts from smoke is found in the Fuels and Fire Management sections. Human health concerns related to dust from naturally occurring asbestos (NOA) are an air quality issue on many National Forests, but the LTBMU has no mapped rock formations that contain asbestos minerals, so NOA is not discussed in this Plan.

Several kinds of potential natural hazards are present in the Lake Tahoe Basin. Knowledge of the risks associated with these hazards is essential to public safety. The LTBMU has completed a Natural Hazard Study to aid in project planning; including a map showing the approximate locations of various kinds of hazards (see Resource Overlay Maps).

A number of physical and biological elements in the Lake Tahoe Basin influence watershed response to natural or human-caused disturbance events. Watersheds have formed from different geologic materials (granite rock, volcanic rock, and glacial deposits), which have been acted upon by climate, vegetation, and other organisms over time to form particular soils and landforms with distinct ground and surface water drainage patterns.

The LTBMU was created from lands of three national Forests so that the Lake Tahoe Basin watershed could be more consistently managed as a unified whole. Coordinated planning and partnerships are integral to watershed management. Watershed restoration projects are undertaken to restore watershed processes and ecosystem structure, function, and composition impacted by past human disturbances such as:

- Urbanization of watersheds and encroachment of urban development into Stream Environment Zones (SEZs), resulting in a reduction in the size of SEZs and corresponding reductions in SEZ function.
- Grazing of livestock in meadows, resulting in soil compaction, changes in the distribution and composition of wetland, meadow, and riparian vegetation, soil erosion, streambank slope failure, and channel degradation;
- Legacy impacts such as old logging roads and other roads, railways, skid trails, flumes and diversions, which altered stream channel and surface water flow patterns, and resulted in fragmentation of riparian corridors.
- Diversion of stream flows and flood irrigation of certain meadows for pasture resulting in alterations in stream channel conditions, stream flow, and the composition of meadow vegetation;
- Relocation and straightening of stream channels, resulting in channel incision, channel widening, streambank erosion, lowering of groundwater, reduction in frequency of overbank flow, and increased downstream flooding;
- Exclusion of fire, along with altered hydrology (i.e. lowered groundwater tables), resulting in the encroachment of conifers into meadows, subsequently resulting in the drying out of these areas; and

- Breaching of barrier beaches, resulting in reduced functionality of SEZs close to the Lake.

The desired conditions for air quality, water quality, and soil quality are all interrelated and contribute to watershed health. Air quality can affect water quality; the Lake Tahoe TMDL includes requirements to reduce fine sediment and nutrient loading from atmospheric sources, and acid deposition from air-borne particles is monitored in high-elevation lakes throughout the Sierra Nevada. Ozone may damage vegetation. Adequate soil cover (vegetation, duff, and plant litter) protects soils from wind and water erosion, benefiting air and water quality. Soil and vegetation maintain water quality by processing nutrients and contaminants through uptake, retention, and chemical transformations. Soils improve water quality by retaining sediment and filtering water (precipitation, surface runoff, and overbank flows).

In addition to ecosystem benefits, physical resources provide social and aesthetic benefits that are recognized in the desired conditions for air quality and the clarity of Lake Tahoe. Similarly, social systems are enhanced through the maintenance of stream flows that support water-related recreation and groundwater levels that support groundwater-dependent ecosystems such as meadows and aspen stands that provide highly valued scenic backdrops. Soils contribute to scenic and recreational values through their role in sustaining healthy vegetation.

Air Quality

DC1. *Air quality in the Lake Tahoe Basin is healthy for humans and ecosystems. (Pathway)*

DC2. *Visibility in the Lake Tahoe Basin is at 2001 – 2003 levels or better. (Pathway)*

Natural Hazards

DC1. *Risks to life and property from natural hazards are reduced to acceptable levels through identification/mapping, avoidance of activities and development in hazardous areas, and modification of existing development to lessen potential impacts. Natural hazards include flooding, mass wasting (landslides, etc.), earthquakes, liquefaction, seiches, avalanches and volcanic hazards. (Pathway)*

Soil Quality

DC1. *Soils function commensurate with their land use to sustain native plant and animal life, regulate water flow, flooding and infiltration, cycle nutrients, and filter pathogens, excess nutrients and other pollutants.(Pathway)*

DC2. *Land coverage does not exceed the capability of the soil resources to offset the effects of impervious cover. The effects of impervious cover and disturbance are fully mitigated on a storm water zone basis. (Pathway)*

DC3. Soils infiltrate, transmit and store water at rates and in quantities commensurate with the soil and ecosystem type.

DC4. Soil productivity sustains healthy populations of native and desired non-native plant communities that are appropriate for the soil type. Surface and subsurface soil organic matter are within the expected range for the soil and ecosystem type.

DC5. Accelerated (human-caused) soil erosion and resultant sediment and nutrient transport to surface waters do not impact soil productivity or water quality.

Water Quality

Forest Service management primarily affects the water quality of Lake Tahoe through effects on other water bodies, especially the streams that drain into Lake Tahoe. Thus, the overall goal of achieving the Pathway DC for Lake Tahoe is directly correlated to achieving all the desired conditions described throughout this section.

DC1. *Lake Tahoe's status as one of the few ultraoligotrophic (extremely nutrient-poor) lakes in the world with unique transparency, color, and clarity is preserved. (adapted from Pathway)*

DC2. *Water quality conditions in the Lake Tahoe Basin protect human and environmental health. (Pathway)*

DC3. Water quality provides for all designated beneficial uses of surface and ground waters and meets the goals of the Clean Water Act and Safe Drinking Water Act; surface waters are fishable and swimmable, and surface and ground waters are suitable for drinking after normal treatment.

Hydrologic and Geomorphic Processes

This section includes desired conditions related to watershed resilience, stream channel geomorphic processes, and physical and chemical attributes of SEZs, as well as surface and ground water levels, groundwater recharge and discharge, and attenuation of peak flows.

Watershed resilience is expected to become increasingly important under a changing climate. Climate projections for the Lake Tahoe Basin include decreasing snowpack, earlier peak snowmelt, higher runoff in the winter and early spring, and decreased summer runoff. Flood potential would increase, principally due to earlier dates of peak daily flows and the increase in the proportion of precipitation falling as rain. Geomorphically stable stream channels and floodplains that exist in a state of dynamic equilibrium are better able to adjust to climate change impacts to hydrology, with fewer adverse impacts to aquatic habitat, water quality, or water quantity.

The term SEZ is specific to the Lake Tahoe Basin. Stream Environment Zones are areas that owe their biological and physical characteristics to the presence of surface or ground water. The SEZ concept includes wetlands as defined by the Army Corps of Engineers, but is broader, encompassing some ecotypes that are drier than wetlands. It is important to note that SEZs are ecotypes, not simply riparian buffer zones of a designated width. SEZs include lands adjacent to perennial, intermittent, and ephemeral streams, meadows and marshes, other areas of near-surface water influence, and groundwater-dependent ecosystems such as marshes, springs and fens.

Although desired conditions related to watershed function and the physical and chemical functions of SEZs are discussed in this section, while their biological functions are discussed under Biological Resources, the physical and biological characteristics of SEZs are interdependent. For example, desired conditions for fish habitat in streams are inextricably tied

to the structural and geomorphic desired conditions for stream channels that also contribute to watershed stability and water quality.

DC1. *SEZ physical and chemical processes function naturally within the constraints and dynamics of the watershed, including, but not limited to, natural hydrologic processes, water quality, and stormwater treatment capacity. (Pathway)*

DC2. *Beneficial uses of SEZ lands for water management, cultural and scientific purposes, limited agriculture, and recreation are compatible with the naturally functioning conditions, as stated by desired conditions for physical, chemical, and biological functioning. (Pathway)*

DC3. *Watershed characteristics, such as hydrologic, fluvial, and littoral geomorphic processes, approximate natural conditions where attainable. (Pathway)*

DC4. Watersheds have the following characteristics:

a) They are resilient and recover rapidly from natural and human disturbances.
b) They exhibit a high degree of connectivity along the stream, laterally across the floodplain and valley bottom, and vertically between surface and subsurface flows.
c) They provide important ecosystem services such as high quality water, recharge of streams and aquifers, the maintenance of riparian communities, and moderation of climate variability and change.
d) They maintain long-term soil productivity.

DC5. Stream processes associated with the geologic setting, valley type, geomorphology, and sediment transport influence erosion and deposition such that streams are in dynamic equilibrium. Channel pattern, profile, dimension, and degree of channel-floodplain connectivity exhibit characteristics consistent with valley types. Sediment regimes are close as possible to those with which aquatic and riparian biota evolved. Coarse woody debris forms and maintains pool and cover habitats. Streams do not exhibit signs of chronic sediment overloading (aggradation) or accelerated (human-caused) bank and bed erosion (incision and gully formation).

DC6. The physical structure and condition of streambanks and shorelines minimizes erosion and sustains desired habitat diversity. Healthy streambank and shoreline vegetation aid in streambank and shorezone stabilization, limit erosion, and provide channel and floodplain stability.

DC7. Groundwater levels and stream flow volume and timing sustain surface water-dependent and groundwater-dependent ecosystems. Groundwater recharge and discharge, and water tables, are not adversely impacted by management activity, and soil infiltration capacity is unimpaired in most areas. Levels of base flow during low-flow periods support flow-dependent baseline values and functions, including, but not limited to, riparian vegetation, water for wildlife groundwater recharge, wetlands, native and sport-fish habitats, recreation use, and aesthetics of flowing water.

Forest Vegetation, Fuels, and Fire Management

Comstock-era logging, fire exclusion, livestock grazing, and other past management practices have significantly altered ecological conditions throughout the Lake Tahoe Basin. These practices have contributed to increased forest vulnerability to drought, disease, and insect outbreaks, as well as high severity, stand-replacing wildfire, increasing risks to communities, natural resources, and scenic quality. In addition, fire exclusion has resulted in encroachment of shade-tolerant conifers into meadows and aspen stands, and their ecological and scenic values are at risk. As our understanding of ecosystem processes has improved, it has become apparent that a more complete integration of restoration efforts is necessary to successfully restore natural ecological processes and enhance and maintain the scenic quality for which the Lake Tahoe Basin is renowned, while reducing wildfire hazard to communities and key wildlife habitats.

Climate change is expected to bring rising air temperatures and changes in precipitation patterns, leading to an increased risk of high severity fire and shifts in species ranges, presenting complex challenges for management in the Lake Tahoe Basin. Perhaps chief among these challenges is how to sustainably balance restoration of fire-adapted ecosystems and fuels reduction projects to protect public and private assets, with the legal and biological necessity of preserving habitat for species that require dense canopy, late seral conditions.

Compared to pre-Comstock conditions, forest types are structurally much more homogeneous, and stand densities have increased in the montane and upper montane zones. Old growth conifer forests are under-represented compared to pre-Comstock conditions, and post-fire early seral conditions are found in large contiguous blocks rather than in scattered patches. Overall, these changes have had a negative effect on biodiversity, and forest resilience to fire, drought, insects, and pathogens has been compromised.

Where it is possible to achieve, reestablishment of fundamental ecosystem processes (fire, hydrology, propagule dispersal, etc.) will enhance the ability of Lake Tahoe Basin ecosystems to achieve dynamic equilibrium with changing climates. Since almost all predictions suggest a warmer and drier future, replication of forest composition and pattern based on historic (pre-Comstock) reference conditions is probably not optimal. However, since pre-Comstock conditions are seen as a waypoint on the trajectory to sustainable conditions under projected future climate conditions, pre-Comstock composition and structure are appropriate interim goals for forest stands in the Lake Tahoe Basin. Achieving approximate pre-Comstock conditions to the proportions outlined in Table 1 will help to restore key ecological processes that are currently absent or compromised. Stands that approximate pre-Comstock structure and composition would be better able to adapt to a warmer, drier climate than stands with the current structure and composition.

DC1. *A full range of native species, development stages, habitats, and ecological processes occurs. (Pathway)*

DC2. *Fuel conditions pose low wildfire risk to communities (Pathway).*

DC3. Disturbance processes occur in the ecosystem within the historic range of variability, and, where this is not feasible due to inherent risks, surrogates (e.g. prescribed fire, thinning) are used carefully to effectively mimic natural disturbance. Disturbance processes and/or their

surrogates create and maintain forest conditions that are well-adapted to current and future climates.

DC4. Stand and landscape conditions provide a diversity in vegetation types, stand structures, and species compositions that resembles patterns (figure 3) resulting from the interaction of disturbance regimes (e.g., wildland fire, insect and disease outbreaks, landslide and avalanche, windthrow, flooding, pre-Comstock aboriginal manipulations), variations in the physical landscape (e.g., elevation, soils, site productivity, aspect, slope), and the reigning climate.

DC5. The effects of disturbances like wildfire and insect/disease outbreak are similar to those expected under the natural range of variability for different parts of the landscape in the Lake Tahoe Basin, and, compared to the current disturbance regime, are less likely to result in major losses in wildlife habitat quality.

Figure 3. Cross-Section of a Typical Mixed-Conifer Old-Growth Forest Ecosystem

Illustration of the structural complexity and spatial patterning (horizontal heterogeneity) typical of high-quality (structural classes 4 and 5) late seral forest ecosystems (drawn by Robert Van Pelt; from Spies et al. 2006).

DC6. Unplanned fires in the Wildland-Urban Interface (WUI) and in Jeffrey pine/mixed conifer forests tend to spread slowly to moderately, depending on winds, and burn as a surface fire. Occasional single-tree or group torching might occur when the fire burns through a dense clump of young trees. This burning thins the stand, promotes rapid growth of surviving trees, and creates occasional large snags by killing adjacent large trees. Unplanned fires occurring outside of the WUI in densely stocked fir or lodgepole pine forests may produce intense, stand-replacing events consistent with natural fire regimes.

DC7. WUI zones (Map 7), are open canopied and dominated primarily by larger, fire-tolerant trees (e.g. thick-barked, self-pruning pine species). The WUI incorporates patterns of fuel condition that modify wildfire behavior by slowing large fire spread and reducing overall fire intensity and severity. Defensible space exists for all structures on Forest Service administrative sites, Forest Service permit authorization sites, and within 100 feet of non-federal structures.

Forest Vegetation Types

White fir-mixed conifer, Jeffrey pine, and the red fir types constitute approximately 60% of the land area in the Lake Tahoe Basin. This also includes areas where the majority of vegetation and terrestrial habitat management actions will occur. Therefore, more detailed desired conditions for these major vegetation types on the LTBMU have been developed.

Due to the ecological importance, declining extent and concerns for degrading condition of aspen stands in the basin, desired conditions for aspen also have been included here.

Except where it occurs in the WUI or where there are major insect outbreaks, the lodgepole pine type is not a major focus of land management concerns in the Lake Tahoe Basin. Likewise, the subalpine forest type is not the focus of land management concerns in the Lake Tahoe Basin, and therefore desired conditions are less detailed than for other forest types.

Jeffrey Pine

Structure

DC8. At the scale of the Lake Tahoe Basin as a whole, forest dominated by Jeffrey pine occupies more area than in 2003 and the trend is upward. At the landscape scale, the Jeffrey pine type is a highly heterogeneous mosaic of forest conditions composed of structural stages ranging from young to old trees (Table 2). Forest appearance is variable but generally uneven-aged and open; areas of even-aged structure are rare. Where they are even identifiable, patch sizes are generally extremely small (0.01 to 0.5 acres), and the mixing of trees of different ages and sizes makes identification of stands or seral stages difficult. The Jeffrey pine type is composed predominantly of vigorous trees, but dead and declining trees are a component and provide for snags and coarse woody debris (CWD). Stand basal areas range from 30 to 250 square feet per acre, with most stands falling below 100 square feet per acre. (See Table 2 for tree and snag density, CWD, loading).

Function

DC9. Natural ecological processes occur with little direct human influence. Fire and fire surrogates approximate a fire return interval of 7-20 years in Jeffrey pine stands. Stand-replacing fire occurs on an average of 5% of burned acres, with occasional more severe fires driven by extreme weather. Fires burn primarily on the forest floor and do not spread between canopy trees as active crown fire. Occasional crown torching leads to forest openings and generation of large snags. Except in extremely rare events, contiguous areas of

crown mortality after fire are less than 5 acres in size. High severity patches are principally confined to higher density, closed canopy stands and/or warm, upper slopes. Frequent, low severity fires are characteristic in this type, including throughout spotted owl and goshawk protected activity centers (PACs) and home range core areas (HRCAs).

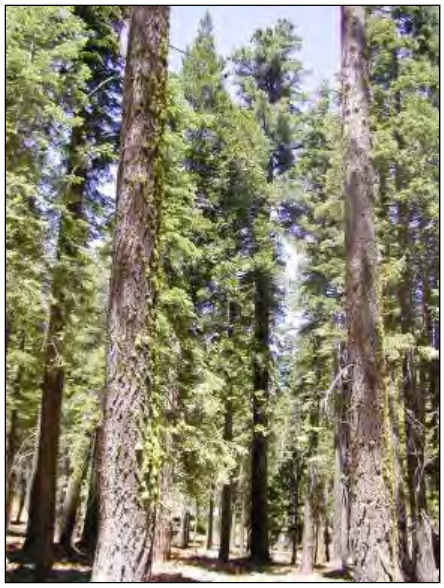
Composition

DC10. The Jeffrey pine forest type is dominated by Jeffrey pine, with white fir as an associate. At the stand scale, the proportion of Jeffrey pine to shade tolerant species (e.g., white fir, red fir, incense cedar) is 3:1 or greater, except in moist and/or high productivity sites, where the proportion of shade tolerant species may be somewhat higher. Stands of (nearly) pure Jeffrey pine are not uncommon. Other accessory conifer species are present, especially in moist sites (e.g., incense cedar, lodgepole pine), areas of cold air drainage (e.g., lodgepole pine), and in very low productivity sites (e.g., western juniper, western white pine). Shrub cover is generally low to moderate due to frequent fire (or surrogates), but may be high in patches, especially where canopy cover is low, and where rocks, thin soils, and/or low fuel loads provide protection from frequent fire. Montane chaparral species are commonly found in such situations, and include species of manzanita and ceanothus, and bush chinquapin. In some open canopy stands of Jeffrey pine, sagebrush, bitterbrush, and other dryland shrubs may form an almost continuous understory. Diversity and cover of understory grasses and forbs is relatively high. In dense canopy stands, small and medium trees may be relatively dense. Early seral stands may support high levels of shrub cover.

White Fir-Mixed Conifer

Structure

DC11. At the scale of the Lake Tahoe Basin as a whole, forest dominated by white fir occupies less area than in 2003 and the trend is downward. At the landscape scale, the white fir-mixed conifer type is a heterogeneous mosaic of forest conditions composed of structural stages ranging from young to old trees (Table 2). Forest appearance is variable but generally uneven-aged; occasional areas of even-aged structure are present. Many stands on the landscape are open canopied (less than 50% canopy cover) and support a significant component of pines, but denser canopy stands are also common, especially on north slopes, in canyon bottoms, and at higher elevations. Where they are even identifiable, patch sizes are generally small (0.05 to 0.75 acres) and the mixing of trees of different ages and sizes makes identification of stands or seral stages difficult. The white fir-mixed conifer type is composed predominantly of vigorous trees, but dead and declining trees are a component and provide for snags and coarse woody debris (CWD). Stand basal areas range from 40 to 350 square feet per acre, with most stands falling below 250 square feet per acre. (See Table 2 for tree and



snag density, CWD loading). In white fir-mixed conifer forest, stand basal areas range from 40 to 350 square feet per acre, with most stands below 50 square feet per acre (See Table 2 for tree and snag density, and CWD loading).

Function

DC12. Natural ecological processes occur with little direct human influence. Fire and fire surrogates approximate a fire return interval of 10-30 years in white fir-mixed conifer stands. Frequent, low to mixed severity fires are characteristic in this type, including throughout spotted owl and goshawk PACs and HRCAs. Stand-replacing fire occurs on an average of 15% of burned acres, with occasional more severe fires driven by extreme weather. Fires burn primarily on the forest floor, rarely spreading between canopy trees as active crown fire. Crown torching leads to forest openings and generation of large snags. Except in rare events, contiguous areas of crown mortality after fire are less than 10 acres in size. High severity patches are principally confined to higher density, closed canopy stands and/or warm, upper slopes. Where this type overlaps the WUI, fires occur as surface fire due to fuels treatments.

Composition

DC13. In the Lake Tahoe Basin, the white fir-mixed conifer forest type is dominated by white fir, with Jeffrey pine, sugar pine, red fir and incense cedar as important associates. At the stand scale, the proportion of white fir to shade intolerant pines (e.g., Jeffrey pine, sugar pine) varies from about 1:1 on drier and warmer sites to 2:1 or greater in moist and/or high productivity sites. Sugar pine is an important member of the forest canopy, and the combination of decreased canopy cover of shade tolerant conifer species (from increased fire and fire surrogates) and the planting of blister rust-resistant seedlings leads to increases in its density and basal area. Shrub cover is generally low, due both to frequent fire (or surrogates) and areas of high tree canopy cover. Shrub cover may be high in patches, especially where rocks, thin soils, and/or low fuel loads provide protection from frequent fire, or in areas where high severity fire has occurred. In open stands, the forest understory is dominated by low shrubs, grasses and forbs. In dense canopy stands, small and medium trees may be of relatively high density. Early seral stands may support high levels of shrub cover.

Red Fir

Structure

DC14. At the landscape scale, the red fir forest type is a heterogeneous mosaic of forest conditions composed of structural stages ranging from young to old trees (Table 2). Forest appearance is variable but primarily composed of small, intergrading patches of even-aged trees. Stands are both closed (greater than 50% canopy cover) and open canopied. Dense canopy conditions are more common at lower elevations, where white fir may share dominance with red fir (red fir-white fir forest), but patches of high canopy cover are also found at higher elevations, usually in areas of deeper soils. Higher elevation red fir stands often share dominance with western white pine (red fir-western white pine forest) and may be very open and patchy, with substantial cover of montane chaparral species. Patch sizes are small to medium (0.05 to 5 acres), but may be larger, especially at lower elevation. The red fir forest type is composed predominantly of vigorous trees, but dead and declining trees are a component and provide for snags and CWD. Most CWD is found in the later stages of decay. In red fir-white fir forest, stand basal areas range from 50 to 700 square feet per acre, with most stands below 350 square feet per acre. In higher elevation red fir-western white pine forest, stand basal areas range from 5-600 square feet per acre, with most stands below 250 square feet per acre. (See Table 2 for tree and snag density, and CWD loading).

Function

DC15. Natural ecological processes occur with little direct human influence. Fire and fire surrogates approximate a fire return interval of 30-75 years in red fir stands, with fire return intervals increasing generally with elevation. Infrequent, low to mixed severity fires are characteristic in this type. Stand-replacing fire occurs on an average of 15-20% of burned acres, with occasional more severe fires driven by extreme weather. Fires are generally small, restricted in size by high fuel moistures and/or the patchy nature of the forest. Fires burn primarily on the forest floor, but crown torching is not uncommon and leads to forest openings and generation of large snags. Except in rare events, contiguous areas of crown mortality after fire are less than 10 acres in size. High severity patches are principally confined to higher density, closed canopy stands and/or warm, upper slopes.

Composition

DC16. In the Lake Tahoe Basin, the red fir forest type is dominated by red fir, with white fir and Jeffrey pine as important associates at lower elevations, and western white pine, lodgepole pine, and Jeffrey pine at higher elevations. Other conifers include sugar pine,

mountain hemlock, and western juniper. At higher elevations, especially in sites of low productivity, western white pine remains an important member of the forest canopy. Where feasible, the planting of blister rust-resistant western white pine seedlings leads to sustainability of its density and basal area. Lodgepole pine density in higher elevation red fir forests is reduced in areas where very dense stands regenerated after 19th century logging. Shrub cover is very heterogeneous. Shrub cover is generally low at lower elevations, except where there are gaps in the tree canopy, but maybe high (but patchy) at higher elevations, depending on the distribution of the tree canopy, soil depths, moisture availability, and other factors. Understory shrubs include gooseberry and snowberry. Montane chaparral shrub species (which occur primarily in openings) include huckleberry oak, bush chinquapin, and species of manzanita and ceanothus. Grass and forb cover is generally low, but can be high in stands with low canopy cover and suitable soil moisture. In dense canopy stands, small and medium trees may be of high density. Early seral stands may support high levels of shrub cover.

Table 1. Modeled Pre-Settlement Historical Reference and Current Conditions

Vegetation Description	Approx. Percent of Area 1935	Approx. Percent of Area 2003		Condition	Average Percent of Vegetation Type				
					Early-Seral	Mid-Seral, Closed Canopy	Mid-Seral, Open Canopy	Late-Seral, Open Canopy	Late-Seral, Closed Canopy
White fir mixed conifer	10	21		Reference (modeled)	10-20	5-15	10-15	30-40	20-30
				Current	3	16	11	40	30
Jeffrey pine	37	19		Reference (modeled)	5-15	5-10	25-30	45-50	5-10
				Current	4	42	49	4	1
Red fir	15	18	Red fir-white fir phase	Reference (modeled)	10-20	20-30	5-15	15-25	25-35
				Current	1	13	49	30	8
			Red fir-western white pine phase	Reference (modeled)	5-15	10-20	20-25	35-40	10-15
				Current	1	5	48	41	5

Notes:

- Historic Reference Condition modeling for major LTB forest types, developed from non-linear forest stand dynamics (state and transition) modeling, using disturbance regimes from pre-Euro-American settlement period. Climate inputs from 20th century. Values cannot be reliably applied to landscape units less than about 10,000 acres in area (Safford and Schmidt 2007).
- 1935 percent of area from Forest Service 1935 Vegetation Type Map (Wieslander);
- 2003 percent of area from Lake Tahoe Basin Existing Vegetation Map, Version 4.1, updated for the 2007 Angora Fire.
- Early, mid, and late seral stages represent stand quadratic mean diameters of 0-5”, 5-25”, and >25” dbh respectively.
- For white fir, and the red fir types, an “open” canopy has less than 50 percent closure while a closed canopy has closure greater than 50 percent; for Jeffrey pine, the open-closed cutoff is 40%. For detailed seral stage definitions, see Historic Reference Condition Mapping, Safford and Schmidt 2007,.
- Vegetation data to be updated as new information becomes available.

Table 2. Tree and Snag Density, Coarse Woody Debris (CWD) Loading for the Four Major Forest Types and Aspen

Forest Type	Stocking (stems)				Basal area (feet^2/acre)			
	Low	Median	Mean	High	Low	Median	Mean	High
White fir-mixed conifer	25	80	100	300	40	150	200	350
Jeffrey pine	15	60	70	200	30	80	100	250
Red fir-white fir	25	80	100	300	50	250	350	700
Red fir-western white pine	10	70	80	250	5	200	250	600
Forest Type	**Snags (>15" dbh/acre)**				**Coarse Woody Debris (tons/acre)**			
	Low	**Median**	**Mean**	**High**	**Low**	**Median**	**Mean**	**High**
White fir-mixed conifer	0	3	6	25	0	2	10	150
Jeffrey pine	0	1	3	15	0	1	6	100
Red fir-white fir	2	4	7	25	0	10	20	150
Red fir-western white pine	2	3	5	20	0	5	10	120

Aspen

Structure

DC17. The area of aspen-dominated forest in the Lake Tahoe Basin is greater than in 2009 and trending upward. In aspen stands, aspen dominate the overstory, with conifers comprising <25% of the canopy. Overall canopy cover is high (generally greater than 50%), and aspen comprise more than 75% of the overstory. Aspen forest is multi-layered, but sufficient light penetrates the canopy to support abundant undergrowth. Aspen stands are regenerating, restored, and/or maturing through natural disturbances or surrogate activities. In stable stands, aspen perpetuates itself with regular low-level regeneration; in seral stands, aspen regeneration is vigorous after ecological disturbances. Conifer density surrounding aspen stands is low enough that aspen stand expansion may occur if subsurface moisture availability permits. In early and mid-seral aspen stands, fire resistant conifers with old growth characteristics may comprise up to 25% of overstory canopy cover. Based on disturbance history, multiple age cohorts of aspen may be present. Conifer regeneration only rarely successfully introduces new trees into the stand, due to high seedling and sapling mortality from fire or fire surrogates. Basal areas range from 5-600 square feet per acre, with most stands falling below 250 square feet per acre. (See Table 2 for tree and snag density, and CWD loading).

Function

DC18. Fire and fire surrogates approximate a fire return interval of 25-50 years in aspen stands. Many low intensity fires burning in surrounding conifer forest types do not enter aspen forest due to high moisture content in the fuel and soil. Stand-replacing fire in aspen forest is uncommon, and most fires that enter stands burn at low to moderate severity, with only scattered mortality of overstory aspen individuals. Early and mid-seral aspen stands strongly ameliorate fire behavior and burn severity within aspen stands as well as in conifer stands immediately downwind.

DC19. Structural heterogeneity in aspen stands is high, and attracts a broad diversity of wildlife species due to the availability of cover, forage, and nesting opportunities.

DC20. Native insect and disease species are allowed to fulfill their ecological role in the aspen community, with minimal risk of compromising stand resilience.

DC21. Organic ground cover and herbaceous vegetation provide protection of soil, moisture infiltration and retention, and contribute to plant and animal diversity. Soil moisture in aspen stands is generally higher than in surrounding conifer stands, due to higher water tables,

lower rates of evapotranspiration, and higher organic matter content in the soil, which aids in moisture retention. There is little or no bare ground. Natural and anthropogenic disturbances are sufficient to maintain desired overall tree density, structure, species composition, coarse woody debris, and nutrient cycling.

Composition

DC22. Total vegetation cover and diversity is generally high in aspen stands, especially in the forb and grass components of the forest understory. Depending on location, elevation, and site characteristics, a number of conifer species may be present (up to 25% canopy cover), and other hardwoods like alder or willow may occur nearby. Shrub layers may be present, and may include a number of relatively shade-tolerant species (e.g., serviceberry, snowberry, gooseberry, currant) and also dryland shrubs (e.g., sagebrush, bitterbrush), depending on site characteristics.

Lodgepole Pine

DC23. Tree densities and basal areas are maintained at levels similar to current conditions in most stands. The areal extent of lodgepole pine-dominated forest is slightly reduced from 2009. Wherever possible, ecological processes occur with little direct human influence.

DC24. Stand density, age distribution, and structural heterogeneity are such that lodgepole pine is more resilient and tree mortality occurs at levels that would typically not exceed a few trees per acre. A heterogeneous pattern of mortality results in the creation of snags and CWD that varies irregularly across the landscape, and does not result in degrading wildlife habitat or scenic character. Levels of dwarf mistletoe are reduced, and infection by mistletoe does not result in stunting growth and/or premature tree mortality. Tree mortality caused by mountain pine beetle, and tree hazards associated with dwarf mistletoe, are limited in recreation areas.

Sub Alpine

DC25. Forest conditions are the result of natural ecological processes, which occur with little direct human influence.

DC26. Stand density, age distribution, and structural heterogeneity are such that whitebark pine, lodgepole pine, red fir, and other sub alpine tree species are more resilient, and tree mortality does not contribute to substantial deviations from typical patterns of vegetation succession. Where feasible, the planting of blister rust-resistant western white and whitebark pine seedlings leads to sustainability of their density and basal area, and tree mortality levels caused by mountain pine beetle do not contribute to an overall decrease in species sustainability.

Biological Resources

The complex of biological and geomorphic features in the Lake Tahoe basin provide habitat for a wide range of terrestrial and aquatic species. Past land use management has degraded some sensitive habitat while other habitats have been less affected. In addition to habitat degradation, non-native species and invasive species introductions have drastically altered some terrestrial and aquatic habitats. The LTBMU recognizes the importance of these resources both for native species that depend on them to meet life history requirements and for future generations to enjoy. Toward this end, desired conditions have been developed to guide future management in the preservation, enhancement, and, in some cases, restoration of biological resources.

Habitat and Species Diversity

This section provides specific management direction to maintain habitat quality and abundance to support native species and habitat on the LTBMU.

DC1. *The functional, physical, chemical, and biological integrity of the Lake Tahoe Basin's aquatic ecosystems are maintained at or above a sustainable level. (Pathway)*

DC2. *SEZ biological processes function naturally within the constraints and dynamics of the watershed. Vegetation, terrestrial wildlife, and aquatic communities are healthy and sustainable. (Pathway)*

DC3. *The functional, physical, chemical, and biological integrity of the Lake Tahoe Basin's terrestrial ecosystems are maintained at or above a sustainable level. (adapted from Pathway - vision)*

DC4. The diversity, distribution and health of biotic communities, and associated species in aquatic and terrestrial habitats (such as lakes, fens, wetlands, SEZs, and coniferous forests) perpetuate their unique ecological functions and biological diversity, and support sustainable populations of native plants and animal species. The connectivity, both spatial and temporal of these aquatic and terrestrial habitats at the landscape level allows for physically, chemically, and biologically unobstructed movement of native species sufficient for their survival, migration, reproduction and dispersal.

DC5. In-stream flows and floodplain inundation frequencies sustain aquatic habitats. Perennial flowing streams and associated lakes support a community of macro-invertebrates indicative of healthy aquatic habitat conditions, and naturally reproducing populations of native plant and animal species. Aquatic habitats are free of aquatic organism barriers and provide habitat characteristics needed for all life-history requirements.

DC6. Undeveloped and minimally disturbed shoreline and lagoon habitats are sufficient to support native species dependent on the interface between lake and terrestrial ecosystems. Where fluvial ecosystems meet the lake shoreline (including Lake Tahoe), geomorphic conditions and associated barrier beach formations are retained to support marsh and lagoon habitats.

DC7. A complexity of meadow habitat types and successional patterns support native plant and animal communities. Meadow species composition is predominantly native, where graminoid species are well represented and vigorous, and regeneration occurs naturally. Healthy stands of willow, alder and aspen are present within and adjacent to meadows with suitable physical

conditions for these species. Natural disturbances and management activities are sufficient to maintain desired vegetation structure, species diversity, and nutrient cycling.

DC8. The area of high-functioning meadow vegetation (as defined by the Pacific Southwest Region range monitoring protocol) is higher than in 2009 (LTBMU data) and meadow wetness is maintained or increasing as determined by species composition.

DC9. The abundance, spatial distribution, and size and decay classes of both standing (snags) and CWD meet the habitat requirements of native species that utilize these structures.

DC10. Terrestrial and aquatic habitat connectivity continues to provide unobstructed movement sufficient for survival, migration, reproduction, and dispersal given the potential effects of climate change on habitat and species.

DC11. The pattern and degree of forest fragmentation is consistent with natural landscape heterogeneity, including all seral stages, and meets the habitat needs of terrestrial wildlife species that are generally vulnerable to extensive forest openings, edge effects, and gaps in the forest canopy.

DC12. Ecological conditions throughout the Plan area contribute to the recovery of Federal Threatened (T) and Endangered (E) species, and prevent listing of Federal Candidate species (C), Federal Proposed species (P), and Forest Service Sensitive species (FSS).

DC13. Ecological conditions throughout the Plan area sustain or enhance native species and support self-sustaining communities of native plants and animals.

DC14. The forest supports well distributed and connected habitat for FSS, and TRPA identified native species. These identified populations and habitats are ecologically sustainable, self-sustaining, well-distributed, and well-connected.

DC15. Native non-game fishes, including but not limited to, Lahontan tui chub, Tahoe sucker, Lahontan redside, Paiute sculpin and mountain whitefish are well distributed in watershed stream reaches and are able to utilize near shore lake habitats throughout their historic range.

DC16. Selected rocky habitats support healthy and sustainable populations of rare plant and animal species including but not limited to Tahoe draba (*Draba asterophora var. asterophora*), long-petaled lewisia (*Lewisia longipetala*), and Mount Lyell salamander (*Hydromantes platycephalus*).

DC17. Cliff, cave, and cave surrogate habitats (e.g., mines, buildings, etc.) recognized as important to the survival, migration, reproduction, and dispersal of species dependent on these habitats are suitable and accessible for these uses consistent with site capability. Measures to protect and ensure human safety are compatible with maintaining or enhancing accessibility for these species.

DC18. Conifer stands adjacent to wetlands, wet meadows, and open water habitats between Emerald Bay and Taylor Creek, and near Marlette Lake, and in newly discovered special status raptor locations, have the following characteristics:

a) Conifer stands are open canopied, late seral, and Jeffrey pine-dominated in composition and structure;

b) Several trees exist in each stand that are larger in diameter and taller than the dominant tree canopy, particularly trees greater than 40 inches dbh and at least 100 feet tall with dead tops and robust, open branch structures;
c) Higher than average levels of snags for the stand type are present, composed of the largest tree size classes and diverse decay classes.

Invasive Species Management (Aquatic and Terrestrial)

This management direction is included to help maintain habitat quality and native species diversity. The management direction is applied to species identified as invasive by California Invasive Plant Council, Lake Tahoe Basin Weed Coordinating Group, Nevada Department of Agriculture (NDA) and the California Department of Food and Agriculture (CDFA).

DC19. Invasive species do not occur as a component of aquatic or terrestrial ecosystems or compete with native species for critical resources.

Protected Activity Centers and Home Range Core Areas (PACs and HRCAs)

This section describes the desired conditions for northern goshawk and California spotted owl PACs and California spotted owl HRCAs. PACs and HRCAs are established and maintained to protect suitable habitat components for these species.

DC20. Suitable nesting and foraging habitat within California spotted owl and northern goshawk PACs and California spotted owl HRCAs is maintained and degraded habitat is enhanced.

DC21. California spotted owl and northern goshawk PACs have the following mature-forest structure:

a) at least two tree canopy layers,
b) dominant and co-dominant trees with average diameters of at least 24 inches dbh,
c) at least 50 percent canopy cover, and
d) higher than average levels of snags (preferably larger than 45 inches dbh) for the stand type, and downed woody material (preferably larger than 20 inches in diameter at the large end) in diverse decay classes, distributed unevenly.

DC22. California spotted owl HRCAs have the following structure:

a) at least two tree canopy layers,
b) dominant and co-dominant trees with average diameters of at least 24 inches dbh,
c) at least 50 percent canopy cover, and
d) higher than average levels of snags (preferably larger than 45 inches dbh) for the stand type, and downed woody material (preferably larger than 20 inches in diameter at the large end), in diverse decay classes, distributed unevenly.

DC23. Highly suitable California spotted owl and northern goshawk breeding, roosting, and foraging habitats exist in spotted owl and goshawk territories within and overlapping the

Lake Tahoe basin; these habitats trend towards resistance to large-scale disturbances such as severe wildland fire and pathogen/disease/insect mortality outbreaks. The trend in spotted owl and goshawk occupancy, survival, and productivity in these territories are maintained or increased over time within the capability of the landscape.

Species Refuge Areas

Species Refuge Areas (SRAs) are defined as areas of quality habitat for Threatened and Endangered Species (FSH 1909.12, Ch. 40, Sec. 43.22a), species proposed for listing, candidate species, and species that have been recently de-listed where regulatory agency monitoring is still considered necessary. These areas either currently provide habitat for Federal Threatened (T), Endangered (E), Candidate (C), and Proposed (P) species or have potential to provide habitat needed for future recovery.

Species included are Lahontan cutthroat trout, Sierra Nevada yellow legged frog, whitebark pine, and Tahoe yellow cress. This list is subject to change when species are added or removed.

DC24. Lahontan cutthroat trout (LCT) populations are naturally self-sustaining, well-distributed, and well-connected, forming meta-populations that can expand and endure natural disturbances. Culverts or other structures do not inhibit migration unless deemed necessary to maintain upstream population integrity. Current and future water-bodies identified by the Tahoe Basin Recovery Implementation Team support naturally reproducing populations of Lahontan cutthroat trout. Current recovery areas in the Upper Truckee River watersheds (from Meiss Meadows to the Southern extent of Christmas Valley) and Fallen Leaf Lake(including Glen Alpine Creek) are suitable for Lahontan cutthroat trout and have the following characteristics:

a) Upper Truckee River, upstream of the natural fish barrier, is free from brook trout and aquatic invasive species, such as whirling disease pathogens;

b) Fallen Leaf Lake and Glen Alpine Creek are free of aquatic invasive species and support LCT life histories.

c) In addition, current and future fluvial and lacustrine systems where recovery occurs exhibit the following aquatic habitat characteristics: riffles, runs, pools, spawning gravels, CWD, and in-lake structure are complex and well-connected.

DC25. Sierra Nevada (mountain) yellow-legged frogs occupy, persist, and colonize in historic lake and stream habitats that are fishless. Habitat for self-sustaining populations is present in identified lakes, streams, and meadow habitats. Population expansion efforts continue to enhance/restore habitat identified as historic or potential habitat. Suitable habitat is free from invasives, including *Batrachochytrium dendrobatidis* fungus (Bd), and introduced fishes (e.g. brook trout), and has well-connected micro-habitats for frog dispersal.

DC26. Tahoe yellow cress persists in sandy beach habitat around Lake Tahoe, despite periodic high water levels and human-related impacts; through time individual populations change, but losses are countered by colonization.

DC27. Stand density, age distribution, and structural heterogeneity are such that whitebark pine is more resilient and tree mortality occurs at levels that would typically not exceed a few

trees per acre. A heterogeneous pattern of mortality results in the creation of snags and coarse woody debris (CWD) that varies irregularly across the landscape, and does not result in degrading wildlife habitat or scenic character. Levels of white pine blister rust are reduced, and infection does not result in premature tree mortality. Tree mortality caused by mountain pine beetle and tree hazards associated with white pine blister rust are limited in recreation areas.

Social and Economic Sustainability

This section includes desired conditions that focus on the human environment, including recreation, conservation and interpretive education and visitor services, stewardship and partnerships, scenic quality, cultural resources and tribal relations, noise, the road and trail system and other aspects of the built environment, lands and minerals, and permitted uses. These desired conditions represent goals to provide important social benefits to Lake Tahoe Basin communities, part-time residents, and visitors, and contributions to the local economy.

Recreation and Human Values

The LTBMU provides visitors and area residents an extraordinary variety of outdoor recreation opportunities concentrated within a relatively small area of NFS lands surrounding Lake Tahoe. The concentration of use—over 5.7 million visits per year on average, on 150,000 acres is among the highest of any National Forest in the country.

The spectrum of recreation opportunities within the Lake Tahoe Basin varies from highly developed resorts to remote wilderness. Visitors can find full service amenities at developed sites such as Camp Richardson and Heavenly Mountain Resorts, or discover the beautiful serenity of the Desolation Wilderness.

Those wishing to access Lake Tahoe can discover beautiful developed beaches at Pope, Baldwin, Meeks, and Nevada Beach, while the scenic east shore provides opportunities for more remote, less developed lakeshore activities and stunning panoramic views of the lake and the distant Sierra Nevada. Educational opportunities are numerous, with local area history presented at the Tallac Historic Site, and natural history interpreted at the Taylor Creek Visitor Center.

LTBMU lands are literally the backyard for residents and second-home owners. This proximity to NFS land is considered an amenity to the lifestyle of those fortunate to live in the Lake Tahoe Basin. Approximately 75% of LTBMU lands are classified as Wildland-Urban Intermix (WUI)—lands that are adjacent to urban development.

More remote backcountry areas, such as Freel Peak, Meiss, Desolation Wilderness, and Mt. Rose Wilderness, provide dispersed recreation opportunities to visitors seeking solitude or outdoor adventure.

LTBMU lands also provide human values such as aesthetic and spiritual values. Humans are drawn to natural places, and hold widely varying attitudes, beliefs, and perspectives about the ecosystem. Outdoor activities are often just pursued for the purposes of finding peace in nature, enjoying life, and just relaxing. People experience nature in ways that are not adequately

described as just “Recreation,” though some people in modern civilizations believe that the value of nature is found only in its "utilitarian value" (beneficial use). They would discount the inner perceptual and/or spiritual benefits of the intrinsic value of nature that may be experienced through just being able to access natural environments. These values, at time underrated, often become very important when considering resource related issues.

The desired conditions for recreation resources are based on these Sustainable Recreation Management principals and focus primarily on Recreation Opportunities, Public Access, Capital Investments, and Stewardship:. Motorized winter recreation (snowmobile) access is described in the LTBMU Snowmobile Guide. Motorized summer recreation is described in the Motor Vehicle Use map.

Recreation Opportunities

DC1. *A spectrum of high quality recreational opportunities are provided, while lake Tahoe Basin’s natural setting as an outstanding recreation destination is maintained. (Pathway)*

Public Access

DC2. *Encourage additional access where lawful and feasible to high-quality natural areas and shorezone consistent with desired resource conditions. (Pathway)*

DC3. Access to public lands is provided when consistent with user and management expectations.

Recreation Development

DC4. Programs and facilities are economically sustainable with available funds and resources.

Stewardship

DC5. Manage recreation resources to achieve a desired range of social expectations while maintaining the quality of the setting and natural resources.

DC6. Public stewardship will be encouraged through conservation education, interpretive programs and volunteer participation.

Recreation Special Uses

Recreation special use permits facilitate recreational opportunities on NFS lands for services not provided by the Forest Service. Recreation sites under special use permit are more commercial in nature than sites under Forest Service management, and offer a variety of services for a fee. Recreation special use permits include resorts, ski areas, recreation residences, outfitting and guiding, events, marinas, and organizational camps.

DC1. In response to identified need and management objectives, recreation special use permits facilitate delivery services not provided by the Forest Service.

Interpretive Services, Conservation Education, and Visitor Services

Interpretive Services, Conservation Education and Visitor Services educate visitors and the local community about public lands, natural and cultural resource management, recreation opportunities and stewardship principles. Interpretive Services educates hundreds of thousands of visitors each year through high quality short-term programs or contacts. Conservation Education fosters stewardship through a multi-year learning process resulting in a long-term community investment in natural resources. Visitor Services provides valuable information to the public about LTBMU projects, programs, recreation and regulations, and issues passes, permits and written materials such as maps and brochures.

Interpretive Services

The mission of the Interpretive Services program is to provide support and inspire high quality interpretation that instills respect and appreciation for the natural and cultural heritage of public and private lands and foster their protection and stewardship through time.

The Interpretive Services program primarily serves visitors to National Forest sites. The Taylor Creek Visitor Center and the Tallac Historic Site are the major public points of contact, providing guided and self-guided activities, educational programs, and living history throughout the summer months. Interagency partnership facilities are located at Meyers Interagency Visitor Center and Explore Tahoe Visitor Center. Self-guided interpretive sites include Inspiration Point Overlook, Stateline Lookout Overlook, Logan Shoals Vista, and Lam Watah Interpretive Trail.

Interpretive Services staff strive to “light a spark” within visitors so that they can continue to learn about their natural and cultural resources and how to take care of them. Interpretive products include wayside exhibits, interpretive signage, self-guided trails, brochures, and programs.

Providing a coordinated system of interpretive facilities and programs is an important way to help residents and visitors understand the connection between their behavior and the sustainability of Lake Tahoe’s special environment. Using public/private partnerships, interpretive services staffs visitor information facilities and services at major entry points and areas of concentrated use in the Lake Tahoe Basin. Interpretive Services staff assists in orienting visitors to the area’s special features, regulations and recreation opportunities.

The Federal Vision for the Environmental Improvement Program in the Lake Tahoe Basin states:

> “Provide a coordinated system of interpretive and educational facilities and programs that effectively meet the needs of target audiences and natural resource capacities. These programs should be designed to build an understanding of the connection between people’s behavior and their environment and to promote stewardship and sustainable management of the Lake Tahoe Basin’s resources.”

DC1. Interpretive activities and programs address outdoor recreation, human and natural history, water quality management, aquatic and terrestrial invasive species management, habitat and watershed restoration, hazardous fuels and forest health treatment efforts.

DC2. Accurate, up-to-date information, interpretation, and education about recreation opportunities and the natural and heritage resources of the Lake Tahoe Basin are provided. New technologies for delivery and access are used, and the messages are barrier free, in multiple languages.

DC3. Interpretation successfully garners support and acceptance of management actions, and reduces impacts to resources.

DC4. National Forest visitor centers, in partnership with other entities, provide quality information and education services that reinforce stewardship, forest health, and sustainability themes.

Conservation Education

Conservation Education serves learners of all ages, in formal and non-formal education programs. Students are primarily in grades K-12 served in the classroom and at forest sites. Education programs utilize nationally recognized curriculum and activity guides. Classroom education is tied to state content standards and builds student environmental literacy from awareness to understanding to informed action on environmental issues. Conservation Education works with numerous state, federal and local agencies, non-government organizations and community volunteers to deliver programs. For high-school age students, students become actively engaged in community and forest projects through the Generation Green club and/or through a youth employment program in the summer.

DC1. Education successfully garners support and acceptance of management actions, and successfully changes public perception over the long term, thus reducing impacts to resources.

DC2. Conservation Education program staff work with many internal and external partners to coordinate, develop, and deliver educational programs and materials. These partners include in-house programs in addition to State, Tribal, and local agencies, nonprofit organizations, and schools.

Visitor Services

Visitor Services staff are often the first Forest Service contact for the visiting public. They provide information on recreation opportunities, appropriate behavior, special events and attractions at forest offices and visitor centers. Visitor service products include maps, and recreation opportunity guides. Sales of interpretive publications and maps are provided by the interpretive association.

DC1. *Residents and visitors are educated about the recreation opportunities, appropriate behavior, and unique natural and cultural environments of Lake Tahoe. (Pathway)*

Partnerships

The LTBMU relies on its dedicated partners and volunteers to successfully manage the NFS lands and to attain stewardship goals. Current partnerships with other entities help reduce hazardous fuels, build trails, restore historic sites, provide interpretive programs, restore habitats, remove noxious weeds, and take part in many other management activities.

DC1. *LTBMU and partner organizations capitalize on mutual interests and goals to efficiently and effectively achieve desired outcomes. Community members, interested stakeholders, regulatory agencies, and leaders from local jurisdictions are well-informed of ecosystem processes and management challenges, and work cooperatively to resolve issues. These partners gather and share information allowing for more accurate and responsive decision-making. (Adapted from Pathway)*

Scenic Quality

The public has expressed a strong desire to maintain the scenic integrity of the Lake Tahoe Basin, while accommodating forest management activities on public lands. Key valued scenic attributes include overall scenic quality of the natural environment, lake views, and dark night sky views (minimization of lighting to allow for dominance of natural, nighttime light). Other public desires include flexibility in design development to ensure that desired community character is achieved, and prevention of further loss of critical views.

DC1. *Scenery viewed from Lake Tahoe and the Basin's major roadways, public recreation areas, trails and urban centers predominantly displays natural-appearing forest, meadows, mountains, and the shoreline of Lake Tahoe. Development, where visible, appears subordinate to and harmonious with the surrounding setting. (Pathway)*

DC2. *Views of the night sky from the naturally-appearing areas of the Basin are conducive to star gazing. Light emanating from the built environment is carefully controlled to ensure safety and security and does not encroach upon the regional dark sky. (Pathway)*

DC3. Management activities promote scenic stability and increase resistance to visual disruption resulting from disturbance events. Landscape alterations complement and blend with the characteristic landscape of the Lake Tahoe Basin. Vegetation treatments are designed to produce natural-appearing diverse forest structure.

Cultural Resources

Historic resources within the Lake Tahoe Basin reflect America's history and diverse cultures. The documentation, preservation, and interpretation of historic resources are integral to the LTBMU's management. Historic artifacts, sites, and features provide clues used to reconstruct human history in the Lake Tahoe Basin.

Cultural resources are characteristic of the following aspects or periods of Lake Tahoe Basin history:

- Early prehistoric occupation from approximately 10,000 to 1,500 years ago;
- Washoe tribal occupation, which has been demonstrated to extend back at least 1,500 years;
- Basque sheepherders occupancy beginning in the mid-1800s, as evidenced by aspen carvings (arborglyphs);
- Campsites of Chinese laborers who dominated the cord-cutting and flume-tending industries that supported Comstock Lode silver mining;

- Comstock era (1859-1880) logging features such as flumes, transportation features, sawmills, habitation sites, log skids, etc.;
- Era of elite summer resorts (Tahoe Tallac, Tahoe Tavern, Brockway Hot Springs) in the late 1800s; era of lakeshore estates of the wealthy and elite built in the early twentieth century, which denote the beginning of Tahoe's tourism and recreation era; and
- Transportation features, such as the Pony Express Trail and the Lincoln Highway.

A program of research, protection, rehabilitation, and interpretation of cultural resources which are determined eligible for National Register of Historic Places or whose eligibility are undetermined is ongoing and effective. Known cultural resources are proactively managed to enhance their scientific, cultural, historical, and traditional values.

DC1. Significant cultural resources are in good to excellent physical condition. Sites are protected from physical damage and wear resulting from visitor use and natural deterioration.

Tribal Relations

For thousands of years, aboriginal peoples of the northern Sierra Mountains and the Great Basin traveled to the shores of Lake Tahoe in the spring to reaffirm tribal unity through shared cultural practices. The Lake Tahoe Basin is the heart of the Washoe Tribe's culture. Spiritual and cosmologic beliefs derived from tribal ancestral heritage in the Lake Tahoe Basin are inherently intertwined in the landscape and its natural features. Tribal cultural identity is closely tied to the presence of culturally significant resources and the indigenous practices that sustain them.

Access and use of culturally significant resources and places further supports the maintenance of social networks and related cultural and economic values. Economic opportunities afforded through government-to-government partnerships contribute to the economic stability and resiliency of the Washoe Tribe and its members. Additionally, approximately 24 acres of former NFS lands within the Lake Tahoe Basin is held in trust for the Washoe Tribe by the U.S. Department of the Interior. The Washoe Tribe of Nevada and California is the tribal government that works with the LTBMU on a government-to-government basis.

DC1. Native American communities have the opportunity to be involved in all phases of the planning process.

DC2. The LTBMU fulfills its responsibilities to the Washoe Tribe of Nevada and California through a well-integrated, visible, government-to-government relationship. Provided they are consistent with LTBMU's management, the Tribe's goals of cultural revitalization, traditional practices, and reestablishment of a land base, as well as trade and commerce, are supported by the Forest Service. Tribal consultation enhances the capacity of the LTBMU to resolve issues and develop collaborative opportunities for partnership.

DC3. Economic opportunities afforded through government-to-government partnerships contribute to the economic stability and resiliency of the Washoe Tribe and its members.

Noise

By definition, noise is 'unwanted sound." The LTBMU is involved with noise monitoring stemming from activities on National Forest lands and will continue to evaluate and address noise issues respective to meeting established laws and regulations and noise standards and thresholds.

DC1. *Single event noise levels are controlled to preserve the serenity of the community and neighborhood and provide abundant quiet recreation areas. (Pathway)*

DC2. *Noise levels are controlled to protect wildlife. (Pathway)*

Access and Travel Management

Roads and trails on LTBMU lands provide management, administrative, and recreation access to NFS lands in support of agency goals and objectives.

The goal of the Access and Travel Management Program is to provide and maintain economically, socially, and environmentally sustainable access. Economic sustainability balances maintenance needs with annual maintenance and reconstruction budgets and eliminates deferred maintenance. Social sustainability meets user needs by providing a spectrum of recreation opportunities, both summer and winter, and needed administrative access to NFS lands. Environmental sustainability is met through integrated BMPs, optimizing high capability locations, and designs that meet Forest Service guidelines.

DC1. *The LTBMU supports a multimodal transportation system that provides a viable alternative to the private automobile, while serving mobility needs. (Adapted from Pathway)*

DC2. The LTBMU transportation system, composed of roads and trails, is economically viable; environmentally compatible, responsive to public needs and desires, and efficiently managed. The transportation system provides access for administration, protection, utilization, and winter and summer recreation opportunities.

DC3. The transportation system is efficiently interconnected to state, county, and local public roads and other Federal roads and trails through collaborative access and travel management planning.

National Trails System

The National Trails System is a network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These nationally recognized trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement.

Trails that are part of the National Trail System fall into three categories_- National Scenic Trails, National Historic Trails and National Recreation Trails. National Scenic Trails and National Historic Trails are designated by congress and National Recreation Trails are designated by the Department of Agriculture or the Department of the Interior.

The Pacific Crest Trail (National Scenic Trail), Tahoe Rim Trail, Pope-Baldwin Bicycle Trail, and the Hawley Grade Trail (National Recreation Trails) are part of the National Trail System.

DC1. National trails system trails preserve the intended goals and values for which they were established.

Built Environment

For this Forest Plan, the built environment includes buildings that are federally owned and managed by the Forest Service and includes buildings that are managed through permit. Recreation residences and other structures associated with recreation and lands special use permits are discussed in the recreation special uses or non-recreation special uses sections.

DC1. Federally owned or managed facilities meet specified standards and meet the needs of the agency, and the public.

Minerals

The LTBMU is not well endowed with mineral resources. Although there were a few actively worked mines in the past, there are none in the basin at present, and the most recent operating plan was submitted prior to publication of the 1988 Forest Plan.

DC1. Mining and mineral leasing laws and regulations are administered in a manner which meets environmental guidelines and regulations for the Lake Tahoe Basin.

Lands

The lands program facilitates the acquisition, exchange, and donation of NFS lands, as well as surveying and marking property boundaries and resolving trespass violations.

DC1. Partnerships are developed and maintained with other governments, agencies and organizations to facilitate land adjustment (e.g., exchange, purchase, and donation) that will reduce fragmentation of public lands, increase public access to NFS lands and Lake Tahoe shoreline, and protect important natural and heritage resources.

DC2. Public land ownership boundaries are clearly marked on the ground, and land ownership information is easily accessible to the public.

Non-Recreation Special Uses

Permitted uses on NFS lands include rights of way for power lines, sewer lines and other utilities, cell phone and radio towers, water tanks and other infrastructure that serves local communities. Special use permits are also issued for various activities, as described below.

DC1. Community needs are met for utility and communication services (e.g., telephone, radio, commercial broadcasting, and two-way radio for public safety needs for local governments) as well as for transportation and access.

DC2. Access is available to NFS lands for research and monitoring that is compatible with other resource values, when disturbance is temporary.

DC3. Activities that are appropriate for the National Forest setting contribute to the enjoyment and stewardship of NFS lands. These activities may include photography and filming, weddings, religious ceremonies, fence construction, and construction staging.

Santini-Burton Acquired Lands / Urban Forest Parcels

Maintaining remnant forest stands within developed areas (commonly referred to as urban lots, urban intermix lands, or urban forest parcels) is essential to maintaining the ecological integrity of the Lake Tahoe Basin. Protection and restoration of these acquired lands directly influence attainment of forest-wide desired conditions.

Urban Forest Parcels consist mainly of lands that have been acquired by purchase, donation, or other means, under authority of Public Law 96-586 (Santini-Burton Act) of December 23, 1980. The acquisition of environmentally sensitive lands authorized by this act is often referred to as the urban lot program.

Many of the acquisitions are small lots (less than 1 acre) in urban subdivisions. The acquisition of urban lots serves 3 purposes:

1) Preventing residential development of environmentally sensitive lands;
2) Maintaining important areas within a watershed in a natural, undisturbed condition, allowing snowmelt water to infiltrate the soil surface and remove suspended sediments; and
3) Restoring lands in poor hydrologic condition.

DC1. Urban Forest Parcels are undeveloped, conserve natural forest conditions (open space) within the urban setting, support natural watershed function, and pose a low wildfire risk to communities.

DC2. Vegetation composition and structure is similar to general conservation areas.

DC3. Hazards (e.g., hazard trees) do not pose a threat to the public or infrastructure.

DC4. Personal private use (encroachments) and other unauthorized uses of urban forest parcels do not occur.

Part 2: Strategies

This part of the Forest Plan sets forth strategies and objectives for achieving or maintaining the desired conditions for the LTBMU. Program strategies embody the general approach that the responsible official will use to achieve desired conditions for each program area. Program strategies convey a sense of priority and a focus for objectives.

Objectives are concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Objectives are consistent with the identified strategies, and are a means of measuring progress toward achieving or maintaining desired conditions.

2.1 Ecological Sustainability

Physical Resources Program Strategy

The close relationships among physical resources make it difficult to separate program strategies and objectives by resource. Soil and air quality objectives also support water quality. Preventing erosion not only maintains the nutrient-rich topsoil needed for plant growth, but also prevents sediment deposition in water bodies. Maintaining soil porosity is important for plant growth, but reduced porosity can also indirectly affect water quality – when the amount of water soil can accept is decreased, it runs off on the surface, increasing the potential for erosion and subsequent sedimentation. When pollutants in the air are deposited in water, water quality is compromised.

Air Quality

- Utilize smoke dispersion models for prescribed fire projects greater than 250 acres to ensure smoke impacts are minimized.
- Wherever feasible, apply Emission Reduction Techniques (ERTs) to reduce emissions and control greenhouse gas emissions from burn activities on NFS lands. Consider non-burning alternatives in addition to ERTs wherever possible to reduce and prevent smoke intrusion into communities. Manage emissions from on-forest activities to avoid elevating ambient air concentrations to levels that result in non-attainment of standards for the Lake Tahoe Basin.
- For Forest Service operated combustion engines, utilize alternative fuels when technically and fiscally feasible, for purposes of reducing greenhouse gas emissions and ozone precursor emissions.
- Consider the Regional Haze State Implementation Plan targets for the Class 1 Airshed over Desolation Wilderness during project planning.

Water Quality and Soil Quality

- Implement PSW Region Best Management Practices (BMPs) and National Core BMPs to protect and conserve physical resources.
- Manage activities within SEZs in a manner that is consistent with the protection of SEZ functions and values and protection of beneficial uses of water bodies.
- Participate in achieving the program goals for the Integrated Water Quality Management Strategy for achievement of the Lake Tahoe TMDL.
- Ensure that identified beneficial uses for water bodies are adequately protected. Identify the specific beneficial uses for the project area, and water quality goals from the Regional Basin Plan.
- Disperse runoff to reduce velocity, and increase infiltration to enhance treatment of nutrients and contaminants. Stabilize soil to prevent accelerated (human-caused) erosion of topsoil and subsequent sedimentation and loss of soil productivity. Utilize NFS lands for treatment of urban runoff where appropriate.
- Reduce the watershed impacts resulting from land coverage. Minimize the development of new hard and soft coverage from forest management activities. Seek opportunities to reduce coverage through site design when retrofitting, improving, or rebuilding at existing developed sites.
- Protect natural functioning of soil resources and sustain or improve long-term soil productivity in areas dedicated to growing vegetation. Where past management activities have reduced soil productivity below Forest Service regional or national guidelines, improve soil productivity by respreading displaced topsoil, using tillage to increase porosity, increasing nutrient supplies through the addition of appropriate amendments, or increasing nutrients and water-holding capacity through the addition of organic matter.

Water Use and Development

- Where feasible, arrange for and secure water rights for existing and foreseeable future Forest Service consumptive uses, including administrative, recreation, erosion control, and evaporative losses.
- Where feasible, obtain water availability assurances for existing and foreseeable future non-consumptive uses, including minimum instream flows and reservoir level maintenance for fish, wildlife, boating, swimming, and aesthetics.
- Manage dams to ensure adequate flows for downstream uses, including supporting aquatic habitats. Consider opportunities for removal of dams.
- Utilize a geologic and geotechnical analysis if it is not possible to determine from existing data the magnitude of potential adverse effects on the groundwater table of a groundwater development project.
- Use plants which do not require long-term irrigation in re-vegetation and landscaping projects in order to conserve water.

Natural Hazards

- Evaluate natural hazards before developing or permitting new uses or facilities on NFS lands.

Watershed Restoration

- Implement restoration projects in high priority watersheds identified by LRWQCB's total maximum daily load (TMDL) Model for Lake Tahoe, to promote self-sustaining, dynamically stable stream systems, channel stability, and hydrologic function.
- Implement projects identified through National USFS Watershed Condition Assessment Process.
- In general, where stream characteristics are outside the natural range of variability in the area of a proposed project/activity, implement mitigation measures and short-term restoration actions to prevent further declines or cause an upward trend in conditions.
- Reconnect floodplains with stream channels to enhance treatment of nutrients and contaminants, and improve channel geomorphic function to reduce in-channel sediment sources and increase in-channel sediment storage.
- Design projects to maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features. Implement restoration projects to attenuate peak flows and promote water storage in SEZs.
- Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in-stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species.
- Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.
- Design projects to maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features. During project analysis, roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths should be identified and corrective actions planned and implemented where necessary to restore connectivity

Physical Resources Objectives

OBJ1. Achieve load reduction targets for upland forest and SEZs identified in the Lake Tahoe TMDL during the life of the plan.

OBJ2. Implement effective BMPs to achieve 95% implementation and effectiveness ratings forest-wide in BMP assessments annually, as determined by the Pacific Southwest Region's Best Management Practices Effectiveness Program.

OBJ3. Maintain an up-to-date inventory of water rights and uses on NFS lands, and meet state requirements for maintaining water rights.

OBJ4. Implement actions to restore geomorphic and habitat function to approximately 5 miles of stream, and 350 acres of floodplain/SEZ by approximately 2016.

For Objectives related to facilities BMP retrofits, see Built Environment section.

Forest Vegetation, Fuels, and Fire Management Program Strategy

By improving, restoring, and maintaining forest health, a more resilient balance of forest stand densities, structure, and species composition will emerge across the landscape, and multiple objectives will be met, including developing and maintaining the habitat needs of wildlife species and enhancing scenic attributes.

The forest health and vegetation management strategy uses differences between current conditions and historic conditions (e.g. Table 2) as an index to measure the departure from, and progress towards desired conditions. Historic reference conditions are based on modeling conducted by Safford and Schmidt (2007). Note that these reference conditions do not necessarily represent targets, but they represent forest structures that are characteristic of pre-Comstock forests in the Lake Tahoe Basin, which were highly disturbance-adapted and disturbance-resilient. When the amount of forest area and vegetation type more closely approximates historical forest structures, forests in the Lake Tahoe Basin will be more resilient to fire, bark beetle-caused tree mortality, drought, and future changes in climate regimes. As new data become available, updated reference conditions may be applied when and where appropriate.

The strategies for the Forest Vegetation and Fuels program are:

- Emphasize prevention in the form of silvicultural (e.g. mechanical treatments, herbicides, etc.) or prescribed fire treatments, resulting in forest stands that are less susceptible to high levels of tree mortality caused by drought, wildfires and bark beetles.
- Implement specific integrated pest management strategies as needed to respond to immediate native or exotic forest insect or disease threats to forest health, which may include removal or treatment of beetle-infested trees, when identified that threaten

developed recreation and administrative sites, and private property, prior to beetle emergence, to reduce the likelihood of further infestation.

- Establish measures to prevent the establishment and spread of invasive plants during project implementation and post-disturbance rehabilitation activities.
- Consider all available technologies and management tools and practices to meet project objectives.
- Vegetation management activities adhere to ecologically-based management strategies and are integrated, ultimately to restore or maintain forest resiliency. For example, forest vegetation treatments around communities (thinning that alters density, structure, and species composition) to restore forest resilience to wildfire also meet the goals of reducing forest stand susceptibility to bark beetle-caused tree mortality.
- Vegetation treatments in montane forests favor Jeffrey pine, sugar pine that is white pine blister rust-resistant, and aspen, species that have become much less common over the last century due to logging and fire exclusion.
- Reforestation strategies incorporate species mix, stocking density, or use of genetically superior or pest resistant planting stock, to restore landscapes and improve adaptability under climate change.
- Revegetation following a disturbance event or management activity first considers hazard tree removal, then the potential for natural regeneration of early seral vegetation, and finally, the need for artificial regeneration and corresponding competing vegetation control measures.
- Forest vegetation treatments, including aspen stand enhancements and riparian area restorations, achieve High Minimum Scenic Stability (MSS) and enhance desired scenic attributes.
- When restoring disturbance regimes such as fire, many forest stands are currently too dense to allow the re-establishment of a frequent-fire regime. In these cases, management techniques such as thinning and prescribed burning are used as surrogates for wildfire and other mortality agents.
- Planned and unplanned ignitions are used where possible to accomplish forest health, wildlife habitat, or other ecosystem restoration objectives.
- The majority of fuels reduction treatment efforts are concentrated in WUIs until initial WUI treatments are completed. WUI maintenance treatments occur as needed.
- Consistent with preserving the recreation resource, trees, tree limbs, or downed woody debris identified as hazardous at developed recreation sites are removed.
- Projects should consider the creation of openings of varying sizes and shapes that retain reserve trees and clumps to produce spatial and structural heterogeneity in forest stands, and should give greater weight to openings from 2 to 7 acres. Forest structure should vary over the landscape in relation to topographic variables of slope, aspect, and slope position.

- Where reforested areas (generally Pacific Southwest Region size classes 0x, 1x, 2x) are included within area treatments, consider designing treatments to also: (1) accelerate the development of key habitat and late seral characteristics, (2) increase stand heterogeneity, (3) promote hardwoods, and (4) reduce risk of loss to wildland fire.
- Preference should be given to reducing stand density and modifying species composition through thinning treatments to prevent/reduce high levels of bark beetle-or other forest pest -caused tree mortality. Preventive measures such as thinning should be used for reducing opportunities for forest pests.
- Vegetation treatments designed to restore aspen should focus on restoring dominance of aspen in the canopy, regenerating and expanding aspen stands, reducing the risk of loss of aspen stands from the landscape, and developing vigorous under-story deciduous tree, shrub, and herbaceous associations and habitats.
- Consider aspen restoration or clone stimulation for each project planning area when aspen occur within vegetation management projects.
- Perpetuate and promote existing late seral stages in each project area and throughout the broader landscape if feasible, with primary emphasis on protecting/enhancing late seral dependent wildlife habitat.

Strategies for the Fire Management program are to:

- Maintain fire suppression capability and preparedness at a level that is appropriate to protect lives, communities, and resources. Protection of human life (firefighter and public safety) is the most important objective during a fire.
- Base fire management strategies and tactics on firefighter and public health and safety, fire cause, current and predicted weather, current and potential fire behavior, fire effects, values to be protected, post-fire tradeoffs, resource availability, cumulative effects of the fire, and cost effectiveness. Strategy and tactics may vary around a fire's perimeter.
- Support attainment of desired conditions for fuels reduction, wildlife habitat, forest health, and ecosystem restoration contained in this Forest Plan through appropriate response to unplanned ignitions. By taking into account the location of ignition, time of year, current and expected weather and burning conditions, fire managers apply the best strategy to mitigate risks to the public and firefighters, meet protection priorities, and meet cultural/natural resource management objectives defined in this Forest Plan
- Respond to mutual threat incidents when requested under a cooperative agreement. Forest Service employees limit fire suppression actions to exterior structure protection measures as described in FSM 5137.
- Consider use of all types of firefighting equipment in fire emergencies when there is threat to human life and property, or where resource value saved is clearly greater than the damage done through the use of such equipment. In other than these conditions, disturbance to soils, stream environment zones, and visual quality are given increased

priority. Cost effectiveness of equipment used is also considered during tactical decision-making.

- Strive to keep fire suppression costs near national historic averages for fires with similar characteristics in comparable areas.
- Continue a fire prevention program that reduces the number of human-caused fires through an aggressive program of public contact, education, outreach, and enforcement.
- Work in cooperation with public agencies, local fire-safe councils, and private citizens to exchange information and assistance throughout all local jurisdictions.
- Use fire retardant according to national and regional policy.

Forest Vegetation and Fuels Management Objectives

The following vegetation management objectives are stepping stones of expected achievement that will move the LTBMU forests toward the desired conditions. To accomplish these objectives two general treatments will guide restoration of forest structure, function and composition in the major forest types:

1) Thinning to move overabundance of closed mid-seral to open mid-seral or accelerate movement from one seral stage to the next.
2) Creating openings that emphasize group selections with reserves that move mid-seral to early-seral.

The amounts of acres by treatment and forest type represent the first small steps in a long-term process aimed at achieving forest restoration goals. Given the focus of current program of work in the WUI, objectives related to these treatments will generally occur in the first 10 years of plan implementation and treatments related to restoring forest type structure, composition, and resiliency will occur in the latter 10 years of plan implementation. These treatments will likely overlap sometime mid-way through plan implementation. Although the approximate accomplishments are annual, we are assuming a best case scenario, which might not occur for a variety of reasons including budget, mill capacity, policy, or other factors.

OBJ5. Reduce surface, ladder and canopy fuels through thinning and fuel reduction treatments on 2,000 acres per year in the WUI.

OBJ6. Prescribed burning of surface fuels in the WUI occur on 1,800 acres per year when possible.

The following objectives will generally occur over the latter 10 years of plan implementation. Specific amounts of acres to be treated by forest type are approximate and represent an optimistic annual level of accomplishment.

White fir – mixed conifer

OBJ7. Create approximately 50 acres of openings from the mid-seral stages to early-seral white fir – mixed conifer type each year over the latter 10 years of plan implementation.

OBJ8. In stands historically dominated by pines, convert white fir-mixed conifer type generally in the early or mid-seral stages to Jeffrey pine by approximately 50 acres per year over the latter 10 years of plan implementation. Retain pines during conversion treatments.

OBJ9. Thin approximately 200 acres of white fir-mixed conifer each year over the latter 10 years of plan implementation to improve resiliency and reduce susceptibility to insects, disease, and drought.

Jeffrey pine

OBJ10. Create approximately 40 acres of openings in the mid-seral stages to shift stands to early-seral Jeffrey pine each year over the latter 10 years of plan implementation, and maintain it as the dominant species. Employ techniques to release early seral pine from competing vegetation if necessary. Post-disturbance event treatments will be used as opportunities to regenerate early seral Jeffrey pine. This objective may be accomplished in coordination with white fir – mixed conifer conversion objective, above.

OBJ11. Thin approximately 250 acres of Jeffrey pine each year over the latter 10 years of plan implementation to improve resiliency and reduce susceptibility to insects, disease, and drought.

Red fir

OBJ12. Create approximately 10 acres of openings in the mid-seral stages to shift stands to early-seral red fir type each year over the latter 10 years of plan implementation. Utilize opportunities for treatment after disturbance events.

OBJ13. Thin approximately 50 acres of red fir each year over the latter 10 years of plan implementation to improve resiliency and reduce susceptibility to insects, disease, and drought.

Aspen

OBJ14. Restore or stimulate regeneration of at least 25 acres of aspen per year.

Biological Resources Program Strategy

Conservation of Habitat and Species Diversity Strategies

- Develop a LTBMU biological (aquatic, botanical, and terrestrial) resources conservation strategy, including a five year action plan.
- T, E, P, C, and FSS species are managed to enhance self-sustaining, well distributed, and well-connected populations and habitats.
- Provide for Lake Tahoe Basin-wide and Region-wide recovery actions for Federal Threatened and Endangered species. Develop, in partnership with other Lake Tahoe Basin entities, a basin-wide management strategy that utilizes well-supported indicators and reference conditions to assess the biological integrity and status and trend of a number of threatened and endangered species, Region 5 sensitive species, TRPA special interest species, and priority invasive species.

- Identify and map areas of high biological diversity, where multiple biological resources occur in the same habitat (e.g. a sensitive fish, TRPA special interest plant, and target wildlife species occur all within 200 meters of each other).
- Collaborate with partners to establish priority locations for maintaining and restoring habitat connectivity and to expand habitat of native species.
- Consider all levels of food web (trophic level) biodiversity (example predator/prey) during project planning and design to help mitigate climate change exposure to individual species and communities (e.g. from changes in phenology and habitat shifts).
- Consider habitat connectivity for species that may be impacted due to climate change by removing or modifying physical impediments to movements.

Aquatic Habitats and Species

- Maintain, enhance, or restore the physical and biological characteristics of aquatic ecosystems.
- Minimize human disturbance that would degrade wetland function and processes.
- Provide for hydrologic and geomorphic processes, such as allowing flood events and associated bedload to pass downstream while providing for maintenance of stream pattern, profile and dimension.
- Ensure that management activities, including fuels reduction actions, within SEZs and SRAs enhance or maintain physical and biological characteristics associated with aquatic- and riparian-dependent species.
- Preserve, restore, or enhance special aquatic features, such as meadows, lakes, ponds, bogs, fens, and wetlands, to provide the ecological conditions and processes needed to recover or enhance the viability of species that rely on these areas.
- Identify and implement restoration actions to maintain, restore or enhance water quality and maintain, restore, or enhance habitat for riparian and aquatic species.
- Protect rare aquatic ecological habitats such as Osgood Swamp, Hell Hole, and Pope Marsh. Enhance these habitats through restoration activities such as the removal of upland vegetation (i.e. conifers, xeric species) and restoring hydrologic function.
- Seek opportunities to remove physical impediments to the movement of aquatic species, or modify physical impediments to allow migration.
- Maintain and restore connectivity of aquatic habitats where barriers to aquatic organism passage have been identified or where natural surface and subsurface water flows are intercepted, diverted, or disrupted in highest priority watersheds that were identified in the 2010 and 2011 aquatic organism passage report (LTBMU).
- Employ natural channel design methods/techniques to restore aquatic habitat, and facilitate upstream or downstream passage for aquatic-dependent species.
- Manage stream reaches and associated habitat to support all life stages of native assemblages by providing aquatic organism passage for all life stages, stream conditions that provide spawning and rearing habitat such as appropriate pool/riffle ratio, substrate and large woody debris, except where not appropriate (e.g. some Urban Forest Parcels).

- Restore aquatic habitat for native non-game fishes in streams that have been identified in the LTBMU five year restoration plan by removing stressors including but not limited to removal of invasive species such as warm-water fish.
- Participate with partner agencies to ensure native nongame fish status is current and accurate. Target to resurvey fish community sampling reaches at a minimum of every 10 years.
- Work collaboratively with partners to assess native non-game fish populations and implement habitat restoration strategies, such as warm-water fish removal.
- Support active restoration for native fishes where field data and other State, Federal, and other local agencies have determined that such species are at high risk of local extirpation.
- Maintain, restore, and/or enhance the ecological function and condition of shorelines, streams, lakes, wetlands (e.g., marshes, fens, springs, seeps, and lagoons), and/or meadows (wet and dry) in unstable or poorly functioning watersheds identified in the Lake Tahoe's Environmental Improvement Program or otherwise specified in species recovery plans.
- Promote actions that increase meadow wetness and diversity of native wetland species (i.e. obligate, facultative-wet).
- Use historical sedimentation regimes as a guide for ecosystem resiliency and/or vulnerability.
- Project activities should maintain or enhance groundwater connectivity in marshes and lagoons to maintain linkage with fluctuations in lake levels.
- Management actions should consider retaining barrier beach and lagoon formations and processes.
- Utilize prescribed fire in aquatic ecosystems where the use of fire is needed to improve habitat or the long-term function of these ecosystems. Ensure that fire intensity and severity (i.e. residence time) are consistent with the natural fire regime for the ecotype.

Terrestrial Habitats and Species

- Maintain, enhance, and/or restore terrestrial habitats to increase the diversity, abundance, and distribution of species and biological communities.
- Design management activities to maintain suitable habitat structure and function following implementation.
- Manage snags and coarse woody debris for wildlife habitat as part of forest health or fuels reduction treatments as well as post-disturbance restoration.
- Seek opportunities to develop and restore species migration corridors for terrestrial species.
- Maintain or restore habitat connectivity where appropriate to improve adaptive capacity. Collaborate with partners to establish priority locations for maintaining and restoring habitat connectivity.

- Maintain, enhance, or restore the physical and biological attributes of habitats where rare plants occur.
- Protect rare terrestrial ecological sites including, but not limited to Freel Peak, through restoration activities including, trail maintenance and signage.
- Develop a conservation assessment for Draba (asterophora var. asterophora and Draba asterophora var. macrocarpa). Ensure that management activities maintain, enhance and or restore rocky habitats that support healthy and sustainable populations of Tahoe draba (Draba asterophora var. asterophora) and long-petaled lewisia (Lewisia longipetala).

Invasive Species Management Strategies (Aquatic and Terrestrial) Strategies

- Treat high priority invasive species and site infestations. Treat medium and low priority infestations as funding and staffing levels allow.
- Work with partners to evaluate the use of all available treatments, including chemical, to treat invasive species.
- Use early detection techniques and implement integrated, scientifically-based, rapid response measures to limit the spread and/or eradicate new invasive species.
- Continue to invest in public education regarding invasive species.

Aquatic Strategies

- Implement aquatic invasive species control and/or eradication measures where there is high potential for effects to native species, ecosystem function and socioeconomic conditions.
- Use prevention measures, such as boat inspection, decontamination, and weed washing stations to reduce the spread or establishment of invasive species.
- Provide boat inspection and decontamination at Meeks and Echo Lake Marinas to prevent the spread of invasive aquatic plants, animals, and diseases from watercraft hulls, trailers, motors, bilges, live wells, and other fishing and/or water skiing equipment or integrate boat ramp operations with the current program established and operated at partner agency off-site inspection stations.
- Establish boat inspection and decontamination at Forest Service boat launch facilities or integrate such prevention activities at off-site stations.
- Establish non-motorized watercraft risk screening for aquatic invasive species at both Forest Service boat launches and other recreation facilities adjacent to Lake Tahoe water bodies, including campgrounds, resorts, and day use areas.
- Cooperate with the multi-agency Lake Tahoe Region Aquatic Invasive Species Program.
- Provide the public information about local Aquatic Invasive Species policies, where watercraft can be inspected and decontaminated prior to entering water bodies of the Lake Tahoe basin, and education regarding principles of cleaning, draining and drying for all watercraft at developed recreation facilities.

- Control existing or new populations of Eurasian milfoil, curly leaf pondweed, invasive warm-water fish, bullfrogs, Asian clam or other newly discovered populations of aquatic invasive species.
- Work with current partners (CDFG, USFWS, UC Berkeley, and Sierra Nevada Aquatic Research Laboratory) and others to document Bd fungus occurrence levels in both existing populations and historic habitats of Sierra Nevada yellow-legged frog.

Terrestrial Strategies

- Cooperate with the multi-agency Lake Tahoe Basin Weed Coordinating Group Program.
- Treat as many acres as feasible of non-native invasive plant species annually.
- In partnership with the Pacific Southwest Research Station's Institute of Forest Genetics Blister Rust Project, identify and collect seed from target tree species that exhibit rust resistance to white pine blister rust (target species are 5-needle pines: sugar pine, western white pine, and whitebark pine).
- All gravel, fill, or other materials are required to be "weed-free." Use onsite, sand, gravel, rock, or organic matter when available and appropriate. Otherwise obtain "weed-free" materials from gravel pits and fill sources that have been surveyed and approved by Nevada Department of Agriculture or by the LTBMU noxious weed coordinator.
- Identify and assess terrestrial wildlife invasive species during project planning. During planned restoration activities, consider terrestrial invasive wildlife.

Protected Activity Centers and Home Range Core Areas (PACs and HRCAs) Strategies

- Minimize potential for creating isolated PACs and HRCAs by maintaining habitat connectivity of the PACs/HRCAs with the adjacent forest.
- Collaborate with partners to establish priority locations for maintaining and restoring spotted owl habitat connectivity.

Species Refuge Areas Strategies

- Work collaboratively with the Tahoe Basin Recovery Implementation Team for LCT to implement the short-term recovery action plan.
- Work collaboratively with partners to identify and implement additional habitat restoration efforts that expand the range of SNYLF within historic habitat throughout the Basin.
- Continue to implement site-specific actions for Tahoe yellow cress in coordination with an interagency team.
- Maintain or enhance habitat connectivity to achieve recovery goals among Species Refuge Areas.

Biological Resources Objectives

Conservation of Habitat and Species Diversity Objectives

OBJ15. Restore a minimum of two fens that are assessed to be at risk of conversion to meadow, based on fen inventory and ranking assessment (California Native Plant Society and LTBMU data) within the life of the Forest Plan.

OBJ16. Restore stream segments with degraded habitat in a minimum of 2 streams using natural channel design methods/techniques to create elements such as large wood and pools in aquatic habitats to maintain or improve biological processes (e.g., expansion of native species populations), biological characteristics (e.g., species composition), physical processes (e.g., erosion and aggradation), and physical characteristics (e.g., channel and over-bank flows) within the life of the Forest Plan. This will provide important aquatic habitat needed to support all life history processes.

OBJ17. Restore a minimum of 1 site to support self-sustaining aquatic populations within the life of the Forest Plan

OBJ18. Within the life of the Forest Plan, maintain or increase vegetation cover in meadows where LTBMU data shows that cover is insufficient.

OBJ19. Identify cave, cave surrogate, and/or cliff sites that are important to the survival, migration, reproduction, and dispersal of dependent species where removal of human impacts will improve species success. Remove human impacts at a minimum of one site, during the life of the Forest Plan.

OBJ20. Restore a minimum of three willow flycatcher nesting habitats in historic and currently occupied habitats.

Invasive Species and Habitat (Aquatic and Terrestrial) Objectives

OBJ21. Screen hand-carried/non-motorized watercraft or show proof of boat inspection or decontamination at all staffed developed recreation sites (campgrounds, day use areas, resorts) check-in points (i.e. kiosks), within two years of the adoption of the Forest Plan.

Protected Activity Centers and Home Range Core Areas (PACs and HRCAs) Objectives

OBJ22. Restore six California spotted owl PACs (representing approximately 30 percent of the known territories in the Lake Tahoe Basin) during the life of the Plan; treatments would be designed based on restoration needs of the specific PAC.

OBJ23. Restore seven northern goshawk PACS (representing approximately 30 percent of the known territories in the Lake Tahoe Basin) during the life of the Plan; treatments would be designed based on restoration needs of the specific PAC.

Species Refuge Areas Objectives

Lahontan Cutthroat Trout

OBJ24. Establish at least one self-sustaining LCT sub-population in Fallen Leaf Lake, and implement appropriate conservation measures in Glen Alpine Creek in cooperation with the Lake Tahoe Basin Recovery Implementation Team by 2020.

OBJ25. Secure the existing Upper Truckee River (Meiss Meadows) LCT sub-population (four miles of stream habitat) through maintenance removal of brook trout by 2015.

OBJ26. Reestablish LCT in ten stream miles of the Upper Truckee River (from Meiss Meadows to the southern extent of Christmas Valley), in cooperation with California Department of Fish and Game by 2020.

OBJ27. Recover an additional seven subpopulations of LCT within fluvial and/or lacustrine ecosystems, as identified by the Tahoe Basin LCT Recovery Implementation team within the life of the Forest Plan.

Sierra Nevada Yellow-legged Frog

OBJ28. Collaborate with California Department of Fish and Game, US Fish and Wildlife Service, and Eldorado National Forest to identify and restore additional suitable habitat for SNYLF as deemed appropriate. Complete restoration of seven high alpine lakes (composed of habitat areas that would support four sub-populations) adjacent to current SNYLF populations in the Desolation wilderness by removing introduced trout species within the life of the Forest Plan.

OBJ29. Conduct physical habitat maintenance or enhancement that promotes long-term water availability and structural conditions to create areas for basking and/or cover, for the Hellhole SNYLF sub-population, within the life of the Forest Plan.

OBJ30. Within the life of the Forest Plan, maintain or expand fishless high elevation aquatic habitats near existing or historic SNYLF sub-populations where such habitats are determined to support SNYLF production and development and these actions will increase localized range of SNYLF.

2.2 Social and Economic Sustainability

Recreation Program Strategy

Recreation strategies are unique to the LTBMU which provides high quality opportunities and services to the millions of visitors who visit the basin annually. The recreation program should meet the desires of the recreating public, should be consistent with desired recreation settings and user experience, and should be aligned with the special and natural resources of the area. The recreation program must have the ability to adapt to changing recreation preferences. All developed recreation sites will continue to be well maintained, attractive, satisfying to the visitor, and compatible with management goals.

In general, management of developed recreation sites will focus on deferred maintenance and /or modification of existing facilities to achieve ecological, social and economic sustainability of the recreation setting before constructing new facilities to maintain exiting opportunities and to respond to appropriate future demand.

Recreation Opportunities Strategies

- As recreation trends and users change, recreation facilities and opportunities are adapted to provide intended user experience while being compatible with management goals.
- Use planning inventory and monitoring tools to identify changing desired recreation activities, settings, and opportunities.
- Provide opportunities for general forest undeveloped camping where applicable and where it meets management goals. Periodically review and update the forest camping order based on public health and safety, fire prevention goals, and resource protection and management capabilities.
- Enhance (e.g. mitigate), restore, or relocate federally owned facilities and public access sites that are impeding groundwater connectivity, lagoon function, or barrier beach formation, while maintaining or enhancing public access and recreation opportunities.

Access Strategies

- Maintain and enhance public access opportunities to Lake Tahoe shorelines and NFS lands.
- Coordinate management activities to minimize impacts to public access and recreational experience.
- Consider developed site design capacity and management capabilities when evaluating access.

Recreation Development Strategies

- Review and evaluate developed facilities to allow for future changes in site development when financially feasible and where appropriate to meet changing user demands.
- Create outstanding recreation opportunities through innovative sustainable facility design.
- Small increases in the number of overnight accommodation units (e.g. campsites, cabins), parking spaces, and developed acres would be allowed over the life of the plan.
- Modify developed recreation facilities where appropriate to meet changing user demands.
- Recreation activity on public lands will be improved by retrofitting existing recreation sites, converting existing sites to compatible uses, or expanding recreation sites or permit boundaries.
- Improve circulation and reduce congestion through capital investments.

Stewardship Strategies

- Manage recreation activities in sensitive environments to ensure continued access, avoid or mitigate environmental degradation, and maintain the setting and visual integrity.
- Enhance (e.g. mitigate), restore, or relocate federally owned facilities and public access sites that are impeding groundwater connectivity, lagoon function, or barrier beach formation, while maintaining or enhancing public access and recreation opportunity.
- Encourage partners and volunteer stewards to achieve recreation management goals.
- Implement measures to address hazards as they are identified.

Recreation Program Objectives

OBJ31. Complete LTBMU National Visitor Use Monitoring every 5 years and review for trends and visitor satisfaction.

Recreation Special Uses Program Strategy

- Permitted activities increase opportunities for recreation use while protecting the natural setting and resources. Recreation special use permits effectively leverage LTBMU's ability to provide recreation services.
- Evaluate existing recreation special use permits for deficiencies before considering new proposals.
- Address recreation special use deficiencies by:
    - Eliminating the backlog of expired authorizations;
    - Increasing monitoring and oversight of current authorizations; and

  - Completing appropriate level of environmental documentation.

- Issue new long-term recreation special use permits that expand opportunities in response to identified needs and management goals.
- Consider expansion of existing ski facilities based upon an accepted master plan for future facilities.

Interpretive Services Program Strategy

- Provide visitor information facilities and services at major entry points and areas of concentrated use using public/private partnerships, assists in orienting visitors to an area's special features, recreation opportunities, regulations, and services. Develop messages to forge emotional and intellectual connections between the interests of visitors and the meanings inherent in the resource.

- With the intent to inform the public about forest management strategies, provide appropriate interpretive signage, displays, publications, and programs at strategic Lake Tahoe Basin locations. Interpreters conduct presentations that are designed to provoke visitors to take informed actions related to sustaining Lake Tahoe Basin resources. Interpretive messages are delivered through a variety of learning styles to enhance overall understanding and effectiveness.
- Communicate and educate visitors, teachers, and students about the important role Interpretive Services plays in advancing current local, environmental and agency issues.
- Update and implement LTBMU's Conservation Education Strategy, Interpretive Services Master Plan, and Interpretive Services Program Strategy when feasible.
- Engage potential public/private partners to identify need and locations for joint visitor information facilities and services at major Lake Tahoe Basin entry points for the life of the plan.
- Evaluate the success of partnerships to leverage support, funding, and volunteers to enhance interpretive and educational programs, facility renovations, and site upgrades annually.
- Participate in partnerships to consider newly designated national scenic byways.
- Offer appropriate interpretive signage, displays, publications, and programs at strategic Lake Tahoe Basin locations.
- Update exhibits, displays, waysides, and programming to address current local, environmental and agency issues.
- Review and incorporate stewardship messages into every program annually to encourage public responsibility for protection of natural resources.
- Annually update interpretive materials about specific forest management activities to inform and educate the public about the benefits of the activity.

Interpretive Service Objectives

OBJ32. Within 10 years, develop an interpretive signage program on the East Shore National Scenic Byway in cooperation with Nevada Department of Transportation (State of Nevada).

Conservation Education Program Strategy

The Conservation Education program emphasis is to increase youth and adult environmental literacy about forests and natural resources. The program is developed through an interdisciplinary process, and the outcomes are designed to target specific audiences. Conservation education builds conservation capacity, nurtures future land stewards, and provides people with the tools they need to take informed actions related to sustaining natural and cultural resources.

- Advance the important role of Conservation Education in communicating and educating visitors, teachers, and students about current local, environmental and agency issues.
- Education programs should utilize established curricula.
- Emphasize the Forest Service mission and management approaches, natural resource protection, safety, and personal responsibility during forest activities.
- Engage partners, volunteers and local community members to implement objectives.
- Update the LTBMU Conservation Education strategy to reflect current projects, broad theme areas, educational goals, objectives, and an implementation action plan.
- Update and deliver training to Forest Service employees and partners in program delivery techniques for conservation education programs.
- Work with educators and partner organizations to create a network connecting educators to resource professionals and projects. Provide for meetings and field trips to stewardship project sites.
- Develop programs that encourage forest stewardship, including creating and implementing a K-12 Conservation Education program.
- Provide stewardship opportunities to community groups.
- Review and provide curriculum-based school programs that meet Nevada and California State standards.

Visitor Services Program Strategy

- Visitor information is provided through public/private partnerships throughout the Lake Tahoe Basin. The information includes maps, recreation opportunities, activities, attractions, regulations, and visitor education.
- Update exhibits, displays, waysides, and programming to more fully address current issues.

- Update interpretive materials about specific forest management activities to inform and educate the public about the benefits of the activity.

Scenic Quality Strategies

- Manage scenery to perpetuate the overall natural-appearing setting, protect significant scenic features, and ensure that development is appropriate for the area in which it is located in terms of size, mass, architectural style, and density.
- Consider the type, intensity, location, and visual characteristics of land use, visual dominance competition between the natural and built environments, and resource management actions, particularly in sensitive, undeveloped areas.
- Manage for scenic stability through actions that will enhance and protect desired scenic attributes through vegetation treatments to achieve High Minimum Scenic Stability (MSS), on a project-by-project basis over the Plan Period. Examples include aspen stand enhancements and riparian area restorations.
- Restore damaged landscape scenes (currently meeting Low or No Scenic Integrity Levels), to achieve the long-term guideline of High to Very High Minimum Scenic Integrity (MSI).

Cultural Resources Program Strategy

LTBMU's cultural resources program is focused on three main areas of resource management: 1) providing education, interpretation, and research opportunities; 2) protecting archeological, historical, cultural and traditional resources; 3) collaborative partnering with the Washoe Tribe and other heritage-resource interests.

Protecting cultural resources includes both proactive and reactive efforts, as well as offering support to other resource programs. Efforts and support activities include inventory, resource identification, documentation, evaluation, monitoring, consultation, nomination, preservation, stabilization, and/or restoration of cultural resources, under direction in Section 106 and 110 of the National Historic Preservation Act (NHPA). Most actions affected by Section 106 and 110 provisions are guided by Region 5's Programmatic Agreement with the California State Historic Preservation Office (SHPO) and the Advisory Council for Historic Preservation (ACHP).

- Through the Plan period, efficiently manage cultural resource databases to support resource management and research, in cooperation with the appropriate California and Nevada state agencies.
- Employ education and enforcement to deter vandalism.
- Implement restrictions, using permits and/or visitation controls, when necessary, to protect sites from physical damage and excessive wear and tear.
- Implement a policy of site avoidance to prevent physical damage to heritage resources during forest management activities.

- The cultural resources program will involve collaboration with site stewards; volunteers; State and other Federal agencies; local and tribal governments; schools and universities; and non-profit groups. Cooperative partnerships with organizations will provide site protection and facilitate development of research, educational, and interpretive opportunities. Public participation and partnerships in cultural resources management for these purposes will be increased.
- Address natural physical deterioration of cultural resources based on resource priorities and availability of funding.

Cultural Resources Objectives

OBJ33. Nominate for listing to the National Register of Historic Places - the Comstock Historic Logging District, Angora Lookout, Cave Rock, Hawley Grade, Camp Richardson Resort, Meiss Cabin and Barn, and Skunk Harbor on the National Register of Historic Places during the Plan period.

OBJ34. Within five years of Plan approval, development of a management plan for arborglyphs throughout the Lake Tahoe Basin.

OBJ35. Add new interpretive elements (i.e. signs, boards, graphics, or new publicly-available printed materials) highlighting historic or cultural areas not yet interpreted in the Lake Tahoe Basin, during the Plan period.

Tribal Relations Program Strategy

- Tribal input is solicited during all stages of planning processes. Existing agreements that allow the Tribe to manage vegetation resources in traditional use areas are maintained or enhanced, and tribal interests are integrated into LTBMU program areas where possible.
- Coordinate management where National Forest lands are adjacent to tribal lands.
- Continue support of the Washoe Tribe in pursuit of establishing a Washoe Cultural Center and a Washoe Tending and Gathering Garden.
- Continue to implement the agreement regarding use of traditional management techniques for Meeks Meadow.
- Work closely with tribes to ensure that cultural practices and traditional knowledge is preserved and made available to future generations through preservation of important resources and supporting traditional uses at Lake Tahoe.
- Support the Washoe Tribe’s goal of ensuring and increasing Tribal access to Lake Tahoe.
- Work cooperatively with the Washoe Tribe to maintain access to and protect the physical integrity of Cave Rock and other culturally important areas.
- Participate in additional LTBMU programs to enhance economic development opportunities for the Washoe Tribe (e.g. contracting, permits, employment). EO 13084-

Consultation with Indian Tribal Governments. EO 13175-Consultation with Indian Tribal Governments.

- Identify opportunities to incorporate tribal traditional management practices into projects to restore, enhance, and promote ecosystem health, in collaboration with the Washoe Tribe and native traditional practitioners.

Tribal Relations Objectives

OBJ36. Revise the consultation protocol defined in the 1996 Memorandum of Understanding between the LTBMU and the Washoe Tribe within five years of Plan approval.

Access and Travel Management Program Strategy

The strategy for achieving sustainable routes is to complete access and travel management (ATM) planning to identify needed routes, BMP needs, and restoration and reroute opportunities that will protect and enhance natural resources. The Travel Analysis process provides the guiding framework for Access and Travel Management planning for the National Forest Transportation System and the ATM process provides site specific analysis for implementation. The first round of ATMs are completed, for all roads and once complete for trails, routes will be revisited on a larger scale to determine the effectiveness of their implementation, and to address new and remaining issues related to fuel treatments, water quality, and recreation management. A greater emphasis will be put on strategic road and trail planning with the second round of ATMs, by analyzing existing alignments for impacts to resources and identifying reroute opportunities that allow for more sustainable operation and management.

Use of over-snow vehicles (OSV) on national forests is governed by the travel management regulations at 36 CFR 212.80-81, also known as Subpart C. These regulations state “Use by over-snow vehicles on National Forest System roads and National Forest System trails and in areas on National Forest System lands may be allowed, restricted, or prohibited (36 CFR 212.81). Areas open to use by over-snow vehicles on the LTBMU are shown on the LTBMU Snowmobile Guide map (USDA Forest Service LTBMU. 2010c). Enforcement is through Forest Order.

- Restore soil function and natural drainage on unclassified roads as identified in completed travel management plans.
- Manage motorized routes through a designated route system that is updated as necessary.
- Maintain and provide road signage for safety, regulatory, and guide purposes.
- Provide and maintain a system of universally accessible trails between communities and developed recreation sites.
- Provide route information, way-finding, and regulatory signage at access points and along trail lengths as identified in trail ATMs. Identify and map all FS trail system access points.
- Develop or adopt trails to provide an interconnected trail system for non-motorized uses.

- Maintain current levels of OHV access on roads and trails.
- Relocate OHV routes if opportunities exist to reduce impacts to resources.
- Maintain OSV access consistent with the LTBMU Snowmobile Guide.
- Develop partnerships with local and regional transportation and trail entities to prioritize, fund and implement projects seamlessly across jurisdictional lines.
- Reduce roadside parking in areas of high density use and provide for managed parking. Prioritize transit or alternatives to the private automobile where parking capacity is reduced.
- Update the road and trail inventory as necessary to reflect current access needs and resource impacts of the transportation system.
- Roads and trails are comprehensively planned as part of area-wide systems. Unauthorized roads and trails are effectively removed and restored, or adopted for management.
- Designated parking, loading, staging, trailheads, accommodate a variety of users. Use is managed to avoid, minimize, and mitigate impacts to natural, cultural, and scenic resources.
- Road management decisions are prioritized based upon public benefit and ability to eliminate deferred maintenance.
- Achieve common goals with other transportation entities.
- Manage transportation facilities to achieve resource management goals.
- Manage transportation facilities to anticipate future management access needs for both public and administrative purposes.
- Meet management objectives for the LTBMU's portion of the National Forest Transportation System
- Consider trail closure if use creates resource impacts that cannot be mitigated.
- Use the following guidelines when developing trails:
    - ◊ create loop systems where practical;
    - ◊ incorporate accessibility or universal design opportunities;
    - ◊ coordinate with partners, stakeholders, and local communities to integrate systems and provide experiences desired by users;
    - ◊ protect habitats and Wilderness;
    - ◊ feature natural attractions and be compatible with the ROS setting;
    - ◊ minimize conflicts between residential area users and OHV users.

Access and Travel Management Objectives

OBJ37. Implement BMP retrofits on 285 miles of NFS roads by 2025.

OBJ38. Implement BMP retrofits on 370 miles of NFS trails by 2025.

National Trails System Program Strategy

National recreation and scenic trails are predominately located on National Forest System lands. Trails outside wilderness are generally clearly marked and identified for users with the national recreation or scenic trail symbol, especially at the trail termini and junctions with side trails. Access allows for public use, interpretation, and education of specified features of the trail in a manner that does not impair the features for which the individual trail was established. These trails may pass through a variety of physical settings and the recreational opportunity spectrum (ROS) varies depending on the outstanding features of the trail and the surrounding physical setting.

National Recreation Trails Strategies

- Utilize partnerships to achieve management goals for National Recreation Trails.
- National trails meet the maintenance standards for the trail class and managed use.
- Limited recreation facilities, such as interpretive signs, viewing platforms, and benches may be present along the trail. Trailheads may offer amenities such as picnic facilities or interpretive information that enhances the experience of using the trail.
- Trailheads may offer amenities such as picnic facilities or interpretive information that enhances the experience of using the trail.
- Where the trail leads to an outstanding destination feature, the qualities of that feature are protected.
- Implement measures to protect areas of high ecologic value, such as rare plant sites or unique geologic features within the corridor, as needed.
- Preserve the scenic quality and character of the Nationally Designated Trails.

National Scenic Trails Strategies

- Utilize partnerships to achieve management goals for National Scenic Trails.
- National Scenic Trails are single track, linear features that pass through a great variety of physical features, ranging from natural-appearing settings to locations where developments are noticeable.
- While the setting is predominately wilderness, the trail occasionally passes through areas of more development where the wilderness ROS setting or the semi-primitive non-motorized setting is not met. Due to the linear nature of the trail, there may be occasional locations where the trail overlooks or intersects a major highway. Road crossings and designated motorized trail crossings and mechanized trail crossings are the only evidence of motorized and mechanized use.
- Manage the Pacific Crest Trail as a non-motorized and non-mechanized trail (i.e. hiking, pack and saddle, ski and snowshoe uses.).
- Emphasize preservation of the backcountry setting and rustic character of the trail and amenities along the trail.
- Restore areas and trail sections to maintain scenic objectives.

- Degraded destinations areas or trail sections are restored from an ecologic and trail perspective to provide for public use while improving the immediate foreground view from the trail and area focal points such as lakeshores.
- Where possible, trailhead parking facilities are located outside of the trail corridor and are generally not visible from the trail. Short spur trails connect the trailhead to the main trail. Outside of wilderness, the national scenic trail symbol is displayed at road crossings and at junctions with side trails.
- National trail easements are in place for those trail segments crossing non-federal lands. Management of the national scenic trail is coordinated between the affected administrative units.
- Areas of high ecologic value, such as rare plant sites or unique geologic features, may occur within the corridor and are protected.
- Limited recreation facilities, such as interpretive signs, viewing platforms, and benches are allowed along the trail. Trailheads may offer amenities such as picnic facilities or interpretive information that enhances the experience of the trail.
- Where the trail leads to an outstanding destination feature, the qualities of that feature are protected.
- Protect the foreground and middle ground scenic corridor.
- Restore areas and trail sections to maintain scenic objectives.
- Manage the Pacific Crest Trail as a non-motorized and non-mechanized trail.

Built Environment Program Strategy

Fire stations, administrative offices, work centers, barracks, water systems, waste water systems, campgrounds, resorts, day use areas, visitor information/education centers, dams, and other similar constructed elements are components of the federally owned facilities managed by the Forest Service. The Forest Service also maintains administrative and recreation facilities that support recreation opportunities and community services and meet national direction for sustainable operations. The number, distribution, condition, and variety of facilities are important in providing a quality visitor experience and meeting administrative and community goals. Priorities for construction, reconstruction or decommissioning facilities are based upon public benefit and ability to reduce deferred maintenance.

- Use the Recreation Facility Analysis (RFA) and *Facilities Master Plan* to reduce deferred maintenance backlogs consistent with national direction.
- Buildings and facilities are prioritized for construction, reconstruction or decommissioning based upon public benefit and ability to reduce deferred maintenance.
- Provide and operate reliable, adequately sized facilities that support administrative needs and recreation opportunities.
- Seek opportunities to reduce impervious coverage and soil compaction on low capability soils.

- Implement water and energy conservation measures at developed recreation and administrative sites.
- Reduce energy consumption associated with facilities operations and maintenance.
- Retrofit Forest Service owned facilities with water quality protection BMPs throughout the Plan period.
- Incorporate opportunities for use of public transit, or other alternative modes of` transportation into new facilities or those undergoing remodel, reconstruction, or retrofit.
- Incorporate energy efficiency, conservation, sustainable design principles, and "green" technologies into administrative and recreation facilities whenever possible during renovations, remodels, reconstruction, retrofit, or new construction to minimize operation and maintenance costs.
- The quality of the built environment should benefit from sound site planning as well as from low-energy and environmental design principles such as those embodied in the LEED program.
- Construct facilities that are economically feasible to maintain.
- Recreational facilities and trails are rehabilitated and/or maintained to improve the environment, the user experience, protect natural settings, restore cultural and historical areas, and enhance economic sustainability.
- The architectural character of administrative and recreation buildings, landscape structures, site furnishings, wayside structures, and signs installed or operated on NFS lands are planned and designed with aesthetic characteristics that respect the cultural and natural scenic quality of the Lake Tahoe Basin. The built environment is economically, environmentally, and socially sustainable.

Built Environment Objectives

OBJ39. Implement BMP retrofits at all USFS facilities (including visitor centers, campgrounds, and parking lots.) by 2025.

OBJ40. Develop, plan and schedule to adoption for retrofitting five developed facilities rated as Development Scale 3-5 to include universally accessible features by 2025.

OBJ41. Prioritize buildings and facilities for construction, reconstruction or decommissioning based upon public benefit and ability to eliminate deferred maintenance.

OBJ42. Maintain 15 administrative sites to standard by 2025.

OBJ43. Maintain 44 recreation sites to standard by 2025.

Lands Program Strategy

Program strategies for the LTBMU Lands program are:

- Trespass and encroachments should be resolved with the highest priority assigned to the following: 1) where public safety is threatened; 2) where damage to resources and/or resource values is occurring, or encroachment is interfering with resource management activities; and 3) where public access is interfered with.
- Continue to purchase small urban lots, subdivision lots less than 1 acre, in Placer County only, where lots with an IPES score of 725 or less are still unbuildable and qualify for acquisition under the Santini-Burton program.
- All other land purchases should be directed to parcels larger than one acre that include important resource or recreational values, improve access to National Forest System lands, protect environmentally sensitive land from development or consolidate or improve NFS land boundaries, eliminate inholdings and provide for more efficient and effective resource management.
- In El Dorado and Douglas Counties, consider accepting donations of small urban lots that are unbuildable due to their location in Stream Environmental Zones when they improve the ownership pattern and management efficiency.
- Retain National Forest System lands in the Lake Tahoe Basin in public ownership to fulfill the specific objectives for which they were acquired.
- Seek opportunities for land adjustments with State and Local governments that consolidate ownership and improve management of urban lots.
- When approving erosion control grant projects, consider transfer of ownership to grantees when the proposed improvements encumber twenty-five percent or more of the lot.
- Consider authorizing small scale renewable energy projects, such a site specific solar, when they are compatible with other resource objectives and meet scenic resource standards.
- There are no major utility transmission corridors currently designated in the Lake Tahoe Basin. Such corridors should not be designated at Lake Tahoe due to their incompatibility with the scenic, recreational and other resource values at Lake Tahoe.

Research and Monitoring Projects Strategy

- Actively seek and encourage research activities that may be beneficial in informing management of NFS lands. Routinely evaluate research findings to inform adaptive management.

Santini-Burton Acquired Lands/Urban Forest Parcels Program Strategy

Santini-Burton acquired lands are located throughout the Lake Tahoe Basin. In general, desired conditions, management strategies and management objectives are consistent with those

associated forest-wide with the General Conservation and Transition Management Areas, dependent upon where the acquired lands exist on the landscape.

The Urban Forest Parcel Conservation Area subset of the Santini-Burton Management Area has more specific strategies and objectives than those found in other Management Areas.

The Forest Service manages urban forest parcels as undeveloped open space for the purpose of preserving the hydrologic function of sensitive lands and conserving natural forest conditions within the urban setting.

- Manage urban forest as undeveloped parcels that provide open space and dispersed recreation opportunity.
- Manage stand densities on urban forest parcels to achieve and maintain healthy forest characteristics.
- Manage the continuity and arrangement of live and dead fuels to reduce risk of catastrophic fire, and to complement defensible space efforts on adjoining private lands. Urban Forest parcels are located within the urban zone of the wildland urban interface (WUI).
- Retain, protect, and restore aspen and riparian plant communities to enhance wetland function and provide habitat for disturbance tolerant species that utilize urban forests.
- Restore areas of existing human-caused disturbance, generally related to residential development, to control erosion and support natural watershed function.
- Prevent the introduction of non-native, invasive species and noxious weeds and contain existing populations.
- Mitigate all identified hazard trees as quickly as possible.

Santini-Burton Acquired Lands/Urban Forest Parcels Objectives

OBJ44. Complete initial fuels reduction and forest health restoration treatments as needed on all urban forest parcels within five years of Forest Plan adoption.

OBJ45. Conduct follow-up fuels treatments every 10-15 years in urban forest parcels.

OBJ46. Restore and re-vegetate areas of existing disturbance on up to 20 urban forest parcels annually.

2.3 Management Areas and Suitable Uses

Introduction

NFS lands are generally available for a variety of multiple uses, although not all uses and activities are suitable for all areas. The LTBMU has identified suitable uses and activities for various areas of NFS Lake Tahoe Basin lands called *management areas* (Table 4, and Map 2). This section describes general land use suitability for each management area. Identification of an area as suitable, suitable with restrictions, or not suitable for a use or activity provides guidance for making decisions about proposed projects and activities, but does not constitute a commitment or a decision to approve any particular projects or activities. Identification of suitable uses for the management area is often one of several steps in determining whether a project or activity is suitable in a given location. See the *Forest Plan Consistency* section in the *Introduction* for more detail.

Table 4. LTBMU Management Areas and acreage

Management Areas		Acres
W	Wilderness	24,670
BC	Backcountry (IRA)	41,813
GC	General Conservation	75,432
SB	Santini-Burton Parcels	12,925
	NFS Lands Total Acres	154,840

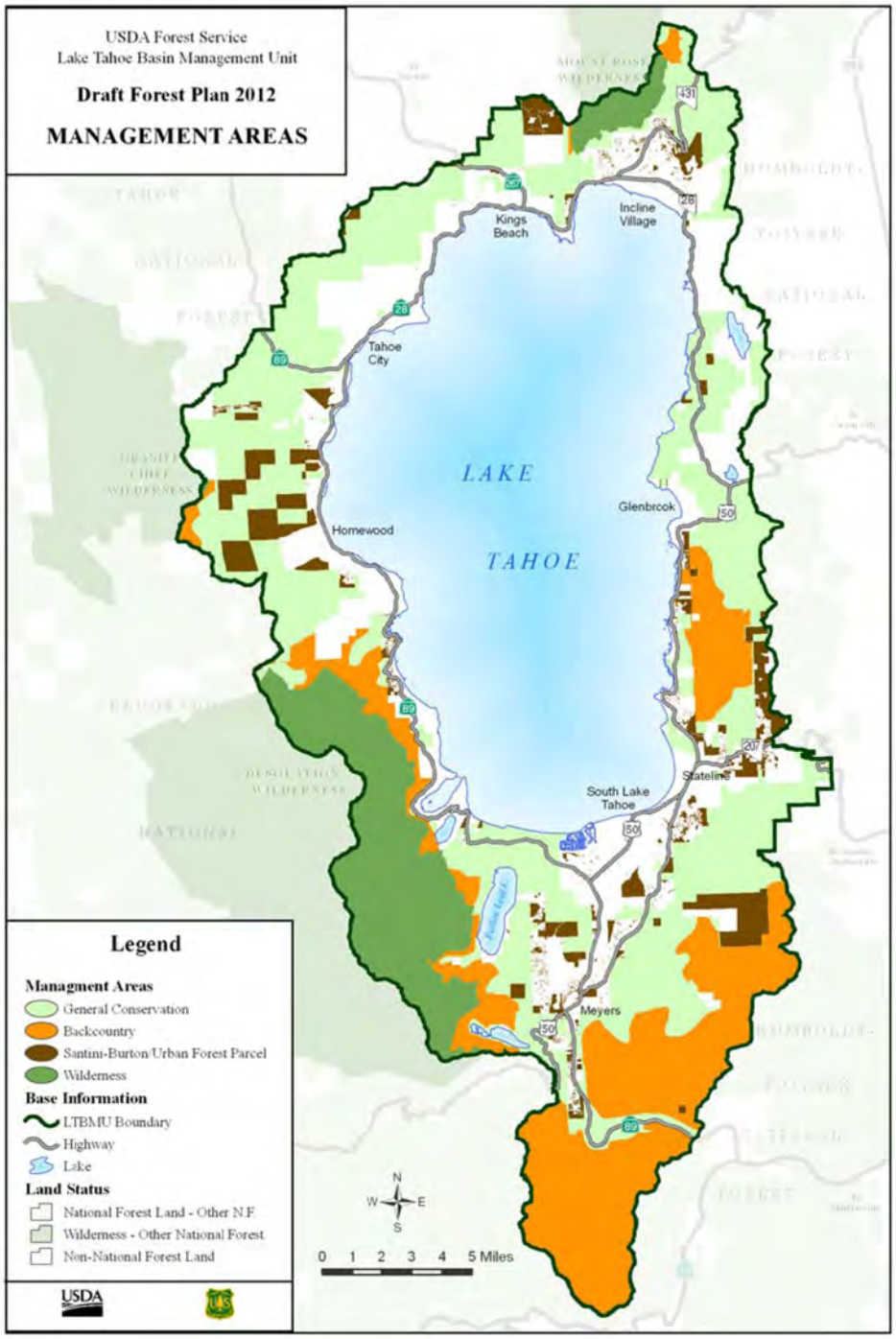


Figure 4. LTBMU Management Areas by category

Wilderness Management Area

Management Concept*:* natural processes, regulated use, preservation management

Portions of Desolation, Granite Chief, and Mt. Rose Wilderness areas are located within the administrative boundary of the LTBMU and are part of the National Wilderness Preservation System – as designated by Congress – to provide present and future generations the benefits of an enduring resource.

Wilderness lands appear primarily affected by the forces of nature. Scenic integrity is very high; the valued landscape character is intact and appears unaltered. Wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation, yet is accessible to many. Wilderness areas offer places of undisturbed purity for people seeking natural scenery. Facilities and infrastructure to support dispersed recreation are limited, and do not conflict with the landscape character or interfere with natural ecosystem processes.

Wilderness lands are of sufficient size to make preservation and use in an unimpaired condition practicable. Natural processes and disturbance events (fire, insects, disease, and floods) shape vegetation composition and structure and landscape patterns.

These areas help sustain ecosystem function and species diversity by serving as habitat for fauna and flora and providing wildlife corridors. Wilderness may also provide ecological, geological, or other features of scientific, educational, scenic, or historical value.

Wilderness Area	Acres
Desolation	22,038
Granite Chief	46
Mt. Rose	2,586
Total	24,670

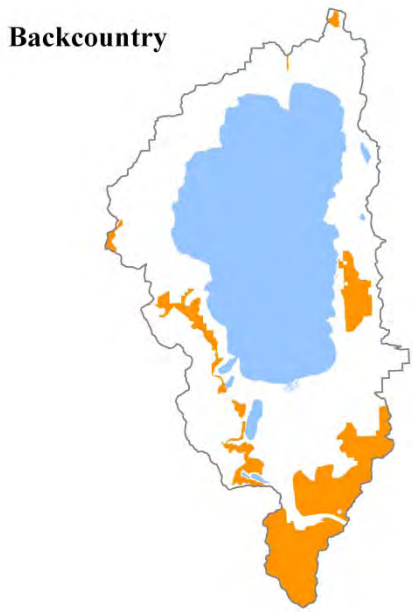
Generally Suitable Uses: Suitable uses in wilderness are defined in the Wilderness Act.

Backcountry Management Area

Management Concept*:* natural landscapes, dispersed non-motorized use, limited management

The LTBMU manages approximately 46,000 acres of Backcountry on NFS lands; some areas are adjacent – or contiguous – to existing Wilderness (i.e. Pyramid, Mt. Rose, and Granite Chief). Other lands designated as Backcountry are larger blocks of unroaded areas including the Dardanelles/Meiss, Freel Peak, and Lincoln Creek. A full evaluation of the Wilderness potential for these lands is located in the plan set of document report, Evaluation of Areas for Potential Wilderness. On these lands, natural ecological processes are primarily free from human influences. The landscape is predominantly shaped by natural processes and disturbance events such as vegetative succession, fire, insects attack, disease outbreak, and floods. Scenic integrity is high; the valued landscape character appears intact.

Backcountry areas offer a recreation experience similar to Wilderness, with places for people seeking natural scenery and solitude. Primitive and semi-primitive recreation opportunities include hiking, camping, wildlife viewing, and cross-country skiing, in addition to activities not allowed in Wilderness areas (e.g., mountain biking, snowmobiling). The characteristic ROS setting is Semi-Primitive Non-Motorized.



Management activities that support administrative and dispersed recreation activities are minimal, but may have a limited influence. Limited roads may be present in some backcountry areas; road reconstruction may be permitted on Backcountry lands where additional restrictions do not apply. Backcountry areas contribute to ecosystem and species diversity and sustainability, serve as habitat for fauna and flora, and offer wildlife corridors. These areas provide a diversity of terrestrial and aquatic habitats, and support species dependent on large, undisturbed areas of land. Backcountry areas are managed to preserve and restore healthy watersheds with clean water and air, and healthy soils. Watershed processes operate in harmony with their setting, providing high quality aquatic habitats.

Generally Suitable Uses: uses and activities that do not require construction of permanent roads and are compatible with the ROS class.

General Conservation Management Area

Management Concept*:* Roaded landscapes, active management

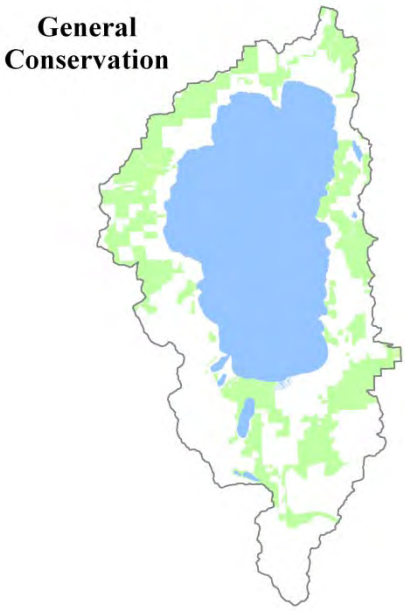
This management area includes a broad spectrum of landscapes, activities, and uses, ranging from relatively unaltered lands to intensively managed recreation settings. General Conservation lands include three subcategories of management emphasis: Roaded Backcountry, Transition lands, and Recreation Emphasis lands. Activities and uses in General Conservation Mangement Emphasis Area are guided by Forest-wide management direction, including the standards and guidelines associated with specific resource overlays.

Generally Suitable Uses: most activities and uses permitted by law on NFS lands.

Roaded Backcountry

Management Concept*:* natural landscapes, motorized and non-motorized use, active management

Roaded Backcountry lands lie beyond the Transition lands that separate them from the urban areas, and generally are not immediately adjacent to Lake Tahoe. Examples include the middle and upper portions of many watersheds, such as Blackwood Canyon, Oneidas, and areas such as Genoa Peak and Mt. Wilson. Included are NFS lands that do not have any other special designation that specifically defines their use; management is prescribed by Forest staff to attain forest-wide desired conditions. These relatively unaltered lands are places where active management is conducted for purposes of meeting a variety of social, economic, and ecological objectives. These lands are generally ½ mile beyond the places where people live and work, and often provide access to the Wilderness and Backcountry areas.



Succession, fire, insect attack, disease outbreak, floods, and other natural processes and disturbance events predominantly shape the composition, structure, and landscape patterns of the vegetation, although management activities may also have an influence. Scenic integrity is moderate or appears slightly altered.

Places for people seeking natural scenery and solitude are available in some areas. In other areas, motorized and non-motorized recreation opportunities are easily accessed by the roads found on these lands, and users of hiking trails can expect encounters with others. Developed

facilities may be present, but are not common. The areas are generally classified as Roaded Natural or Semi-Primitive Motorized.

These areas contribute to ecosystem and species diversity and sustainability; serve as habitat for fauna and flora; and offer wildlife corridors. A mosaic of vegetation conditions is often present, some areas showing the effects of past management activities, other areas appearing predominantly natural. Water quality is excellent in most streams and lakes, and aquatic habitats support desired species, although restoration activities may be needed to mitigate past disturbances and restore natural stream processes and habitats. Soil quality is close to optimum throughout most of the management area.

Transition

Management Concept*:* altered landscapes, motorized use, active management

Transition lands are LTBMU lands within one half mile of the TRPA-defined Urban Boundary. These lands are closely associated with communities, as well as with the houses, structures, people, and values associated with them. Individual and family histories may be closely interwoven with these lands. Consequently, residents may have strong attachments and feelings of ownership, which lead to a higher level of public scrutiny and sensitivity to management activities in these areas.

Lands within this zone provide balance between the human-dominated urbanized environment and the natural processes of ecosystems in the general forest. These lands are highly used by the public. Hiking, biking, and dog walking are common activities. A wide range of development is present, such as roads, trails, fences, and signage. The Rural and Roaded Natural ROS setting provided by many of these lands is an amenity serving the active lifestyles and enhancing the quality of life of local residents.

To conserve natural resources and maintain quality recreation opportunities, transition lands are intensively managed in close coordination with affected communities. Because these lands lie within the Wildland Urban Interface (WUI), vegetation and fuels are aggressively managed in order to reduce risks to community health and safety. Cooperation and partnerships with adjacent landowners and local governments are used to improve authorized legitimate access to public lands, convey roads to county jurisdictions, and improve transportation networks where appropriate.

These areas contribute to ecosystem and species diversity; physical and biological resource conditions are managed carefully due to the high level of use and close proximity to highly-developed lands.

Recreation

Management Concept*:* altered landscapes, infrastructural investment, motorized and non-motorized use, active management

These lands are associated with – and often provide access to – popular destinations (such as beaches, resorts, historic sites, interpretive centers, scenic vistas, lakes and streams, and regional trails). They are places subject to high levels of recreation use, ranging from modified natural settings (with few permanent developed facilities, primarily for resource protection) to highly modified natural settings (with permanently developed facilities for visitor convenience).

Recreation emphasis lands provide rich and diverse opportunities for recreation activities in a variety of well-designed, well-maintained, safe, and accessible settings. The uses associated with these lands contribute substantial socioeconomic benefits to the community in the form of jobs, income, access to public lands, and quality of life.

Scenic integrity is predominately between low and moderate, but developed facilities are aesthetically incorporated into the landscape. Forest management activities are carried out in ways that enhance scenic integrity. These lands are characterized by Roaded Natural, Rural, and Urban ROS settings.

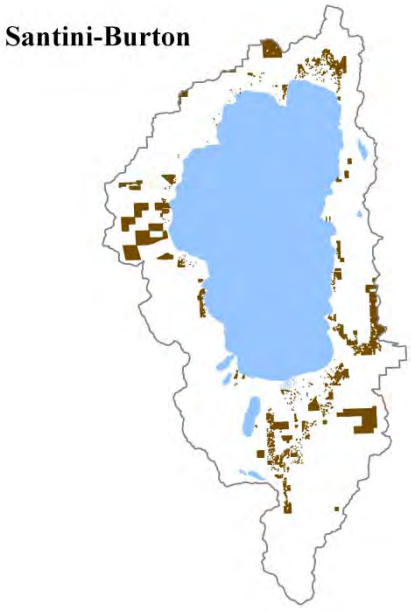
Recreation emphasis lands have varying degrees of long-term development, infrastructure investment, and human alteration, often resulting in lasting changes to ecological composition, structure, and function. These lands provide wildlife habitat for species tolerant of human presence.

Santini-Burton / Urban Forest Parcels Management Area

Management Concept*:* protected and undeveloped landscapes, active management

Lands acquired under the Santini-Burton Purchase authority comprise this management area. In 1980, Congress passed the Santini-Burton Act, Public Law 96-586, which authorized the Forest Service to acquire environmentally sensitive lands within the Lake Tahoe Basin to protect them from development.

This management area includes a management subset, Urban Forest Conservation Area, comprised of numerous small urban forest parcels (urban lots) that are located within the TRPA-defined Urban Boundary. These urban lots are public inholdings among privately-owned developed parcels and are generally not adjacent to other NFS lands.



Management within the Santini-Burton / Urban Forest Parcel Management Area is focused on preserving the environmental quality and public recreational use of the acquired lands. The primary distinction between this management area and the General Conservation and Transition Management Areas is that the management emphasis is on protecting watershed conditions and community open space.

Urban Forest Parcels provide opportunity for dispersed recreation within the urban setting, such as walking/hiking, wildlife viewing, cross-country skiing, and access to streams and lakes. When appropriate, recreational improvements such as system trails and bike trails may occur on urban forest parcels. Development is prohibited on these environmentally sensitive lands except for dispersed recreation and erosion control improvements.

Generally Suitable Uses: improvements are generally not suitable except for dispersed recreation and erosion control.

Suitable Uses and Management Practices by Management Area

National Forest System lands are generally available for a variety of multiple uses, although not all uses are suitable for all areas. Section 6 (g) of the Resource Planning Act of 1974 (RPA), as amended by the National Forest Management Act of 1976 (NFMA), requires "the identification of the suitability of lands for resource management"(RPA 1974, pp. 4-9).

Suitability is defined as “The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of economic and environmental consequences and the alternative uses forgone. A unit of land may be suitable for a variety of individual or combined management practices” (36 CFR 219.3).

Suitability is expressed as suitable, not suitable, or with restriction. Restrictions have several sources depending on the legal, policy or permitting language that applies to the activity.

S - Suitable
N - Not Suitable
R - Restrictions:

- Restricted by law (i.e. Wilderness Act, Desolation Wilderness)
- Restricted by designation (i.e. Grass Lake Research Natural Area)
- Restricted by Forest Order (i.e. Motor Vehicle Use, Over Snow Vehicle Use)
- Restricted by another decision (i.e. mountain biking on the Pacific Crest Trail)
- Restricted by management direction within this plan
- Restricted to authorized use only (i.e. communication sites)

This section describes common activities and land uses expected to occur on NFS lands within the Lake Tahoe Basin. The general suitability of activities and uses by management area is displayed below (Table 5). Descriptions of these activities and uses follow the table.

Table 5. Suitable Uses and Management Activities by Management Area

Suitable Uses or Management Activities	Wilderness	Backcountry	General Conservation	Urban Forest Parcels
Ecosystem Restoration:				
Fuels Reduction	N	S	S	S
Vegetation Restoration	R	S	S	S
Managed Wildfire	S	S	R	N
Prescribed Burning	R	S	S	S
Stream Channel Floodplain Restoration	R	S	S	S
Soil & Water Restoration	R	S	S	S
Species Recovery Habitat Restoration	R	S	S	S
Invasive Species Management	R	S	S	S
Re-vegetation	R	S	S	S
Recreation:				
Developed Recreation Sites*	N	N	S	N
Dispersed Recreation Sites	R	R	S	N
Recreation, Non-motorized Use	S	S	S	S
Permitted Uses – Recreation:				
Resorts*	N	N	S	N
Recreation Residences	N	N	S	N
Ski Areas*	N	N	S	N
Ski Slope/Trail	N	R	S	N
Organization Camps	N	N	S	N
Outfitter and Guide Service	S	S	S	S
Events	N	R	R	R
Infrastructure:				
Administrative Facilities	N	N	S	N
Roads	N	N	S	R
Motorized Use of Roads	N	R	S	R
Trails	S	S	S	R
Motorized Use of Trails	N	R	R	N
Mechanized Use of Trails	N	R	S	S
Motorized Cross-country Travel	N	N	R	N
Over Snow Vehicle Travel	N	R	R	N
Permitted Uses – Non-Recreation				
Communication Sites	R	R	R	N
Transportation Related	N	R	S	N
Utilities	N	R	R	R
Urban Stormwater Treatment	N	N	S	S
Community Use and Public Information	N	N	S	R
Non-Timber Forest Products	N	S	S	R
Production Livestock Grazing	N	N	R	N
Research and Monitoring	S	S	S	S
Special Events	N	S	S	R

*Facility expansion limited to 5% as described in DEIS

Ecosystem Restoration

Fuels Reduction –Activities focused on reducing risk to people, property, infrastructure, and natural and cultural resources, by removal, utilization, and/or rearrangement of natural and residual activity generated fuels. Activities include but are not limited to various silvicultural practices using mechanical, aerial, and/or hand treatments, prescribed fire, reforestation, and chemical application.

Vegetation Restoration – A full suite of activities that contribute to the sustainability and restoration of desired conditions for forest health including habitat and vegetation structural attributes. Invasive plant species, insects, and disease will be managed as an integral part of the restoration program. Activities include but are not limited to various silvicultural practices using mechanical, aerial, and/or hand treatments, prescribed fire, reforestation, chemical application, clearing of trees encroaching upon meadows, human access control, control of invasive species, and maintenance of snags and down logs.

Managed Wildfire - the management of naturally ignited fires to achieve resource desired conditions and objectives where fire is a major component of the ecosystem.

Prescribed Burning - Igniting fires in order to achieve a management objective and/or a desired condition. This includes understory burning, pile burning, and broadcast burning. Managed active burning will be prescribed and monitored to burn at specified intensities over a defined area.

Stream Channel/Floodplain Restoration - Includes activities to restore geomorphic function and high quality habitat features to stream channels and adjacent floodplains. Activities include constructing new stream channels/floodplain and/or stabilizing and improving existing channels/floodplain. Restoration can also include removal or upgrades to in-channel infrastructure such as channel crossings or dams/diversion.

Soil and Water Restoration – Includes activities to maintain and restore soil function, and surface and groundwater hydrologic function. Activities include restoring compacted/disturbed soils, surface and soil organic matter, understory vegetation, and surface water drainage pathways. Restoration can also include removal of obsolete/legacy infrastructure such as asphalt, concrete, foundation, and drainage ditches.

Species Recovery and Habitat Restoration (aquatic and terrestrial) - Includes activities to recover and or restore biological processes and function of selected species and habitat. Restoration activities can occur in special habitats including, but not limited to, meadows, aspen stands, and or other habitats of importance to the recovery and restoration of a species. Recovery and restoration activities may include, but are not limited to vegetation thinning, fire (prescribed or natural), hydrologic modifications (i.e. removal of head cuts), introduction or re-introduction of a selected species, as well as removal, by various methods, of invasive species.

Invasive Species Management (aquatic and terrestrial) – Includes activities that prevent, control, and eradicate invasive species. Activities may include, but are not limited to outreach and education, inspection station, manual removal, chemical and biological removal, as well as thinning and fire.

Re-vegetation – Includes re-vegetation using primarily native seeds and transplants following the Native Plant Material Policy (FSM 2070 Vegetation Ecology). Re-vegetation activities may occur, but is not limited to, project areas such as on, trails, roads, in post-fire areas (prescribed and natural), at facilities, as well as in restoration.

Recreation

Developed Recreation Sites – Distinctly defined areas where facilities are provided for concentrated public use. Included are campgrounds, picnic sites, swimming beaches, interpretive centers, visitor information facilities, trails and parking and utility services associated with these facilities.

Dispersed Recreation Sites – Includes trailhead parking, small remote camping sites, interpretive sites, vista points, OHV staging areas, and toilets. Also included are structures or features needed to reinforce sites to protect the environment and enhance the quality of the visitor experience.

Recreation, Non-motorized Use - Includes activities such as hiking, climbing, fishing, camping, swimming, sunbathing, sightseeing, guided interpretive activities, nature viewing, picnicking, informal sporting activities, non-motorized boating, equestrian use, cross-country skiing, snowshoeing, and snow play.

Permitted Uses – Recreation

Resorts– Resorts are concessioner or government owned developments on NFS lands that include a complex of enterprises. They may include activities such as overnight accommodation, marinas, outfitting and guiding services, events, restaurants, retail, and day use (e.g. Zephyr Cove Resort) Some resorts accommodate primarily winter based recreation activities, but may also be used for summer recreation purposes (e.g. Heavenly Mountain Resort).

Ski Slope/Trail – Concessioner operated alpine or Nordic ski slopes and trails on NFS lands to accommodate winter based recreation activities. For alpine skiing, this use generally involves NFS lands without lifts on groomed or ungroomed trails. Alpine ski slopes and trails occur primarily in those situations where the majority of a large ski area operates on adjacent private lands (e.g. Homewood Mountain Resort). For Nordic trails, this use generally involves setting groomed ski tracks to enhance cross-country and skate-skiing opportunities (e.g. Spooner Cross-Country Ski Area).

Recreation Residences – The term "recreation residence" includes only those residences that occupy planned, approved tracts or those groups of tracts established for recreation residence use. See FSM 2347 for basic policy on recreation residence use.

Organization Camps – This designation includes camps of a public or semipublic nature that are developed by the special use authorization holder, by the Federal Government, or jointly by both. Normally, only nonprofit organizations or governmental agencies qualify for special use authorization in this category.

Outfitting and Guiding Service - This designation includes all commercial outfitting and guiding services for accommodating guests, transporting persons, and providing equipment,

supplies, and materials to NFS lands. This designation also includes commercial guiding activities wherein the guide furnishes personal services or serves as a leader or instructor.

Events – This designation includes organized events of a temporary nature such as races and festivals.

Infrastructure

Administrative Facilities - Includes offices, fire stations, lookouts, installations for research, and work centers.

Roads - Includes the construction, reconstruction, maintenance, and decommissioning of National Forest System (NFS) roads for motor vehicle use. (See Motor Vehicle Use Map for Designated Travel Routes)

Motorized Use of Roads – Roads open to all motor vehicles including smaller off highway vehicle that may not be licensed for highway use. (See Motor Vehicle Use Map for designated travel routes)

Trails - Includes the construction, reconstruction, maintenance, and decommissioning of NFS trails for allowed uses. (See Motor Vehicle Use Map for designated trails)

Motorized Use of Trails – Motorized use on trails such as OHV's, and Motorcycles (See Motor Vehicle Use Map for designated trails).

Mechanized Use of Trails - Includes use of mechanized equipment, such as mountain bikes.

Motorized Cross-country Travel - Motorized Cross-country travel such as OHV's or Motorcycles.

Over Snow Vehicle Travel (OSV) – Over-Snow Vehicle (Snowmobile) use on national forest lands (See LTBMU Snowmobile Guide for areas open to over-snow vehicle use).

Permitted Uses- Non-Recreation

Communication Sites – Sites designated for the location of communication facilities, including broadcast radio and television, cable television, microwave for industrial and common carriers, cellular telephone, land-line telephone, and amateur and mobile radio transmission and repeater sites. (See Map 8, Communication Sites for designated Communication Sites.)

Transportation Related – Includes facilities such as avalanche control centers, maintenance yards, storage facilities, airport navigation beacons, Department of Transportation easements, private party easements, and rights of way.

Utilities – Includes underground and overhead alignments for utilities including fiber optic, telephone, cable, water, sewer, and electricity distribution facilities. It also includes specific sites for wells, water tanks, springs, dams, pump stations, fish ladders, water diversion, reservoirs, and other utilities.

Urban Stormwater Treatment Projects – Includes special use permits to authorize use of NFS lands for urban storm water projects for treatment and control of runoff from urban areas and highways.

Community Use and Public Information – Includes permitted land uses such as non-commercial group use, monuments, markers, signs, benches, interagency visitor centers, amphitheaters, museums, transit centers, and cultural centers.

Non-Timber Forest Products – Includes commercial and non-commercial collection of materials such as firewood, plants, mushrooms, berries, biomass, pine cones, extractives, Christmas trees, and boughs.

Production Livestock Grazing – Authorized use and management of NFS lands for the purpose of livestock production, utilization of forage resources by livestock, and/or coordination of livestock grazing with other uses. Site specific environmental analysis is needed to determine the suitability of this activity on the single vacant grazing allotment on the LTBMU.

Permitted Research and Monitoring – Includes the temporary use of NFS lands for monitoring, sampling, and data collection in support of private and public research projects such as stream gauges and air and water quality monitoring stations, and may involve sampling programs, research experiments, and erosion control and water quality monitoring.

Permitted Temporary Activities – Includes the temporary use of NFS lands for activities such as weddings, commercial filming and commercial still photography, training, commercial special events, and vendors.

Lands Suitable for Timber Production

There are no lands on the LTBMU where timber "production" is either a primary or secondary objective or goal. Timber output may be an incidental product from silvicultural prescriptions designed for other purposes, and timber harvest is seen as a "tool" for accomplishing other objectives such as restoration and fuels hazard reduction (Table 6, Category 3b). There is no intent of producing a sustainable timber harvest over time on any lands in the Lake Tahoe Basin. Therefore, there are no acres of lands suitable for timber production (Table 6, Category 3a).

Table 6. Summary of Available Areas for Timber

Category	Acres	Acres Generally Not Available for Timber Harvest	Acres Generally Available for Timber Harvest	Acres Not Suitable for Timber Production
1. Total National Forest System Lands within the plan area	153,820			
2. Lands generally not available for timber harvest (sec. 62.1)		50,956		50,956
a. Lands not available for timber harvest due to statute, Executive order, regulation, policy or physical and biological conditions (sec. 62.1)		25,016		
b. Lands where timber harvest is not compatible with desired conditions and objectives (sec. 62.1)		25,940		
3. Lands generally available for timber harvest (sec. 62.2)			102,864	
a. Lands suitable for timber production (sec. 62.21)*			0	
b. Other lands where trees may be harvested for multiple use values other than timber production (sec. 62.22)			102,864	102,864
4. Lands generally not suitable for timber production, all lands except 3(a). (sec. 62.3)				153,820

*Timber production achieves or is consistent with desired conditions and objectives.

2.4 Designated Special Areas

Special Areas are NFS lands designated as such because of their unique or special characteristics (reference Plan Maps 3 and 4). Special Areas include special interest areas (SIAs), research natural areas (RNA), Nationally Designated Trails, and other specially-designated sites. Special Areas will continue to be managed consistent with preservation of the values for which each Special Area was designated, as described below.

Wilderness Areas

Desolation Wilderness

Desolation Wilderness consists of 63,960 acres of sub-alpine and alpine forest, granite peaks, and glacially-formed valleys and lakes. It is located west of Lake Tahoe in El Dorado County, California and was designated in 1969. Desolation Wilderness is jointly administered by the Eldorado National Forest and Lake Tahoe Basin Management Unit.

Desolation Wilderness is managed according to the Wilderness Act of 1964 to "ensure an enduring resource of Wilderness for present and future generations." The wilderness character of Desolation and its values of solitude, physical and mental challenge, scientific study, inspiration and primitive recreation will be protected, and where necessary, restored. Natural ecological conditions will be preserved under a concept of non-degradation, to prevent loss of naturalness or solitude.

Granite Chief Wilderness

Granite Chief Wilderness was designated in 1984 because of its pristine nature, natural beauty, and potential to provide primitive, non-motorized recreational opportunities. The Tahoe National Forest is the lead forest and manages this 25,680-acre wilderness. Only 46 acres are located within the LTBMU.

Mt. Rose Wilderness

The 30,000-acre Mount Rose Wilderness was designated by Congress in 1989. The Humboldt-Toiyabe National Forest is the lead forest. The LTBMU shares management responsibility on 2,586 acres located within the Basin. Located in Nevada, between the Sierra Nevada mountain range and the Great Basin, the wilderness is named after the highest peak in the Carson Range. The summit of Mount Rose is at 10,776 feet elevation, and is accessible via a strenuous 12-mile round trip hike. Due to its proximity to urban centers (adjacent to Reno and communities of north Lake Tahoe) Mount Rose is easily Nevada's most heavily used Wilderness; however, portions of the interior hide small meadows and smaller lakes that are less frequented by humans.

National Trails System

Pacific Crest Trail, National Scenic Trail

National Scenic Trails are designated by an act of Congress. The Pacific Crest Trail is a 2,650-mile national scenic trail that runs from Mexico to Canada through California, Oregon, and Washington. Twenty eight miles of the PCT wander in and out of the LTBMU's western administrative boundary. Permit quotas and fees required for overnight camping in Desolation Wilderness do not apply to thru hiking on the PCT, as long as at least two Wilderness areas are visited. Day hiking and overnight backpacking can both be initiated at the Echo Lake trailhead and the PCT is open to equestrian use.

National Recreation Trails

National Recreation Trails (NRT) are authorized under the National Trails System Act of 1968 (Public Law. 90-543, as amended through P.L. 111-11, March 30, 2009) (also found in *United States Code*, Volume 16, Sections 1241-1251) and designated by the Secretary of Agriculture.

Tahoe Rim Trail

The Tahoe Rim Trail (TRT) is a 166-mile trail that circumnavigates Lake Tahoe's ridges and mountaintops. Ninety-six (96) miles of the TRT was designated a part of the National Trail System due to its historical features, landscape and water features, scenic qualities, and recreation opportunities it offers. Along the west shore of Lake Tahoe, 49 miles is part of the Pacific Crest Trail, National Scenic Trail. The TRT offers outstanding views of Lake Tahoe and surrounding mountain peaks, forests, and meadows that form the Lake Tahoe Basin. The trail passes through two states (California and Nevada), six counties, the LTBMU, the Eldorado National Forest, Humboldt-Toiyabe, and Tahoe National Forests, and Nevada state park lands.

Pope-Baldwin Bicycle Trail

The Pope-Baldwin Bicycle Trail was designated a national recreation trail in 1979 due to the exceptional scenic and recreational opportunities it offers. Pope-Baldwin Bicycle Trail is a 3.3 mile long paved bicycle trail that traverses an area offering scenic views and extensive recreational opportunities. The trail links to South Lake Tahoe's urban bike route on its western end, connecting Pope Beach, Camp Richardson Resort, the Tallac Historic Site, and the Taylor Creek Visitor center.

Hawley Grade Trail

Designated as a national recreation trail, in1979, a 1.8 mile segment of the historic Comstock-era prospector and Pony Express route, Hawley Grade was the main route from Echo Summit into Lake Valley and the Lake Tahoe Basin. The designation recognized the trail's exemplary local and regional significance.

Hawley Grade is a 1.8-mile trail that was originally constructed as a toll road during the gold rush era. The Hawley Grade was designated as a national recreation trail due to its historical role in the Lake Tahoe Basin and its scenic views. In the 1850's, the Hawley Grade served mule-drawn wagons, and for a short time, the Pony Express. This trail, although rugged, offers spectacular views of the Lake Tahoe Basin from Echo Summit, high above the valley floor.

Other Designated Special Areas

Tallac Historic Site, Special Interest Area

The management goal of Special Interest Areas is to protect special recreational or scientific values, such as unique scenic, historical, geological, botanical, zoological, or paleontological characteristics. These areas are then available for public study, use, or enjoyment as appropriate.

The Tallac Historic SIA was established by the 1988 LTBMU Land and Resource Management Plan to protect the Tallac Historic Site and ensure continuing education and interpretation opportunities.

Grass Lake Research Natural Area

Research natural areas (RNAs) illustrate adequately, or typify for research or educational purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance. RNAs are retained in a virgin or unmodified condition, except where measures are required to maintain a plant community that the area is intended to represent (36 CFR 251.23).

The Grass Lake RNA was established in 1991 and is administered jointly by the USDA Forest Service Pacific Southwest Research Station and Pacific Southwest Region. Grass Lake RNA provides a sample ecosystem suitable for scientific study. Uses are limited to research, study, observation, monitoring, and educational activities that are non-destructive and non-manipulative. Dispersed recreation is not encouraged, but is allowed if it does not affect natural conditions.

Lake Tahoe East Shore Drive, National Scenic Byway

A National Scenic Byway is a road recognized by the United States Department of Transportation for its archeological, cultural, historic, natural, recreational, and/or scenic qualities. This designation was established by Congress in 1991 to preserve and protect the nation's scenic roads and promote tourism and economic development.

The Lake Tahoe East Shore Drive National Scenic Byway extends from Stateline, Nevada (on U.S. Highway 50) north to Crystal Bay (on NV State Highway 28). Scenic views along Lake Tahoe's eastern shore are dominated by undeveloped, forested lands. Scenic mid-ground views of Lake Tahoe's clear aquamarine waters and rocky shoreline, coupled with distant views of forested slopes and high granite peaks, provide dramatic scenic vistas.

2.5 Recommended Special Areas

Upper Truckee River Recommended Wild & Scenic River

The Upper Truckee Recommended Wild and Scenic River has a special mix of recreation, scenic values, and historic values that are considered Outstandingly Remarkable.

- A seven-mile segment of the Upper Truckee River on the Lake Tahoe Basin Management Unit is eligible for Wild and Scenic River designation.
- The eligible segment is located in the Meiss/Dardanelles Inventoried Roadless Area, from Carson Pass to south of Upper Truckee Rd. Until designated, the interim corridor includes an approximate ¼-mile buffer on either side.
- The Upper Truckee River was determined to be eligible in 1999, as a result of the Eight Eastside Rivers Wild and Scenic River Study Report and Final Environmental Impact Statement (USDA Forest Service Tahoe National NF and LTBMU 1999). Forest Supervisor Juan Palma recommended its designation to the Wild and Scenic River System as a Wild River. The Acting Regional Forester concurred and forwarded the recommendation to the Chief of the Forest Service.
- Formal designation of a Wild and Scenic River requires an act of Congress, similar to wilderness designation.
- Pending formal designation, the LTBMU must manage the river to maintain its wild and scenic qualities, by following the management guidelines for recommended and designated Wild, Scenic and Recreational River corridors.
- Formal designation would require the LTBMU to develop a specific management plan for the river and a final boundary for the corridor.

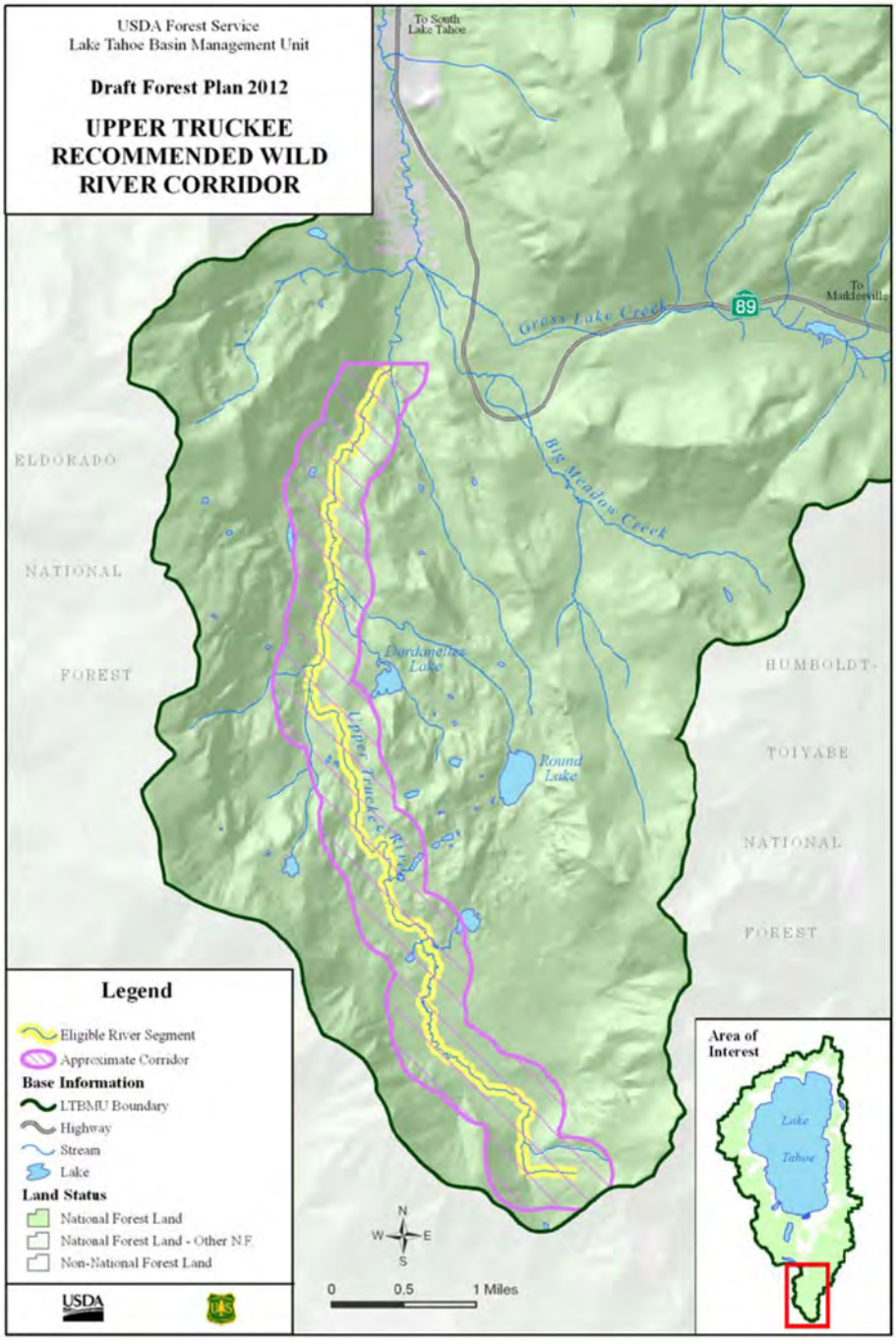


Figure 5. Map of Upper Truckee River Wild River Corridor

Part 3: Design Criteria

Design criteria include standards and guidelines. Standards and guidelines (S&Gs) set mandatory limits and constraints on management activities.

A **Standard** is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

A **Guideline** is a constraint on project and activity decisionmaking that allows for departure from its terms, so long as the intent of the guideline is met. Guidelines are established to help achieve a desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements.

Together with applicable law, regulation, and policy, these Design Criteria provide sideboards for subsequent projects and activities to help achieve the desired conditions and objectives.

A wide variety of sources of information inform project and activity decision-making. This information is in the form of laws, regulations, policy, memoranda of understanding, conservation strategies, and programmatic agreements. Existing laws, regulations, and Forest Service directives are not repeated in this chapter. These documents are available from Forest Service offices, and most are posted on the internet. Many are cross-referenced in the design criteria under Other Sources of Information, but these lists are not all-inclusive.

3.1 Ecological Sustainability

Physical Resources Standards and Guidelines

Air Quality

SG1. Design all Forest management activities to prevent violations of applicable air quality standards. Implement prescribed fire such that air quality standards are not exceeded. [Guideline]

SG2. Control fugitive dust as needed during ground disturbing activities and periods of intensive road use. [Guideline]

Water Quality

SG3. Design all Forest management activities to prevent violations of applicable water quality standards. [Guideline]

SG4. Apply current version of the PSW Region Best Management Practices and Forest Service National Core BMPs to all management activities. Require temporary erosion control measures prior to commencing any soil disturbing activities. [Guideline]

SG5. Avoid discharging solid and liquid wastes on or in the soil or water, with the exception of vegetative debris from forest management practices, clean earth and rock disposed of in approved locations, and wastes for which special waivers have been granted by state water quality protection agencies. [Guideline]

SG6. For waters designated as "Water Quality Limited" (Clean Water Act Section 303(d)), participate in the development of Total Maximum Daily Loads (TMDLs) and TMDL Implementation Plans. Execute applicable elements of completed TMDL Implementation Plans. [Guideline]

SG7. Store fuel and other toxic materials only at designated sites. Prohibit storage of fuel and other toxic materials within SEZs except at designated administrative sites and sites covered by a Special Use Authorization. Refuel outside of SEZs unless there are no other alternatives. [Guideline]

Water Use and Development

SG8. Cloud seeding to increase precipitation may be permitted unless this activity is shown to produce permanent substantial changes in land use or significant adverse environmental effects. [Guideline]

SG9. The water needed for beneficial uses of existing water rights, and availability of other water sources to supply the needs of forest ecosystem resources must be considered in reviewing water-extraction applications and evaluations, as well as requests for utilizing existing USFS water rights as part of special use permits. [Guideline]

Soil Quality

SG10. Avoid soil displacement to the extent practical when grading slopes, piling brush or slash, or engaging in other heavy equipment operations where earth moving is not the objective. [Guideline]

SG11. During vegetation management activities, limit operation of wheeled or tracked vehicles and timber harvesting equipment to designated routes, and restrict operations to periods of suitable soil moisture conditions as defined in project planning documents and contracts. Suitable conditions also include frozen ground, and/or a firm, protective base of compacted snow. When suitable conditions are not present, restrict equipment use to roads and designated stream crossings unless suitable mitigation measures can be employed. [Guideline]

SG12. Avoid unstable areas and SEZs when reconstructing existing roads and landings or constructing new roads and landings. Minimize and mitigate impacts where avoidance is not practical. [Guideline]

SG13. For vegetation management activities, detrimental disturbance that results in permanent soil impairment (defined in FSM 2550.5) should generally be limited to 15% of the activity area, or unit. The permanent transportation system is excluded from this calculation. [Guideline]

Stream Environment Zones

SG14. Apply appropriate BMPs and project design to reduce, as much as possible, (1) the risk of activity-related sediment entering aquatic systems, and (2) impacts to habitat for aquatic- or riparian-dependent plant and animal species. [Guideline]

SG15. Prescribe project-specific buffers around water bodies and SEZs, including meadows, bogs, fens, springs, and other wetlands as needed to maintain water quality and the physical and biological integrity of SEZs. [Guideline]

SG16. Prohibit disturbance of vegetation and soil in the unstable area of the shorezone, except as necessary for public safety or to provide for uses that by their nature require location within the shorezone. (The unstable area of the shorezone is where littoral and/or wave action processes have their greatest influence. The area may vary considerably in width) . [Guideline]

SG17. Avoid or mitigate activities that adversely affect the water flow, water quality, or water temperature critical to sustaining groundwater-dependent ecosystems. [Guideline]

SG18. Permit tree removal and fuel treatments within SEZs when the activity is consistent with desired conditions. Utilize low ground-pressure vehicles, helicopters, over the snow logging, or other minimum ground-disturbing methods when operating off roads. Limit construction of new skid trails or roads for access into SEZs for fuel treatments or tree removal to the minimum needed. [Guideline]

Natural Hazards

SG19. Prohibit new development in areas at risk from identified natural hazards including but not limited to mass wasting and avalanches. [Guideline]

SG20. Ensure that design, construction or rehabilitation of Forest Service real property is in accordance with standards and criteria outlined in the National Flood Insurance Program (42 U.S.C. 4001 and following) using flood-proofing measures and structural elevation where practicable. [Guideline]

Physical Resources Other Sources of Information:

Air Quality

- El Dorado, Placer, and Washoe County regulations; NDEP regulations
- California Regional Haze Plan, CalEPA State Implementation Plan (Jan. 22, 2009)

Water Quality

- Water Quality Management for Forest System Lands in California, Best Management Practices
- National Best Management Practices for Water Quality Management on National Forest System Lands
- FSH 2509.22 – Region 5 Soil and Water Conservation Handbook, Chapter 20, Cumulative Watershed Effects
- Water Quality Control Plan for the Lahontan Region, Chapter 5
- Lake Tahoe Basin 208 Plan

- Clean Water Act

Water Use and Development

- FSM 2540 – Water Uses and Development: FSM 2541.4, FSM 2541.41, and FSM 2541.42
- EA for Low Water Management 5/3/81; Minimum Flow needs for Taylor Creek 6/81; Hydrologic Analysis and Operating Plan for Fallen Leaf Lake 6/81
- Memorandum of Understanding with the Fallen Leaf Protection Association, 3/6/72

Soil Quality

- FSM 2500 Ch.2550 Soil Management
- 2509.22 – Region 5 Soil and Water Conservation Handbook, Chapter 50 – Erosion Hazard Rating

Stream Environment Zones

- See Water Quality and Soil Quality information sources.

Natural Hazards

- Region 5 Water Quality Management Handbook
- Natural Hazard Study for the Lake Tahoe Basin Management Unit

Forest Vegetation, Fuels, and Fire Management Standards and Guidelines

SG21. Apply an EPA registered borax compound to cut stumps in recreation and other high value sites according to Regional policy and recommended guidelines to limit the likelihood of heterobasidion root disease; outside of these areas determine the need to apply borax, based on biological considerations and management and restoration objectives. [Guideline]

SG22. Provide up to a 100 foot radius of defensible space around all structures on all USFS structures or USFS permitted structures as well as for non-federal structures adjacent to National Forest System lands. [Guideline]

SG23. In conifer forest types, design fuel reduction treatments so that post treatment fuels conditions will not sustain crown fire. [Guideline]

SG24. Evaluate the need for ecosystem restoration following large disturbance events (wildfire, drought, insects and disease infestation, windstorm, or other unforeseen events). Give priority to public safety first and then to wildlife habitat, soils, vegetation and water quality. Consider reduction in forest fuels to meet fuel loading and fire behavior guidelines. Consider sale of timber and biomass to offset the cost of restoration and to meet restoration goals. [Guideline]

SG25. When designing forest health or fuels reduction treatments within a high use area or developed site consider, in coordination with recreation and special-uses staff, additional treatment measures as needed to address area- or site-specific objectives. [Guideline]

SG26. When fuels are piled adjacent to trails or in high use areas or sites, ensure that project design includes proximity, pile size, and timing of burn to protect recreation and scenic resources. [Guideline]

SG27. Allow unplanned ignitions on NFS lands in all fire management units (FMUs) to meet forest plan desired conditions and objectives, when safety issues have been resolved and smoke impacts can be minimized. [Guideline]

SG28. Suppress all unplanned ignitions in the WUI defense zone . [Guideline]

SG29. After wildfires and other large-scale natural disturbances, take prompt measures to reduce adverse effects on public safety, water quality, scenic quality, recreation use, wildlife, and forest health. [Guideline]

SG30. Apply minimum impact suppression tactics (MIST) during fire management actions in wilderness and roadless areas. [Guideline]

SG31. In general, operate ground-based mechanized equipment for vegetation treatment on slopes less than or equal to 30%. Exceptions should be consistent with safety and design specifications and with the ability to effectively alleviate significant resource impacts. [Guideline]

SG32. Openings created for forest structure may be no more than 10 acres in size for Jeffrey pine, white fir-mixed conifer, and red fir types. The edges of openings should be shaped and blended to the extent practicable with the natural terrain. [Standard]

SG33. Retain trees 30 inches dbh and larger unless one or more of the following conditions apply: [Guideline]

a) The tree(s) larger than 30 inches dbh presents a safety hazard.
b) The tree(s) larger than 30 inches dbh is a host/source of insects, disease, or pathogens
c) Shade tolerant trees larger than 30 inches dbh are increasing the rate of mortality or out-competing preferred species
d) Changes in SEZ conditions (e.g. lowering of the local water table) have allowed conifer encroachment to persist long enough to develop trees larger than 30 inches dbh
e) Aspen restoration requires the removal of trees that have grown larger than 30 inches dbh since the initiation of wildland fire suppression policies in the early 20th century.
f) When creating early seral openings to accomplish vegetation desired conditions
g) When managing for blister rust resistant sugar pines that require removal of competing trees within a sufficient radius to improve health of the sugar pine.

SG34. Leave burn piles of slash from vegetation treatments no closer than 25 feet from water bodies and intermittent or perennial stream channels. [Standard]

Forest Vegetation, Fuels, and Fire Management Other Sources of Information:

- Forest Health Protection Handbook Chapter 60: Management of Specific Pests Amendment No.: 3409-11-2010-1. Regional Foresters' letter regarding policy to follow CA law 4291.
- LTBMU Resource Guidelines for Wildfire Suppression
- LTBMU Fire Management Plan
- FSM 5100

Biological Resources Standards and Guidelines

Conservation of Species and Habitat

SG34. Use Region 5 Stream Condition Inventory (SCI) or other Forest Service-accepted habitat assessment protocol to assess aquatic habitat. [Guideline]

SG35. Maintain downstream flow and volume adequate to support aquatic species during in-stream restoration and water drafting activities. Avoid construction of artificial impoundments for water use except where needed for initial suppression of wildfires. Ensure that any artificial impoundments are removed after use and the area is restored back to natural conditions. [Guideline]

SG36. Ensure that field gear (waders, float tubes, etc.) is cleaned, decontaminated, and/or fully dried prior to entering or moving between aquatic habitats. Decontaminate field clothing and gear prior to entering and when moving between cave habitats to prevent the spread of pathogens and disease. [Guideline]

SG37. When stream crossings are constructed, reconstructed, or permanently removed, provide for aquatic organism passages. [Guideline]

SG38. Conduct fish salvage prior to in-stream management activities. Consult with resource specialists regarding the approach and procedures. [Guideline]

SG39. Employ measures such as LOPs, buffering, and flagging and avoiding to minimize negative impacts or risk of negative impacts to known TE, FP (federal proposed), FC, FSS, populations and habitats where feasible and as directed by law. [Guideline]

SG40. On a project specific basis, prescribe measures needed to provide for the diversity of plant and animal communities and support the persistence of native species. [Guideline]

SG41. Where compatible with other resource objectives for the area, increase total Salix (willow) cover during project implementation where habitat conditions will support Salix communities. Willows planted within the project area should be planted in patches with a mean size of 375 m2. [Guideline]

SG42. Design pesticide applications to avoid negative effects on TE, FC, FSS species and their habitats. [Guideline]

SG43. Snags and coarse woody debris would be retained at developed recreation, administrative and permitted sites after considerations have been made for defensible space, public health and safety, and other management objectives for the site. [Guideline]

SG44. Manage stream reaches on the Forest to attain levels of stream shading which maintain cold water conditions from the months of June–September when precipitation and base flows are normally lowest and ambient air temperatures are highest. Cold water conditions during June – September should target a maximum 7-day mean temperature of 20ºC or less. [Standard]

SG45. Provide a renewable supply of large downed logs that: (1) can reach the stream channel and (2) provide suitable habitat within and adjacent to the SEZs. Leave existing downed trees and CWD that are in perennial or intermittent stream channels in place unless removal is needed to maintain channel stability, as determined by a Forest Service watershed specialist or fish biologist. [Standard]

SG46. To avoid removing or altering bank stabilizing vegetation, trees may be marked for removal (live or dead) within 5 feet of the bank edge of perennial or intermittent streams and lakes, as approved by a Forest Service watershed specialist or fisheries biologist, only where fuel loads or stand densities exceed desired conditions and where CWD is at or above desired levels or where trees are a hazard to safe operations. [Standard]

SG47. Use screening devices for water drafting pumps. (Fire suppression activities are exempt during initial attack.) Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, form aquatic habitats. [Standard]

SG48. In restoration projects following disturbance events greater than 1000 acres outside of the WUI, retain medium and large snags in at least 10 percent of the area. For wildfires, retain 10% of the high- and mid-severity patches. Prescribe snag retention after providing for public safety, to meet ecological restoration objectives. Include site-specific considerations such as snag spatial arrangement and density, wider range of snag sizes and densities, and focal placement of snags and snag patches. [Standard]

SG49. During project-specific analysis determine appropriate amount of coarse woody debris to provide for long-term habitat quality. Coarse woody debris is generally comprised of at least three downed logs per acre in varying stages of decay. [Standard]

SG50. Manage snag levels during project specific analysis after consideration for public safety. Provide for a sustainable population of medium- and large-diameter snags or live trees that exhibit form and/or decay characteristics regarded as important wildlife habitat (e.g., have substantial wood defect, teakettle branches, broken tops, large cavities in the bole, etc.). Retain snags as follows: [Guideline]

a. Red fir forest type and white fir-mixed conifer forest types – on average six of the largest snags per acre (In the WUI, fewer snags may be retained; snags shall be strategically located.)
b. Jeffrey pine – on average three of the largest snags per acre (In the WUI, fewer snags may be retained; snags shall be strategically located.)
c. Snags should be clumped and distributed irregularly across treatment units.
d. Snags with cavities are a priority for primary and secondary cavity nesters (e.g., mountain bluebirds, house wrens, and white breasted nuthatch). When snags are absent consider installation of nest boxes to benefit cavity nesters.

e. Coordinate among resource specialists to determine appropriate retention levels based on availability and project objectives.

SG51. Do not construct roads and trails within ¼ mile of the top or base of known cliff nesting raptor sites. Within ¼ mile of occupied nest sites or habitat, prohibit activities such as rock climbing that may disrupt breeding during the raptor nesting season (April 1-July 31). [Standard]

SG52. Prevent disturbance to streambanks and natural lake and pond shorelines caused by resource activities (for example, livestock, off-highway vehicles, and dispersed recreation) from exceeding 20 percent of stream reach or 20 percent of natural lake and pond shorelines. Disturbance includes bank sloughing, chiseling, trampling, and other means of exposing bare soil or cutting plant roots. This standard does not apply to developed recreation sites; sites authorized under Special Use Permits and designated off-highway vehicle routes. [Standard]

Invasive Species Management (Aquatic and Terrestrial)

SG53. Incorporate prevention and control measures into project planning and management activities to prevent new introductions or contribute to spreading of invasive species, and reduce impacts from existing infestations. [Guideline]

SG54. Implement prevention measures to decrease the potential for aquatic invasive species transference during wildfire suppression operations. [Guideline]

SG55. During wildland fire operations install weed washing stations at wildland fire staging areas, base camps, or other incident locations, to clean soil, seeds, vegetative material, or other debris that could contain or hold seeds of invasive plants from off-road equipment and vehicles to minimize the risk of spreading or introducing invasive species. Contact the Forest Noxious Weed Coordinator regarding procurement of a weed washing station. [Guideline]

SG56. Use only invasive-free mulches (e.g., straw and hay), seed, and organic matter. Local native seed sources for revegetation should be used. Topsoil from project areas should be salvaged where feasible. [Guideline]

SG57. Gravel, fill, and other materials used in project activities should be free of invasive species. On-site materials should be used where possible. [Guideline]

SG58. Avoid locating landings or staging areas within areas infested by invasive species. If no other options exist, treat invasives prior to use. [Guideline]

SG59. Utilize portable wash stations or other techniques on motorized/mechanized equipment at active project sites associated with a high risk of noxious weed spread to reduce the risk of future introductions and help to contain the spread of existing infestations, through the life of the Forest Plan. [Guideline]

SG60. Encourage use of certified weed free hay and straw. Cooperate with other agencies and the public in developing a certification program for weed free hay and straw. Phase in the program as certified weed free hay and straw becomes available. This guideline applies to pack and saddle stock used by the public, livestock permittees, outfitter guide permittees, and

local, State, and Federal agencies. [Guideline]

Protected Activity Centers and Home Range Core Areas (PACs and HRCAs)

SG61. Delineate Northern goshawk PACs surrounding all known occupied, or occupied within the last ten years, and newly discovered breeding territories detected on National Forest System lands. Designate Northern goshawk PACs based upon the location of territorial adult birds or recently fledged juvenile goshawks during the fledgling dependency period. [Standard]

SG62. Delineate California spotted owl PACs surrounding each territorial owl activity center detected on NFS lands. Designate Owl activity centers for all territorial owls based on (1) the most recent documented nest site, (2) the most recent known roost site when a nest location remains unknown, and (3) a central point based on repeated daytime detections when neither nest or roost locations are known. Designate a minimum of 300 contiguous habitat acres in spotted owl PACs. [Standard]

SG63. Establish a California spotted owl home HRCA surrounding each territorial spotted owl activity center. The acreage in the PAC counts toward the HRCA. Delineate HRCAs within 1.5 miles of the activity center. [Standard]

SG64. Maintain PACs and HRCAs regardless of California spotted owl or northern goshawk occupancy status. However, after a stand-replacing event, evaluate habitat conditions within a 1.5 mile radius around the activity center to identify opportunities for re-mapping the PAC. If a California spotted owl PAC is remapped, the corresponding HRCA should be remapped within 1.5 miles of the remapped spotted owl PAC. If there is insufficient suitable habitat for designating a PAC within the 1.5 mile radius, the PAC and corresponding HRCA may be removed from the network. [Standard]

SG65. PACs should only be re-mapped for vegetation projects (e.g. forest health or fuels reduction) when project activities would result in the loss of suitable nesting habitat within the PAC and the project location cannot be altered to avoid intersecting with the PAC. The re-mapped PACs should contain habitat of equal quality, include known nest sites and important roost sites, and be of equivalent value to the species. [Guideline]

SG66. Vegetation treatments in PACs should maintain suitable habitat structure and function following implementation. [Guideline]

SG67. Mechanical treatments may be conducted to meet fuel objectives in PACs located in WUI Defense Zone. In PACs located in WUI threat zone, mechanical treatments are permitted where prescribed fire is not feasible and where avoiding PACs would significantly compromise the overall effectiveness of the landscape of fire and fuels strategies. [Guideline]

SG68. When conducting vegetation treatments in HRCAs, maintain suitable foraging habitat structure and function following implementation where possible. HRCAs should only be re-mapped or removed to address stand replacing events or to include associated, remapped PACs. Re-mapped HRCAs should contain habitat of equal quality and equivalent value to the species. HRCAs can only be removed if no suitable habitat exists for remapping.

SG69. Where canopy cover in PACs and HRCAs exceeds desired conditions, maintain current cover unless reduction would improve habitat conditions to meet life history needs of the species. [Guideline]

SG70. Use the following resource prioritization gradient for vegetation treatments: fire and fuels objectives increase in priority with increasing proximity to communities while wildlife objectives increase in priority with increasing distance from communities and proximity to specific wildlife resources (e.g., nest and/or roost sites). [Guideline]

SG71. Allow vegetation treatments in PACs under the following circumstances only: [Standard]

a) For the purposes of PAC restoration when the following conditions apply:
   i. Surveys for the target species conducted to meet Region 5 protocol demonstrate that reproduction has not occurred within the PAC in at least the previous three years;
   ii. The PAC is not currently occupied; and either
      a. Desired conditions within the PAC are not being met and conducting treatments would achieve the desired conditions or shorten the time until those conditions would be expected to occur; or
      b. Desired conditions are currently met but vegetation treatments are required to maintain desired conditions over the next 15 years.

b) To address wildland fire risk within the Wildland Urban Interface (WUI):
   i. In the Defense Zone, where an unacceptable risk to communities is demonstrated at the stand level (e.g., when wildland fire behavior models predict crown fires); or
   ii. In the Threat Zone, where the overall landscape level fire and fuels strategy would be ineffective.

c) To reduce threats (e.g. pathogens, insects, disease and/or wildfire) to the persistence of forested stands in or adjacent to PACs.

Species Refuge Areas

SG72. Management actions are consistent with habitat and population recovery objectives outlined in the LCT short-term recovery action plan for the Lake Tahoe Basin. [Guideline]

SG73. Management actions are consistent with habitat and population objectives outlined in the Sierra Nevada (mountain) Yellow-legged Frog (SNYLF) Conservation Strategy or any future developed recovery Plan. [Guideline]

SG74. Manage individual populations of TYC on National Forest Lands consistent with the species' conservation strategy. [Guideline]

SG75. Take actions as needed to minimize the risk of spreading Bd fungus and other potential aquatic pathogens and/or diseases through aquatic systems. [Guideline]

SG76. Decontaminate aquatic field sampling and survey gear (e.g., gill nets, electroshocker probes, float tubes, and waders) when moving between water bodies to avoid transmission of Bd fungus and other potential aquatic pathogens and/or diseases. [Guideline]

SG77. In streams or lakes occupied by SNYLF, limit disturbance on or near streambanks and lakeshores during breeding activities or where egg masses are present. [Standard]

SG78. In streams occupied by LCT, limit activity disturbance on or near stream banks and in floodplains until after June 15 to ensure completion of spawning and egg incubation periods. [Standard]

Biological Resources Other Sources of Information:

- Forest Service Manual and Handbook (FSM/H 2670)
- Endangered Species Act (ESA), Section 7 and implementing regulations (CFR)
- Species-specific Recovery Plans that establish population goals for recovery of those species
- Species management plans
- Species management guides or conservation strategies
- Regional Forester policy and management direction
- Pacific Southwest Region Noxious Weed Management Strategy. 2001.
- Forest Service Manual (FSM) 2900.
- Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et. seq.)
- 36 C.F. R. 222.8.
- Departmental Regulation 9500-10.
- Noxious Weed Executive Order 13112.
- Lake Tahoe Basin Weed Coordinating Group Memorandum of Understanding (2008).
- Additional laws, regulation and policy as found in FSM 2901 (2011)

3.2 Social and Economic Sustainability

Recreation Standards and Guidelines

Recreation Opportunity

SG79. During implementation of projects with the potential to affect recreation activities, implement measures to minimize impacts to recreation opportunities, facilities, and visitor safety. Such measures could include limited use or temporary closures. [Guideline]

SG80. Design projects consistent with the ROS classification. [Standard]

Public Access

SG81. Programs are universally accessible to persons with disabilities. [Guideline]

SG82. Permit outdoor recreation facilities in SEZ and on other low capability lands only where they are a part of long range development plans, or where the nature of the activity must be so sited, and where mitigated. [Standard]

Recreation Other Sources of Information:

- FSH 1900-3 Social Analysis for Planning and Decision-Making
- The Limits of Acceptable Change (LAC) System for Wilderness Planning, General Technical Report INT-176
- National Visitor Use Monitoring (NVUM) Reports
- LTBMU forest orders restricting recreation uses
- Recreation Facility Assessment, LTBMU
- Architectural Barriers Act, Forest Service Outdoor Recreation Accessibility Guide
- Americans with Disabilities Act
- FSM/FSH 2300 chapters
- An Approach to Sustainable Recreation-South Shore Corridor

Recreation Special Uses Standards and Guidelines

SG83. Recreation special use activities are consistent with the ROS classification. [Guideline]

SG84. Evaluate the suitability of recreation residence reconstruction on a case by case basis if destroyed by fire, snow loading, or other causes. [Guideline]

SG85. If cabins in or adjacent to SEZ or other sensitive lands are destroyed, where reconstruction is allowed, special use permits will be modified to address impacts to sensitive resources, or revoked if impacts cannot be mitigated . [Guideline]

SG86. On roads and trails serving both special use sites and general public use, share maintenance costs on a basis proportionate to use; establish provisions in the permit. Develop maintenance agreements with individual permittees or associations. [Guideline]

SG87. Trails that are developed and used primarily by special use permittees are required to be maintained to Forest Service standards by the permittees. [Guideline]

SG88. Do not permit new recreation residences including those upon unoccupied lots within existing recreation residence tracts. [Standard]

SG89. Permits for recreation residences within 100-year flood plain, avalanche path, unstable areas or other hazardous situation require a clause stating that substantial damage caused by the hazard will cause the permit to be revoked, and not be re-issued. No additions to existing improvements will be authorized for residences under such circumstances. [Standard]

SG90. Recreation residences will not be allowed to expand in size to handle larger numbers of people or allowed additional impervious surface coverage. The exception is where the Forest Service or other regulatory agencies require additions to the residence for such improvements as toilet facilities. If the required addition cannot be accommodated within the existing land coverage, additional coverage may be authorized.

Recreation Special Uses Other Sources of Information:

- Desk guides for Concession and Outfitter Guides
- FSM 2700 and Special Uses Handbooks.
- Recreation Facility Assessment, LTBMU
- Architectural Barriers Act, Forest Service Outdoor Recreation Accessibility Guide
- Americans with Disabilities Act

Interpretive Services and Visitor Services Standards and Guidelines

SG91. Implement a plan for the Tallac Historic Site to preserve the historically significant aspects of the nationally registered historic site while providing for public use and education. [Guideline]

Interpretive Services and Visitor Services Other Sources of Information:

- USDA FS Interpretive Services Strategy 2003
- PSW Region 5 Interpretive Services Strategy
- FSM 2390 Interpretive Services
- FSH 1600
- A Federal Vision for the Environmental Improvement Program at Lake Tahoe, June 2006
- Explore Tahoe Interagency Agreement
- Meyers Visitor Center Interagency Agreement
- Plan for the Tallac Historic Site 1994

Conservation Education Other Sources of Information:

- EIP
- FSM 1623 Natural Resource and Environmental Education

- The USDA Forest Service Interpretive Services Strategy
- Strategic Plan for Conservation Education in the Pacific Southwest Region, FSM 1623

Scenic Resources Standards and Guidelines

Scenery management emphasizes careful adherence to standards and guidelines so that the high scenic integrity of NFS Lands is sustainable over time. Scenic resource and built environment guidelines are incorporated into management activities and into the design and development of agency facilities.

SG92. All resource management and permitted activities shall meet or exceed the established scenery objectives shown on the Minimum Scenic Integrity (MSI) map. [Standard]

Scenic Resources Other Sources of Information:

- USDA Forest Service, Lake Tahoe Basin Management Unit, Scenery Management System Inventory, 2008.
- Lake Tahoe Basin Scenic Resource Inventory, Wagstaff and Brady, 1980
- USDA Forest Service, Publication FS-710, The Built Environment Image Guide for the National Forests and Grasslands, December 2001.
- Agriculture Handbook No. 701, 1995. Landscape Aesthetics, A Handbook for Scenery Management
- USDA Forest Service, Sign Plan
- Best Environmental Design Practices - The following information constitute the Landscape Management Best Environmental Design Practices for utilities, range, roads, timber, fire, ski areas, and recreation activities:
    - U.S. Department of Agriculture, Forest Service. National Forest Landscape Management:
    - Volume 1. Agriculture Handbook 434. Washington, DC: U.S. Department of Agriculture; 1973.
    - U.S. Department of Agriculture, Forest Service. National Forest Landscape Management:
    - Volume 2, Chapter 2: "Utilities." Agriculture Handbook 478. 1975.
    - Volume 2, Chapter 3: "Range." Agriculture Handbook 484. 1977.
    - Volume 2, Chapter 4: "Roads." Agriculture Handbook 483. 1977.
    - Volume 2, Chapter 5: "Timber." Agriculture Handbook 559. 1980.
    - Volume 2, Chapter 6: "Fire." Agriculture Handbook 608. 1985.
    - Volume 2, Chapter 7: "Ski Areas." Agriculture Handbook 617. 1984.
    - Volume 2, Chapter 8: "Recreation." Agriculture Handbook 666, 1987

Cultural Resources Standards and Guidelines

SG93. When avoidance of adverse impacts is not possible, authorize impacts to significant properties only after negotiating and signing a Memorandum of Agreement between the Forest Service and/or the appropriate State Historic Preservation Officer and Advisory Council on Historic Preservation. [Guideline]

SG94. Collect cultural artifacts only for diagnostic dating purposes, answering research questions, or protection of the artifact. [Guideline]

SG95. Except as noted in the foregoing guideline, record cultural artifacts in detail in the field, and leave them in place. [Guideline]

SG96. Include historic property protection provisions in contracts and special use permits as applicable. [Guideline]

SG97. Prohibit the use of metal detectors to locate archaeological or historical artifacts except for scientific research as permitted by the Forest Service. [Guideline]

Cultural Resources Other Sources of Information:

- American Antiquities Act of June 8, 1906
- Historic Sites Act of 1935 as amended (16USC 461-467)
- Protection of Archaeological Resources (36 CFR 296)
- Curation of Federally-Owned and Administered Archeological Collections (36 CFR 79)
- Protection of Historic Properties (36 CFR 800)
- Region 5 Amended Regional Programmatic agreement with the USFS and SHPO for Compliance with Section 106 of the National Historic Preservation Act.

Tribal Relations Standards and Guidelines

SG98. Consult with the Washoe Tribe of Nevada and California when management activities may affect tribal rights and interests or impact culturally important resources, consistent with the Consultation Protocol. [Guideline]

Tribal Relations Other Sources of Information:

- American Indian Religious Freedom Act of 1978 as amended (42 USC 1996 and 1996a)
- EO 13084-Consultation with Indian Tribal Governments
- EO 13175-Consultation with Indian Tribal Governments
- Cooperative Agreement, February 26,1999, establishing collaborative wetlands conservation planning for the Baldwin/Taylor Creek and Meeks Meadow areas
- Record of Decision for Cave Rock Management Direction Final Environmental Impact Statement, USDA Forest Service, Lake Tahoe Basin Management Unit, August 5, 2003, Cave Rock Closure Forest Order No. 19-08-01.
- Native American Graves Protection and Repatriation Act (NAGPRA).

Noise Standards and Guidelines

SG99. The LTBMU policy is consistent with the TRPA (Tahoe Regional Planning Agency) Noise Thresholds for the Tahoe Basin for the National Forest lands within the Basin. [Standard]

Access and Travel Management Standards and Guidelines

SG100. Manage motorized vehicle use as designated and illustrated on the motorized vehicle use map. [Standard]

Roads

SG101. Temporary roads, or access ways created as part of public or commercial management activities, shall be restored to prevent vehicle travel as soon as practical and/or upon completion of the use. Restoration shall include stabilization measures and other BMPs to protect water quality. [Guideline]

SG102. To protect watershed resources, employ the following guidelines for all road work (construction, reconstruction, and relocation):

a) Design new stream crossings and replacement stream crossings to pass at least the 100-year flood, including bedload and debris
b) Design stream crossings to maintain streamflow in the channel in the event of failure of a road crossing
c) Where feasible, design stream crossings to maintain natural hydrologic flow paths, including avoiding diversion of streamflow and interception of surface and subsurface water
d) When locating or reconstructing roads, avoid SEZs or minimize effects to natural flow patterns in SEZs
e) Avoid road construction in meadows.
f) Where potential slope instability is identified for road projects, develop site-specific mitigation measures.
g) Conduct road construction, reconstruction, and maintenance using appropriate best management practices to minimize sediment delivery to streams and other water bodies. Road drainage shall be routed away from potentially unstable channels, fills, and hill slopes. Design BMPs to minimize reoccurring maintenance needs for both economic savings and resource protection. [Guideline]

SG103. Implement seasonal road restrictions when:

a) Weather or seasonal conditions result in vehicles causing unacceptable damage to soil and water resources,
b) Damage incurs costs that are too great to justify repairing the road structure,
c) User safety may be jeopardized by the road condition or other hazards,
d) There may be significant conflicts with wildlife or potential habitat degradation. [Guideline]

SG104. Install barriers and/or signs to prevent roadside parking wherever necessary to protect the public and natural resources. [Guideline]

SG105. Avoid road building in areas of high mass soil instability, and design to protect water quality and scenic value in areas of moderate stability. [Standard]

Trails

SG106. Manage trails as directed in the Forest Service Trails Management Handbook. [Guideline]

SG107. Design new trails to avoid SEZs or minimize effects to natural flow patterns in SEZs. [Guideline]

Over-Snow Vehicles

SG108. Manage motorized over-the-snow vehicle use as designated. [Standard]

Access and Travel Management Other Sources of Information:

Roads

- FSM 7700
- LTBMU Forest Transportation Atlas
- 36 CFR 261 Travel Management Rule
- Travel Management Directives FSM 7700
- LTBMU Motor Vehicle Use Map
- Forest Orders

Trails

- FSM 2350 Trails
- FSH 2309.18 Trail Management Handbook
- Tahoe Rim Trail Management Plan
- Pacific Crest National Scenic Trail Comprehensive Plan
- LTBMU Motor Vehicle Use Map
- EM 7720-103 Standard Specification for the Maintenance and Construction of Trails

Over-Snow Vehicles

- Snowmobile Guide, LTBMU

Built Environment Standards and Guidelines

SG109. Design the architectural character of administrative and recreation buildings, landscape structures, site furnishings, wayside structures and signs installed or operated by the Forest Service, its cooperators or permittees to be consistent with the Built Environment Image Guide, North Pacific Province (BEIG FS710). Structures should be visually subordinate to, and complement the surrounding landscape. Utilize a “Tahoe architectural theme” that is intended to blend facilities with the natural environment, meet user expectations, and maintain recreation niche consistency. [Guideline]

SG110. Design sites and facilities to conform to the designated Recreation Opportunity Spectrum Class. [Guideline]

SG111. Require use of plant species native to the area or species approved for local use when revegetating disturbed sites and landscaping. [Guideline]

SG112. Install only the minimum amount of permanent lighting needed at administrative and recreation buildings, landscape structures, and signs installed or operated by the by the Forest Service or its cooperators and permittees to protect the dark night sky while not increasing safety risks. Utilize light-sensitive, motion activated lighting systems that are illuminated only when needed for security and/or for maintenance. Utilize hooded light fixtures to prevent horizontal and upward light pollution. [Guideline]

SG113. Retrofit existing facilities to meet universal accessibility standards. [Guideline]

SG114. Ensure that facilities comply with health and safety codes. [Guideline]

Built Environment - Other Sources of Information:

- March 2004 LTBMU Facilities Master Plan
- Architectural Barriers Act, Forest Service Outdoor Recreation Accessibility Guidelines
- 2005 Energy Policy Act and Executive Order 13123
- FSM/FSH 2330 and 7300
- USDA Forest Service, Publication FS-710, The Built Environment Image Guide for the National Forests and Grasslands, December 2001.
- USDA Forest Service, Sign Plan
- Home Landscaping Guide for Lake Tahoe and Vicinity, UNR Cooperative Extension

Lands Standards and Guidelines

SG115. Land boundary lines should be surveyed, posted, and marked according to these priorities: 1) lines needed to meet planned activities; 2) lines need to protect USFS lands from encroachment; and 3) all other land boundary lines. [Guideline]

SG116. For planning purposes, acquired properties shall be included in the management area in which they are located. If a larger property is located in more than one management area, it will be included in both management areas as defined by the extension of the existing area boundaries. [Guideline]

Lands - Other Sources of Information:

- Landownership Adjustments (36 CFR 254); Land Uses (36 CFR 251)
- FSM 5400 Landownership
- FSM 5500 Landownership Title Management
- FSH 5409 Landownership Handbooks
- FSH 5509 Landownership Title Management Handbooks
- Federal Highway Administration, in accordance with the Forest Service MOU with the FHA.

Non-Recreation Special Uses Standards and Guidelines

Utility Easements

SG117. Utilize or expand existing utility easements and rights of way to maximize capacity, before granting additional easements. [Guideline]

SG118. Locate utility easements and rights of way where easily accessible for utility repair or modification. Minimize and mitigate disturbance to the natural and scenic environment. Site overhead transmission line alignments to meet scenic integrity objectives for minimizing visual impact. [Guideline]

Communication Sites

SG119. New cellular phone sites shall be co-located with existing infrastructure whenever feasible, such as water storage facilities, or existing communication sites. [Guideline]

Rights-of-Way

SG120. Grant road access to private land only where no other reasonable alternative exists, and where access is compatible with the road design and maintenance standards necessary for resource protection and public safety. [Guideline]

SG121. Access roads for operations and maintenance shall be managed under permit for non-system roads and under road use agreements for system roads to ensure adequate maintenance and BMPs to prevent resource damage to National Forest System lands. [Guideline]

Research and Monitoring Projects

SG122. All research and monitoring projects must be authorized by the LTBMU forest supervisor. Research and monitoring projects shall be evaluated and monitored by the appropriate LTBMU resource-program staff to determine whether NFS land is needed, if the projects meet legitimate research needs, and to ensure protection of natural resources and facilities during use. [Guideline]

SG123. Require special use permits for research and monitoring projects when they require installation of facilities or potential impacts to soil, vegetation, cultural, or other resources. [Guideline]

Non-Recreation Special Uses Other Sources of Information:

- FSM 1920 Land and Resource Management Planning;
- FSM 2700 Special Uses Management;
- FSH 2709.11 Special Uses Management Handbook

Minerals Standards and Guidelines

SG124. Locatable mineral operations shall be required to ensure protection of resources and facilities. Approval of mineral operations shall be based on site-specific evaluation. [Guideline]

SG125. Plans of operation, reclamation plans, and reclamation bonds shall address the costs of

a) Removing facilities, equipment, and materials
b) Isolating and neutralizing or removing toxic or potentially toxic materials
c) Salvaging and replacing topsoil and
d) Revegetating to meet the objectives of the land allocation in which the operation is located.
[Guideline]

SG126. Extraction of common variety minerals shall not be approved. [Standard]

Minerals - Other Sources of Information:

- FSM 2800 Minerals and Geology

3.3 Designated Special Areas Standards and Guidelines

Desolation, Granite Chief, and Mt. Rose Wilderness

SG127. Manage wilderness areas in compliance with specific wilderness management plans or minimum stewardship components identified through the ten-year Wilderness Stewardship Challenge. [Guideline]

SG128. Consider wildland fire management strategies on a case-by-case basis as articulated in the Wilderness management plan or fire management plan. [Guideline]

National Trail System

Pacific Crest Trail, National Scenic Trail

Overall responsibility for the management of the Pacific Crest National Scenic Trail (PCT) lies with the Pacific Southwest Regional Forester.

SG129. Maintain a ½ mile (1/4 mile from centerline) scenic corridor for the Pacific Crest National Scenic Trail both inside and outside of wilderness areas. [Guideline]

SG130. Mechanized use of the PCT is prohibited via Regional Order 88-4. [Standard]

SG131. Motorized use of the PCT is prohibited via 36 CFR 261.20. [Standard]

Tahoe Rim Trail, Pope-Baldwin Bicycle Trail, Hawley Grade

SG132. Maintain a scenic corridor of 300' for the National Trail System within the Lake Tahoe Basin Management Unit. [Guideline]

Designated Special Areas Other Sources of Information:

Desolation, Granite Chief, and Mt. Rose Wilderness

- 1964 National Wilderness Preservation Act
- Desolation Wilderness Management Plan
- Granite Chief Wilderness – Tahoe National Forest wilderness management guidelines
- Mt Rose Wilderness – Humboldt Toiyabe National Forest wilderness management guidelines
- Regional Minimum Impact Decision Guide for Wilderness

Tallac Historic Site, Special Interest Area

- Tallac Historic Site Master Plan (FEIS Record of Decision, USDA Forest Service, El Dorado County, CA, July 14, 1994).

Grass Lake Research Natural Area

- Forest Service Manual 4000, Ch. 4063 – Research Facilities and Areas

- Regional Forest Order

Lake Tahoe East Shore Drive, National Scenic Byway

- East Shore Drive National Scenic Byway, Rural Section, Incline Village to US 50, Corridor Management Plan, prepared by EDAW, Inc., for Carson City and Nevada Department of Transportation, TRPA, TEAM Tahoe, August 1997.
- Scenic Byways, A Design Guide for Roadside Improvements. Prepared for U.S. Department of Transportation Federal Highway Administration, prepared by the USDA Forest Service San Dimas Technology and Development Center, July 2002.
- Landscape and Aesthetics Corridor Plan for US 395, West US 50, SR 28, SR 207 and SR 421, prepared by Design Workshop and others for the Nevada Department of Transportation, December 15, 2006.

Pacific Crest Trail

- Pacific Crest National Scenic Trail Comprehensive Plan, Approved: July 15, 2006. USDA Forest Service, Washington Office. National Recreation Trails
- Regional Order 88-4

Tahoe Rim Trail, Pope-Baldwin Bicycle Trail, Hawley Grade

- The Tahoe Rim Trail Management Plan, February 26, 2010. USDA Forest Service, LTBMU
- Forest Service Manual 2309.18 Chapter 10 Trail Planning, Oct. 16, 2008.
- National Trails System Act 1968
- Regional Order 88-4

3.4 Management Area Standards and Guidelines

Santini-Burton Acquired Lands / Urban Forest Parcels

SG133. Identify and post (flag and/or sign) all land boundaries prior to project work to avoid conflicts with adjacent private properties. [Guideline]

SG134. Manage coarse woody debris and snag retention to meet forest productivity and wildlife needs while meeting defensible space standards. [Guideline]

SG135. Allow adjoining property owners to conduct fuels reduction activities annually on portions of Urban Forest Parcels that are located within 100 feet of a structure; to a level that allows compliance with California State Law PRC 4291 while providing resource protection to NFS lands. [Guideline]

SG136. Apply an EPA registered borax to cut stumps according to Regional policies and guidelines in order to prevent establishment or spread of Heterobasidion root disease. [Guideline]

SG137. Improvements shall not be placed on Santini-Burton acquired lands, other than for dispersed recreation, erosion control projects or permitted activities. [Standard]

SG138. Recreational activities such as overnight camping, off highway vehicle use, over snow vehicle use, and development of user created trails for hiking and mountain biking are prohibited on urban forest parcels. [Standard]

Management Area Other Sources of Information:

- PL 96-586 – Santini-Burton Act
- R5 FSM Supplement 5100-2010-1, referencing Defensible Space Letter from Regional Forester, 12/2009
- California State Law PRC 4291
- Report to Congress, Urban Intermix Parcel Acquisition and Management in the Lake Tahoe Basin, January 14, 2004)

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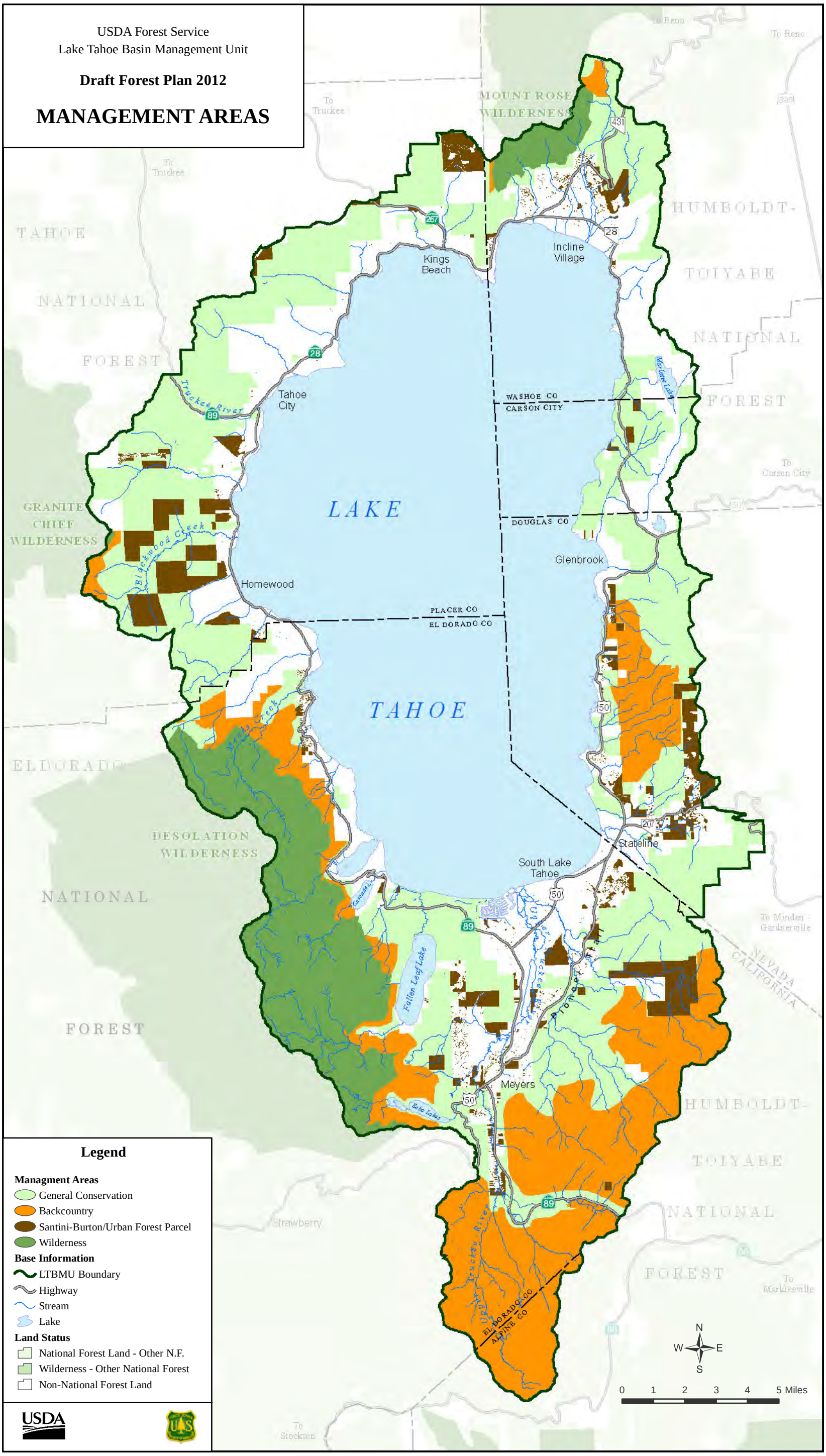
MANAGEMENT AREAS



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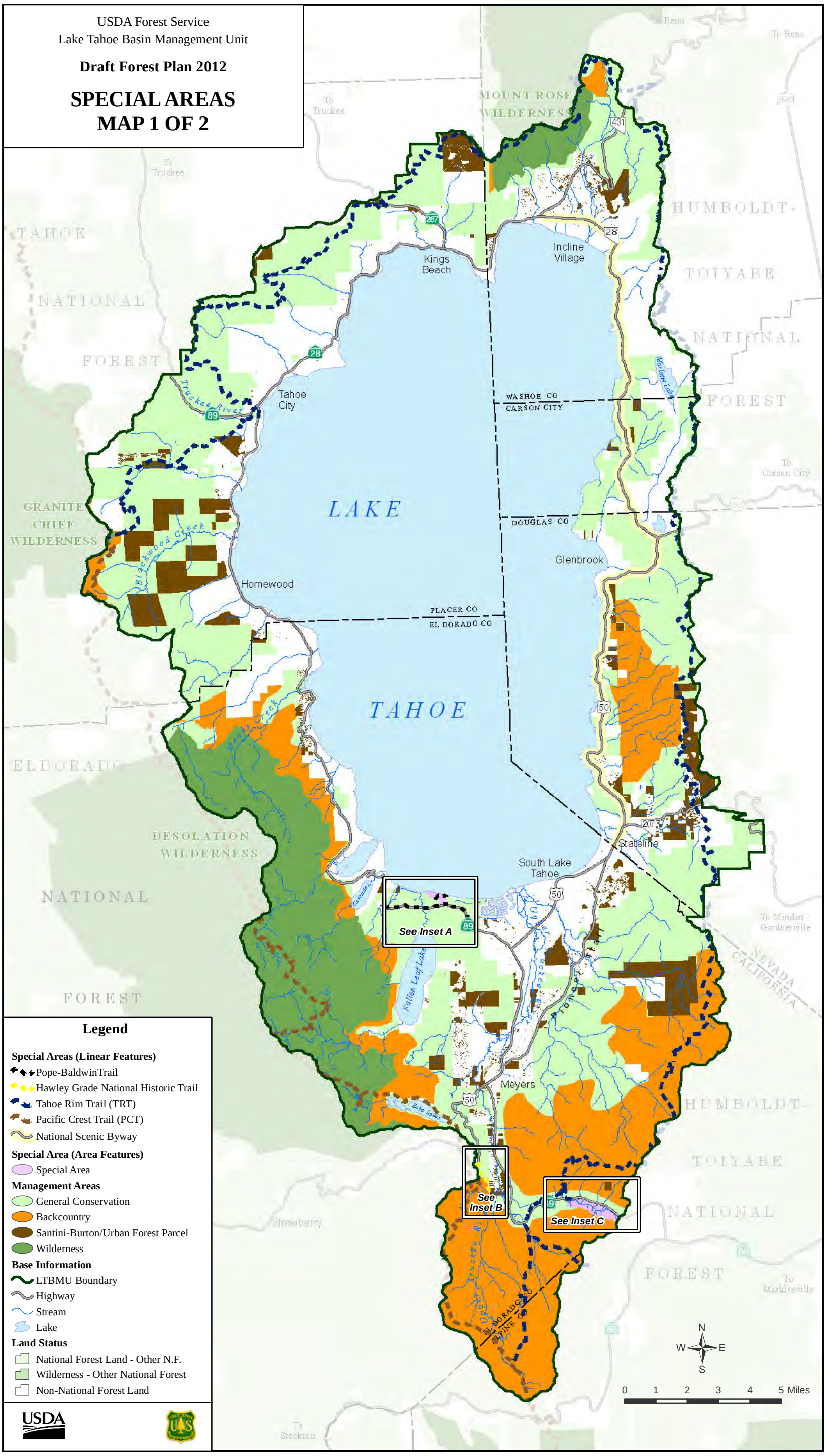
SPECIAL AREAS MAP 1 OF 2



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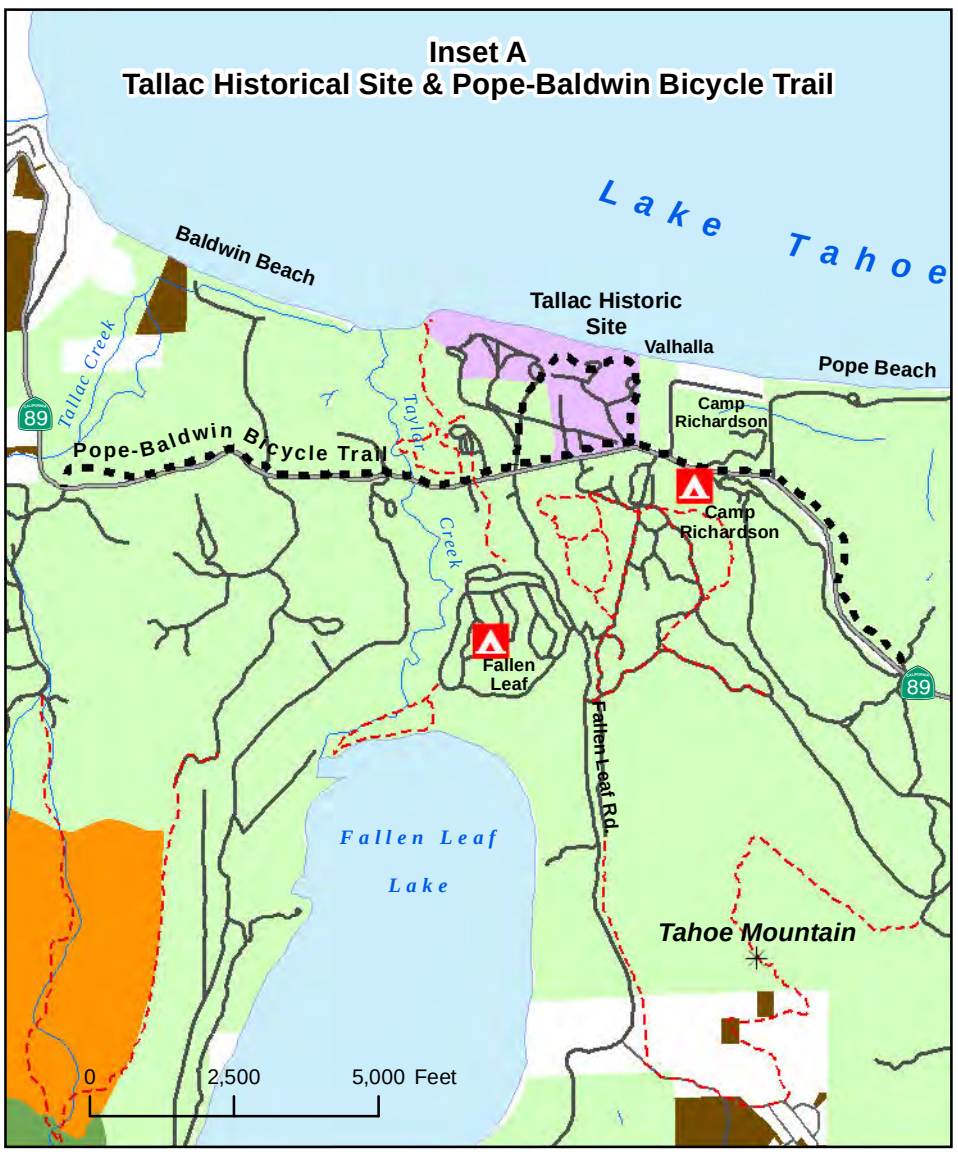
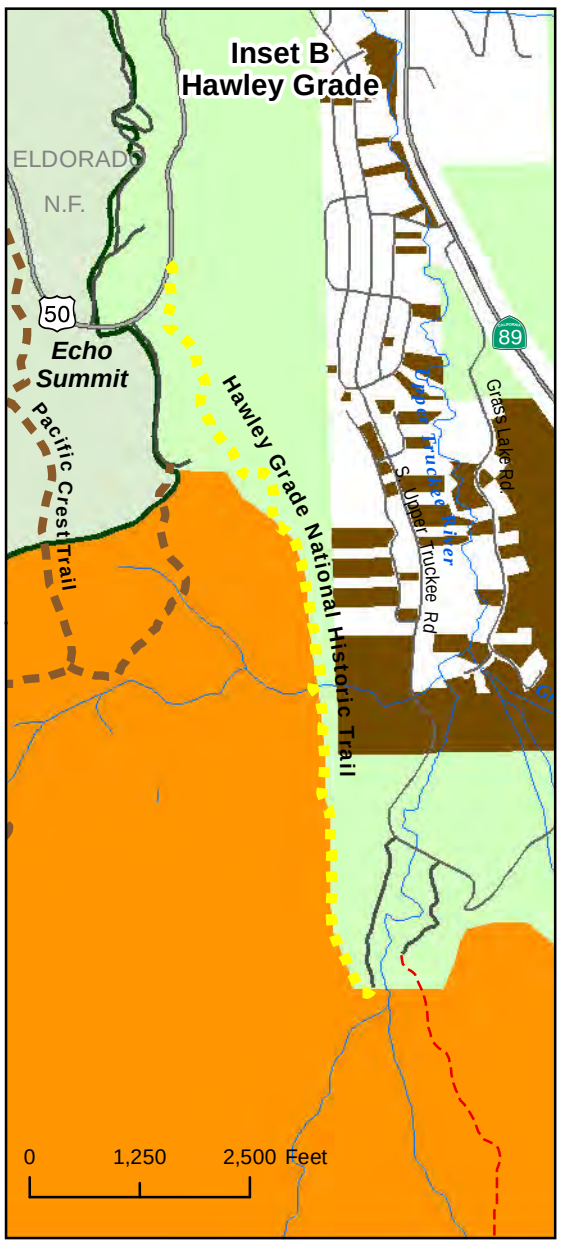
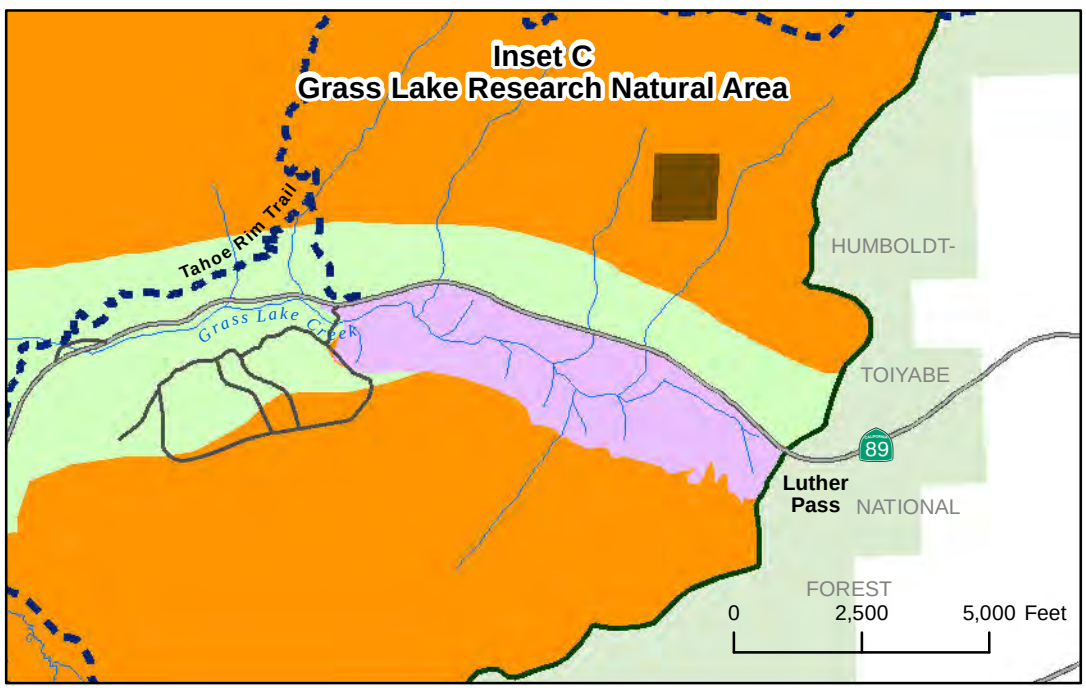
SPECIAL AREAS - MAP 2 OF 2

Inset Displays A, B, & C







Legend

Special Areas (Linear Features)
- Pope Baldwin Trail
- Hawley Grade National Historic Trail
- Tahoe Rim Trail (TRT)
- Pacific Crest Trail (PCT)

Special Area (Area Features)
- Special Area

Management Areas
- General Conservation
- Backcountry
- Santini-Burton/Urban Forest Parcel
- Wilderness

Land Status
- National Forest Land - Other N.F.
- Non-National Forest Land

Base Information
- Campground
- LTBMU Boundary
- USFS System Trail
- National Forest System Road
- Local Road
- Highway
- Stream

N W E S

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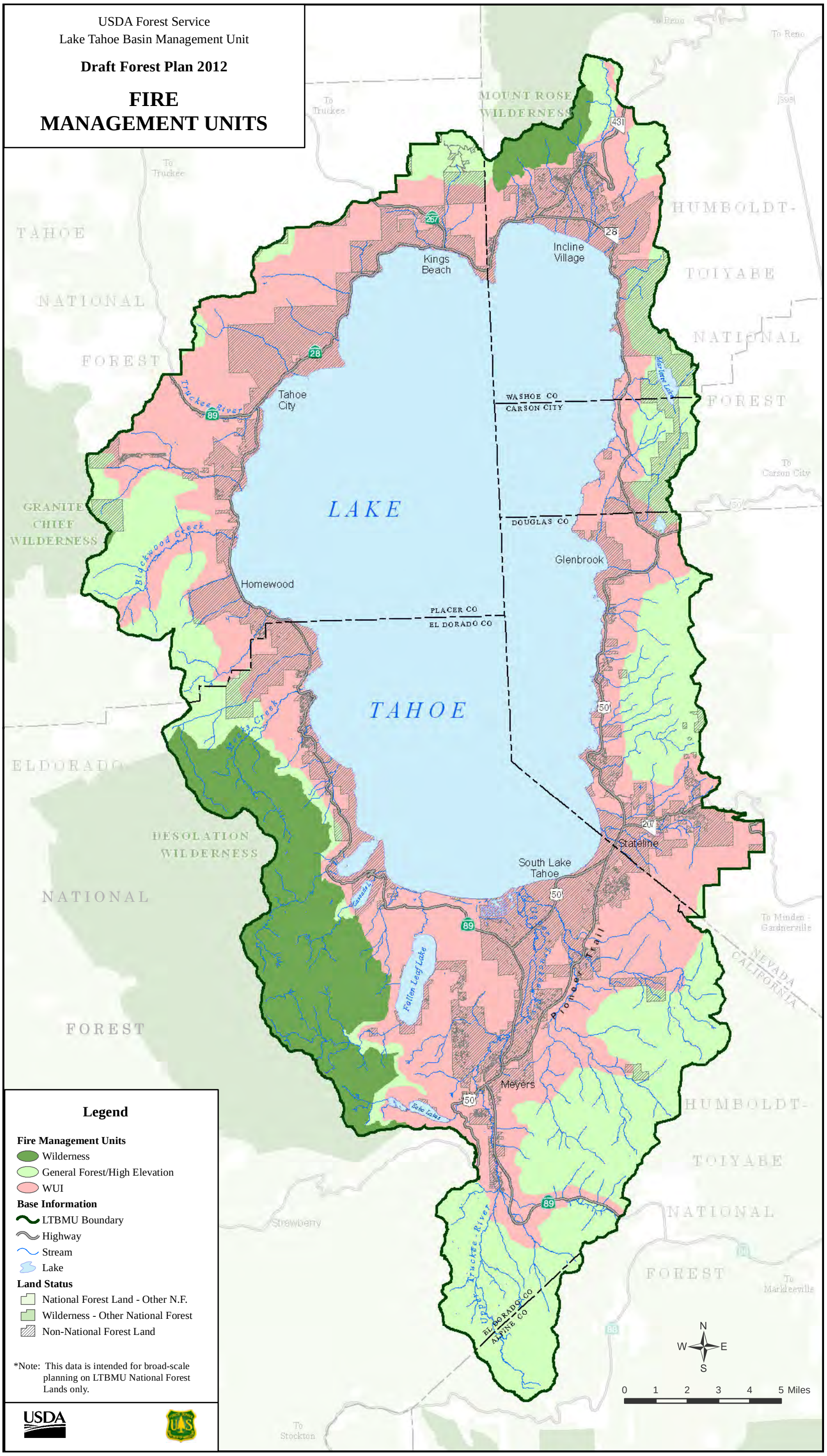
FIRE MANAGEMENT UNITS



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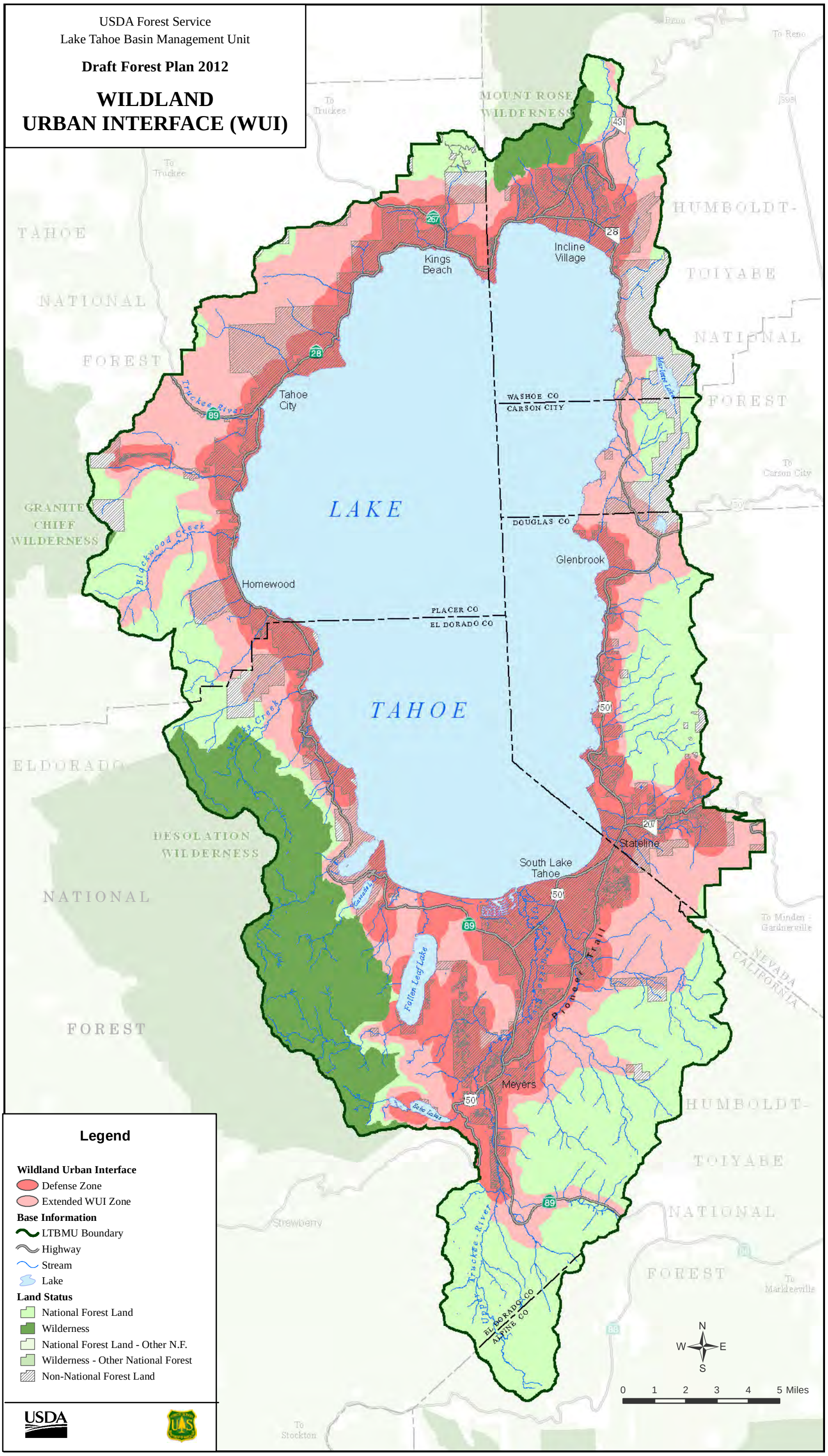
WILDLAND URBAN INTERFACE (WUI)



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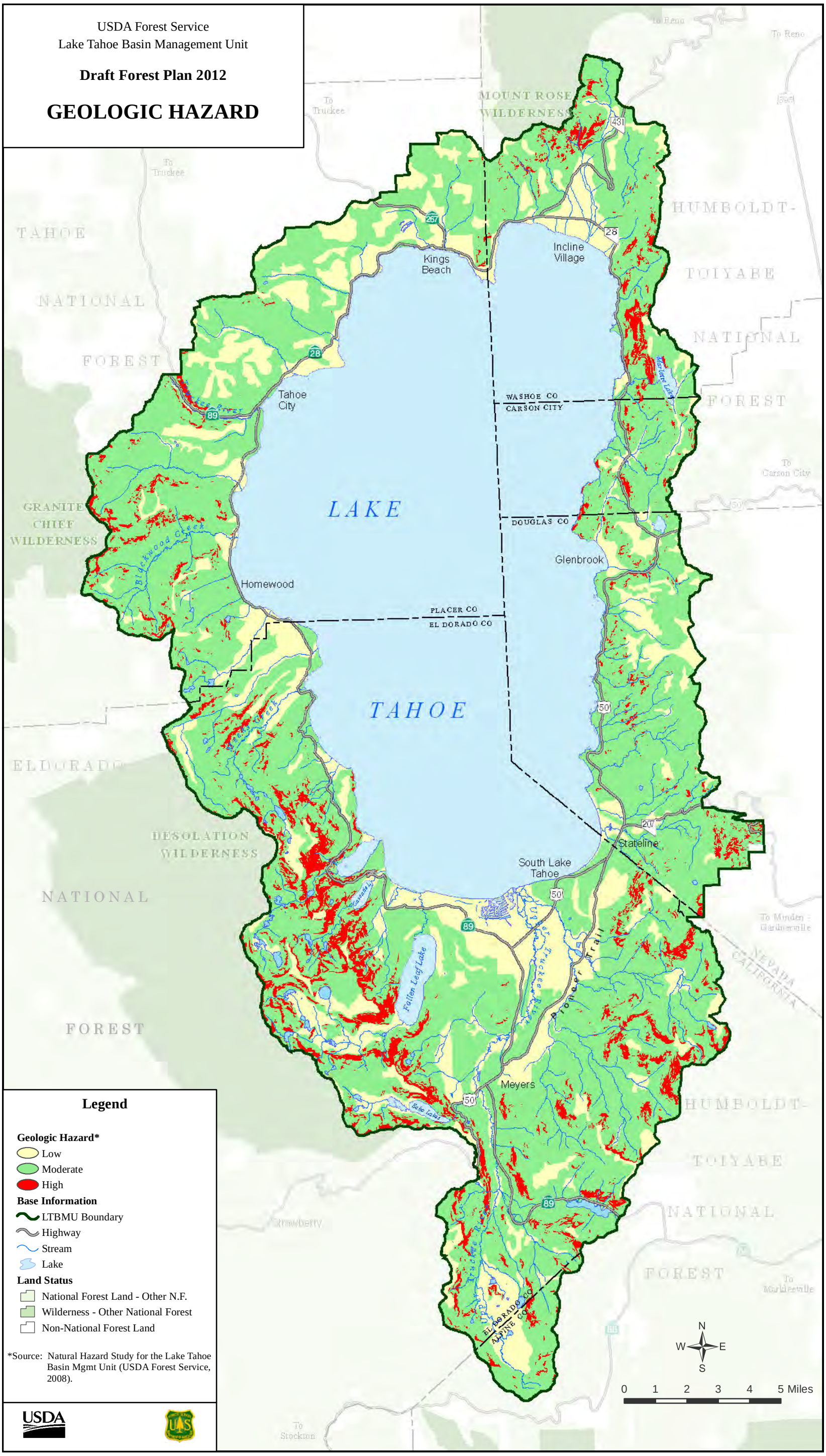
GEOLOGIC HAZARD



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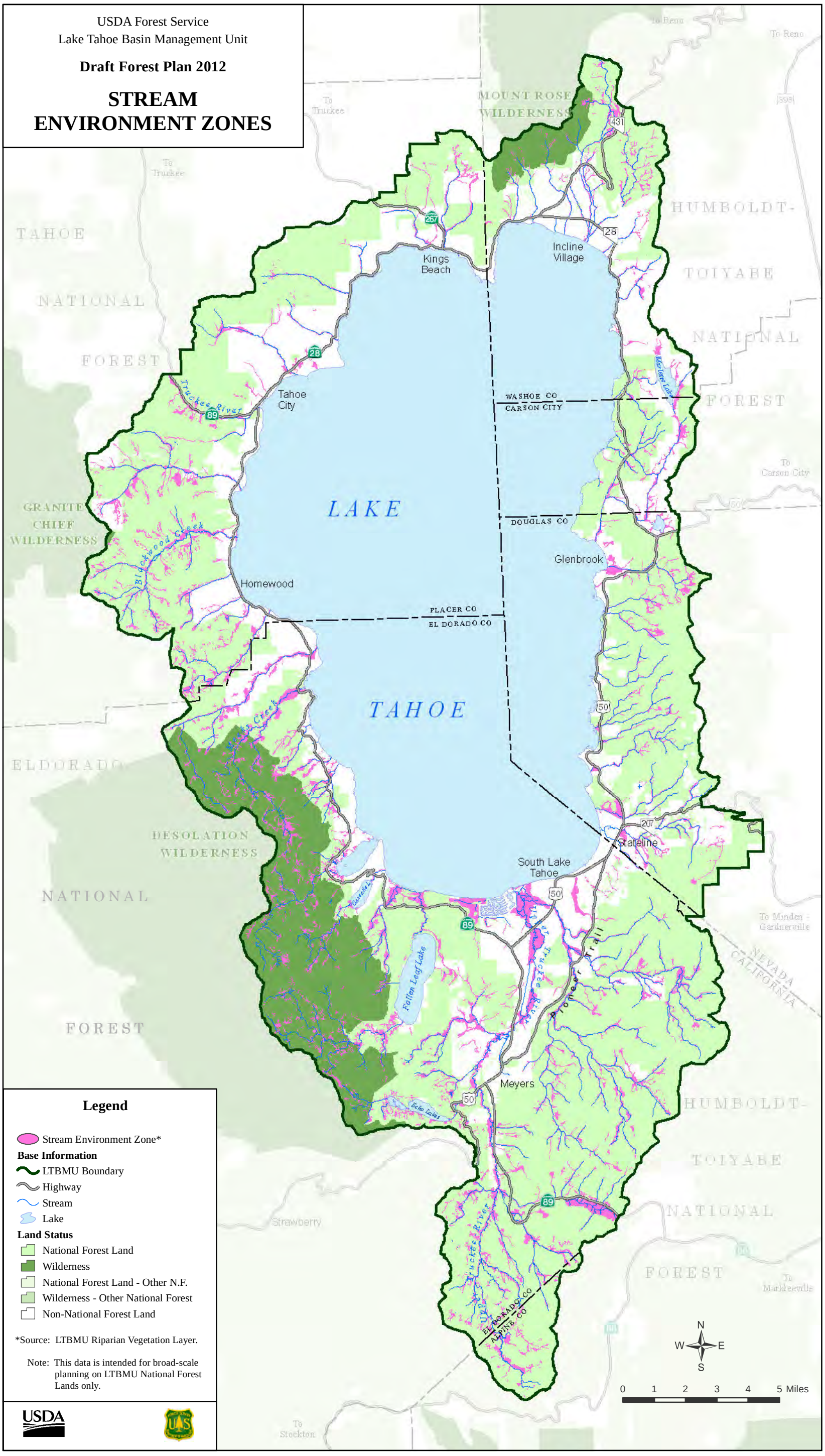
STREAM ENVIRONMENT ZONES



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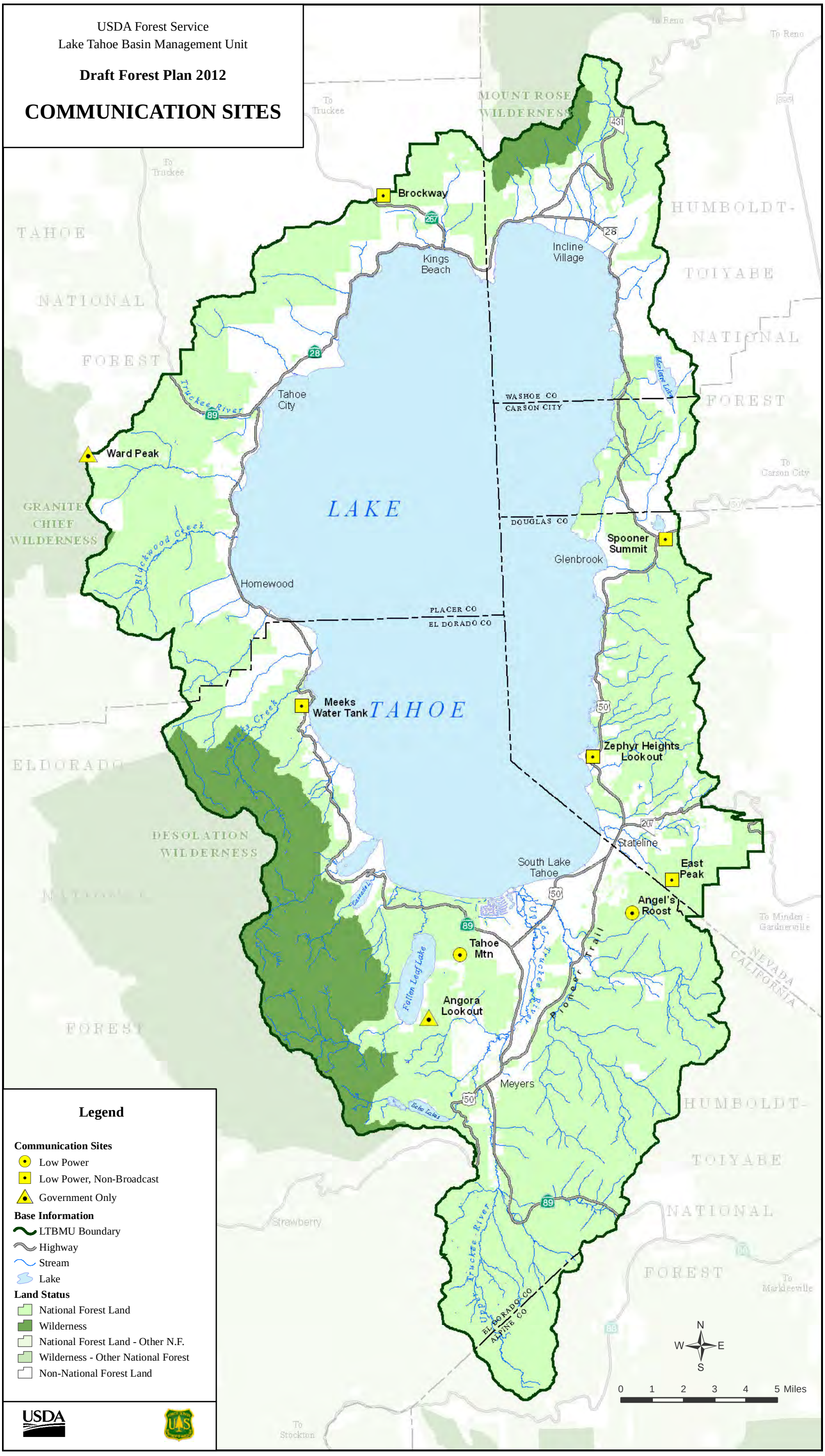
COMMUNICATION SITES



Legend

Communication Sites
- Low Power
- Low Power, Non-Broadcast
- Government Only

Base Information
- LTBMU Boundary
- Highway
- Stream
- Lake

Land Status
- National Forest Land
- Wilderness
- National Forest Land - Other N.F.
- Wilderness - Other National Forest
- Non-National Forest Land

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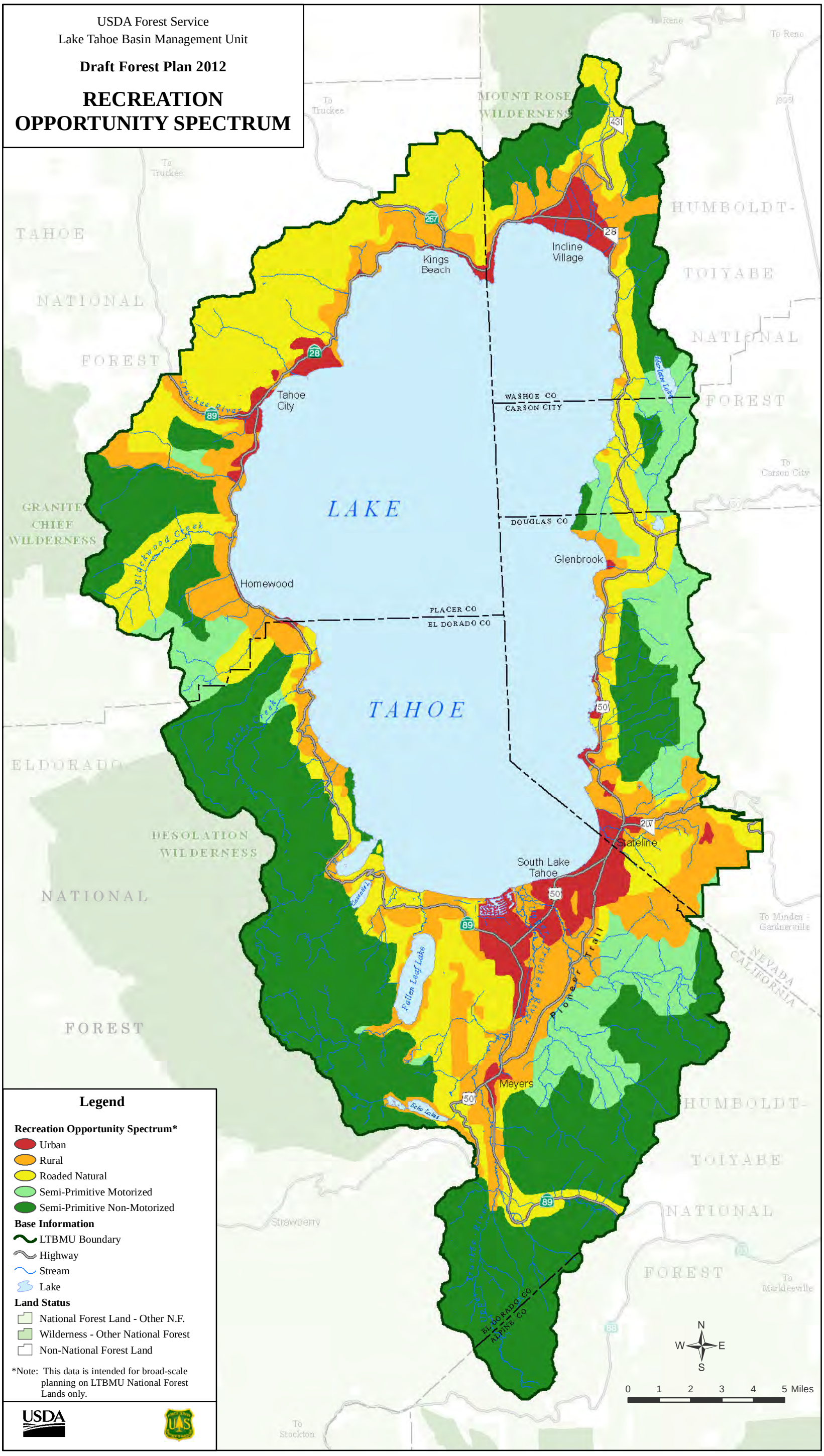
RECREATION OPPORTUNITY SPECTRUM



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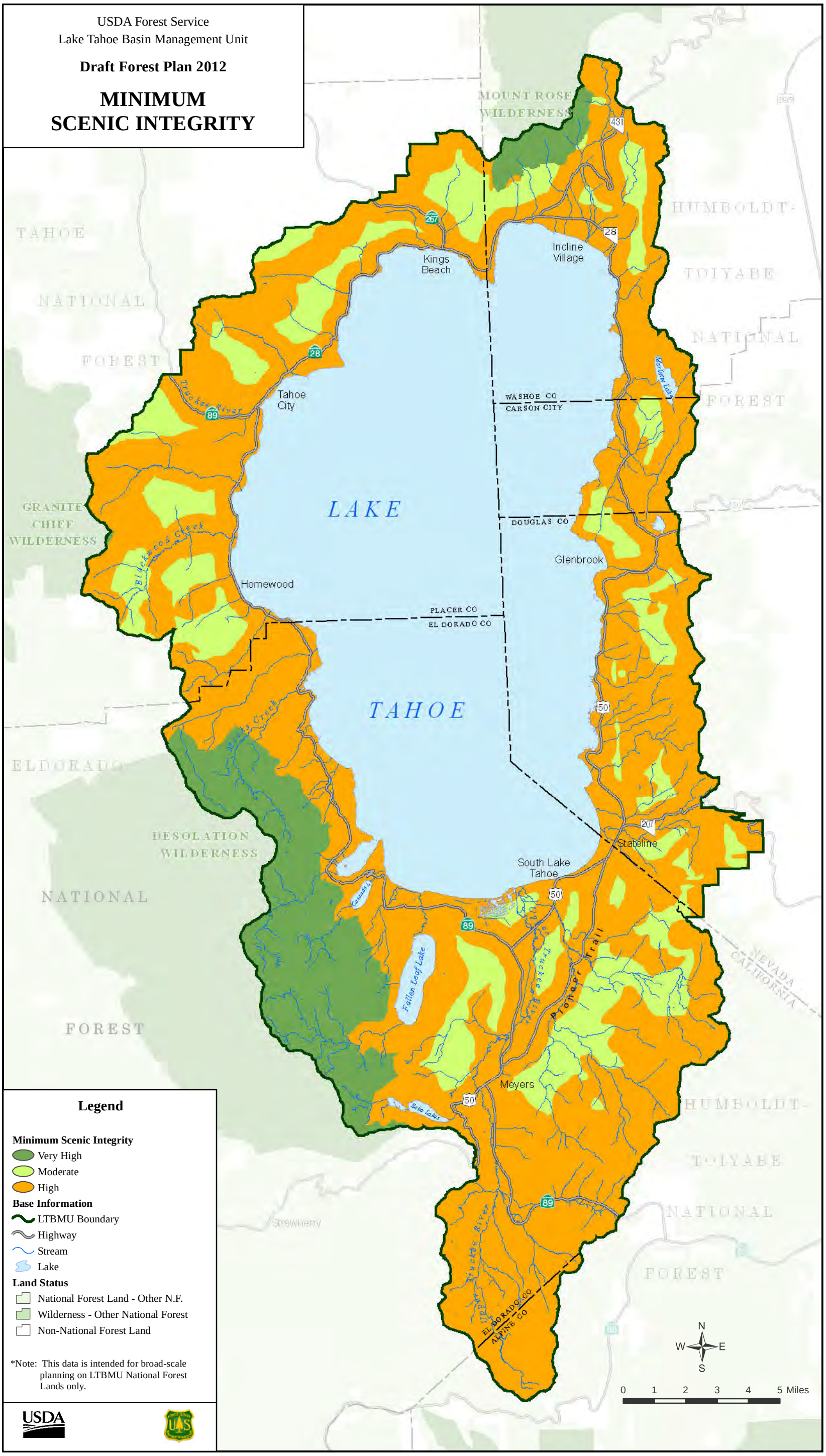
MINIMUM SCENIC INTEGRITY



Legend

Minimum Scenic Integrity
- Very High
- Moderate
- High

Base Information
- LTBMU Boundary
- Highway
- Stream
- Lake

Land Status
- National Forest Land - Other N.F.
- Wilderness - Other National Forest
- Non-National Forest Land

*Note: This data is intended for broad-scale planning on LTBMU National Forest Lands only.

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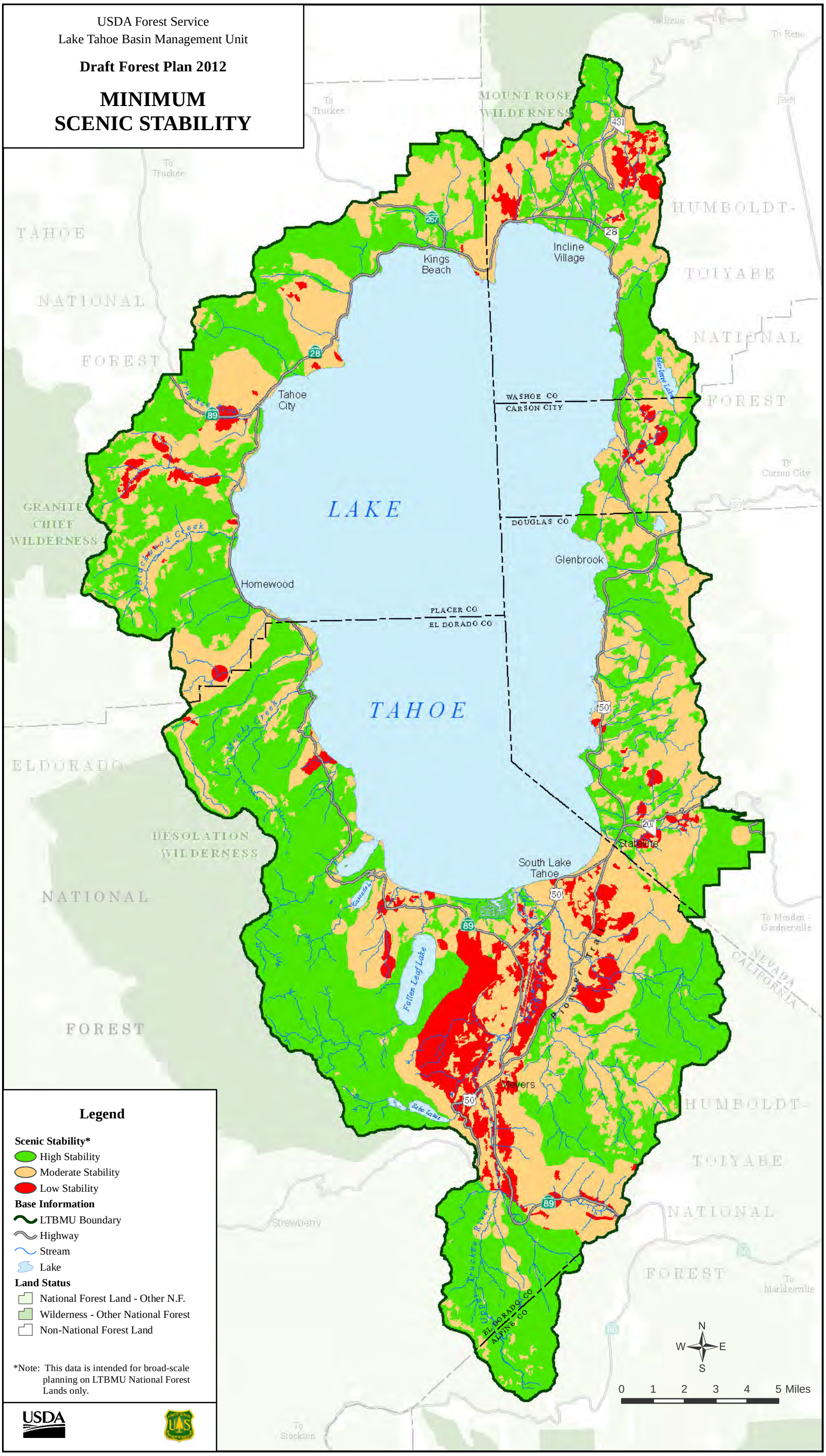
MINIMUM SCENIC STABILITY



Legend

Scenic Stability*
- High Stability
- Moderate Stability
- Low Stability

Base Information
- LTBMU Boundary
- Highway
- Stream
- Lake

Land Status
- National Forest Land - Other N.F.
- Wilderness - Other National Forest
- Non-National Forest Land

*Note: This data is intended for broad-scale planning on LTBMU National Forest Lands only.

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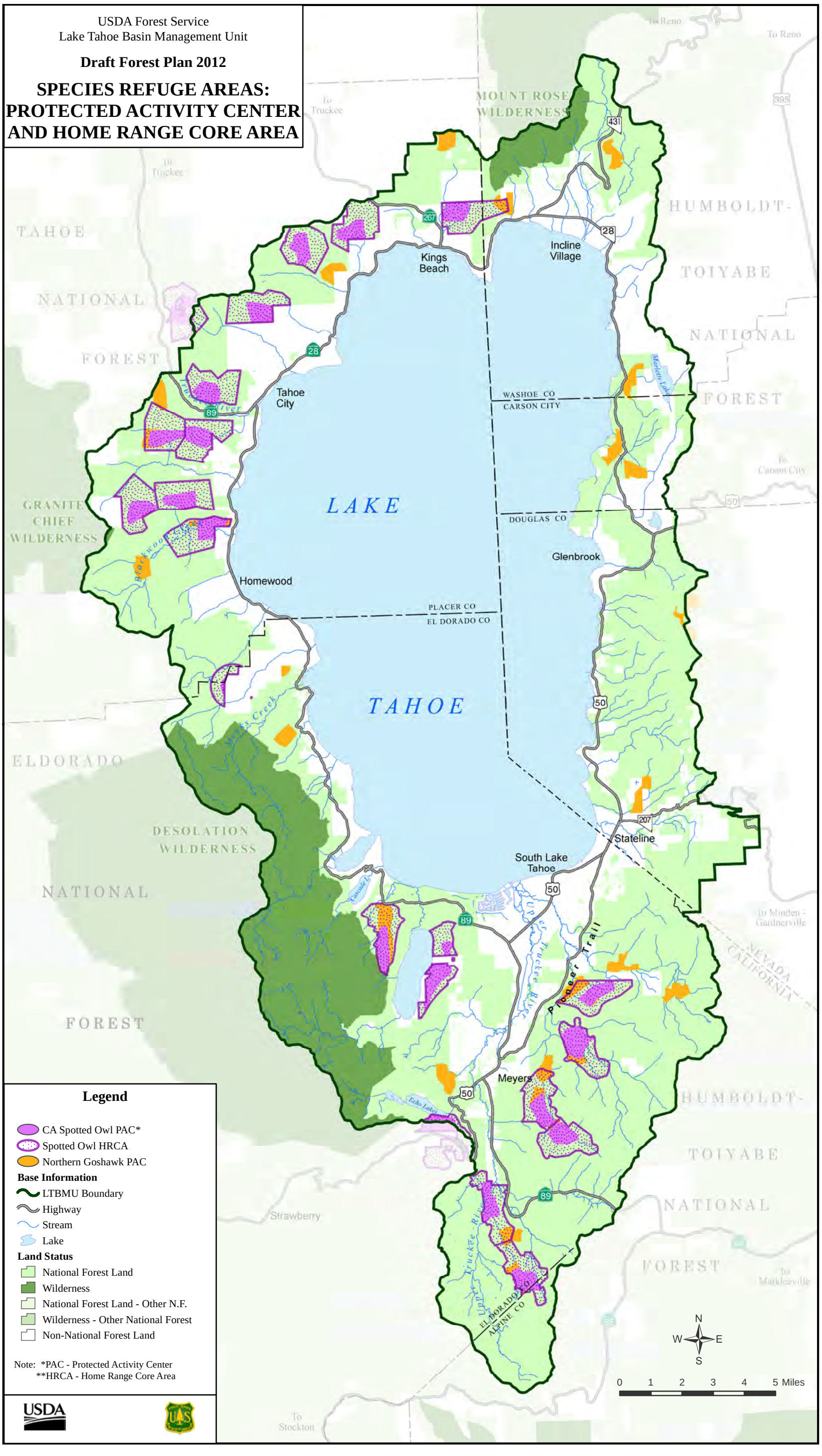
SPECIES REFUGE AREAS: PROTECTED ACTIVITY CENTER AND HOME RANGE CORE AREA



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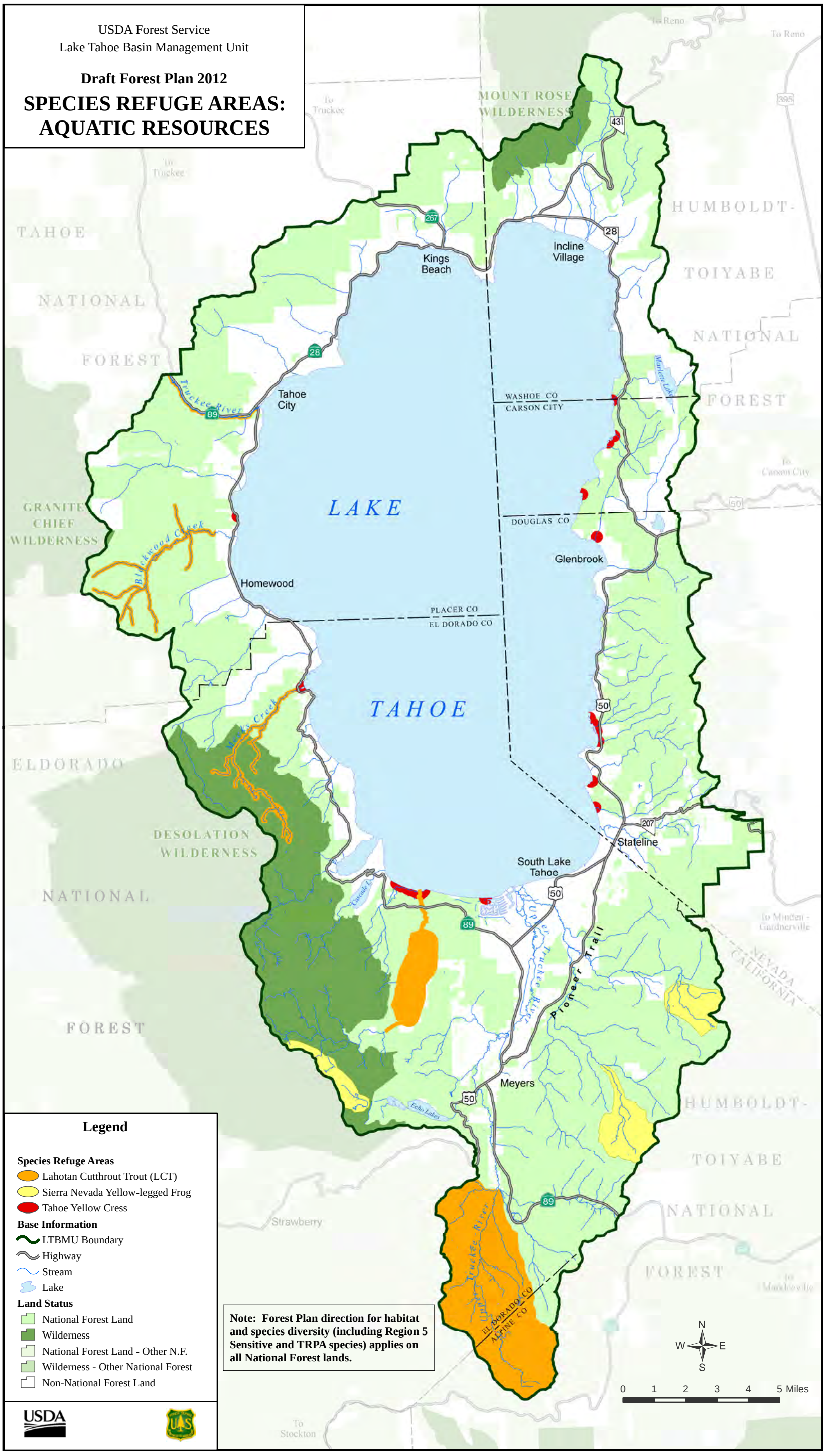
SPECIES REFUGE AREAS: AQUATIC RESOURCES



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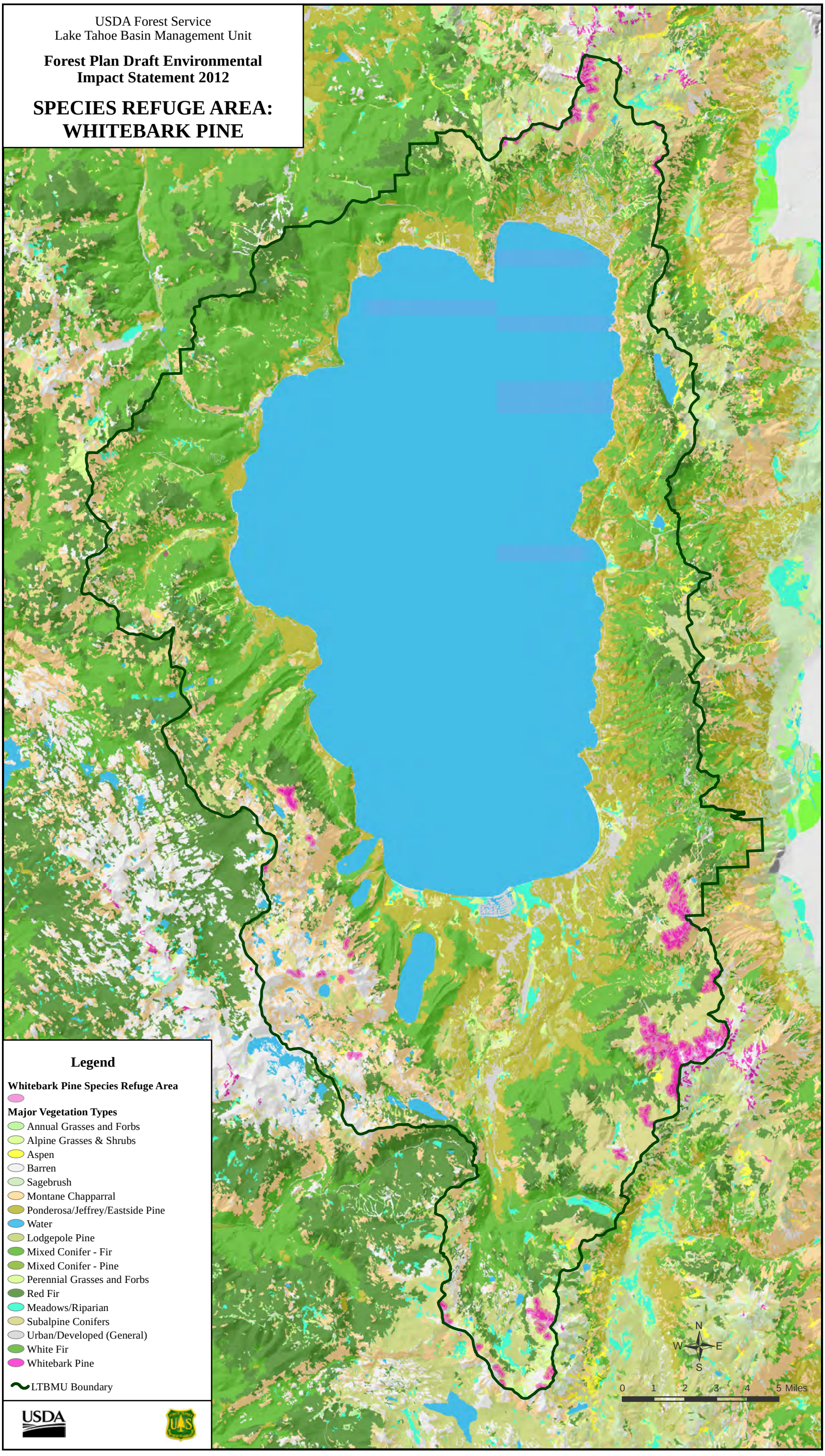
SPECIES REFUGE AREA: WHITEBARK PINE



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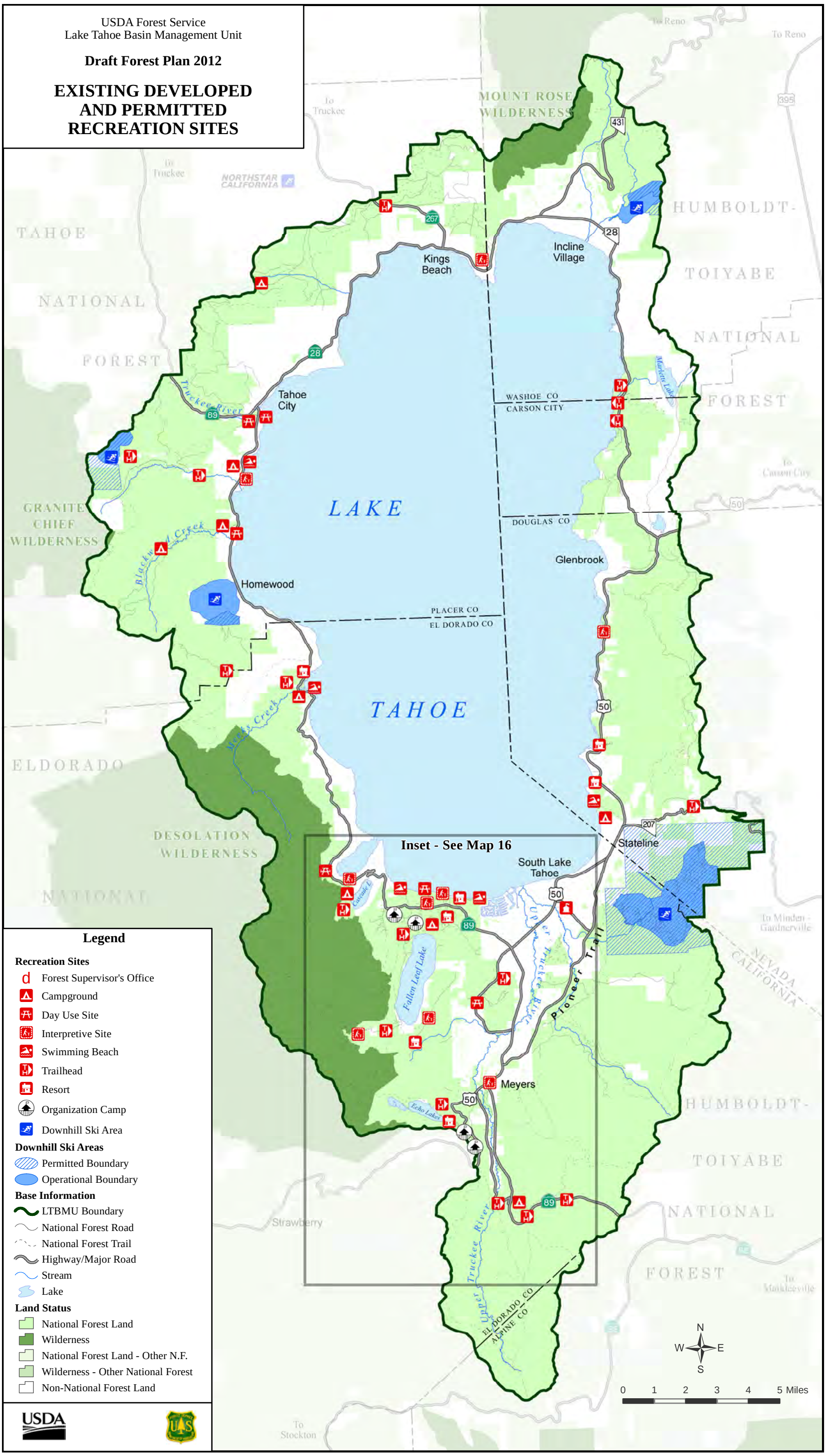
EXISTING DEVELOPED AND PERMITTED RECREATION SITES



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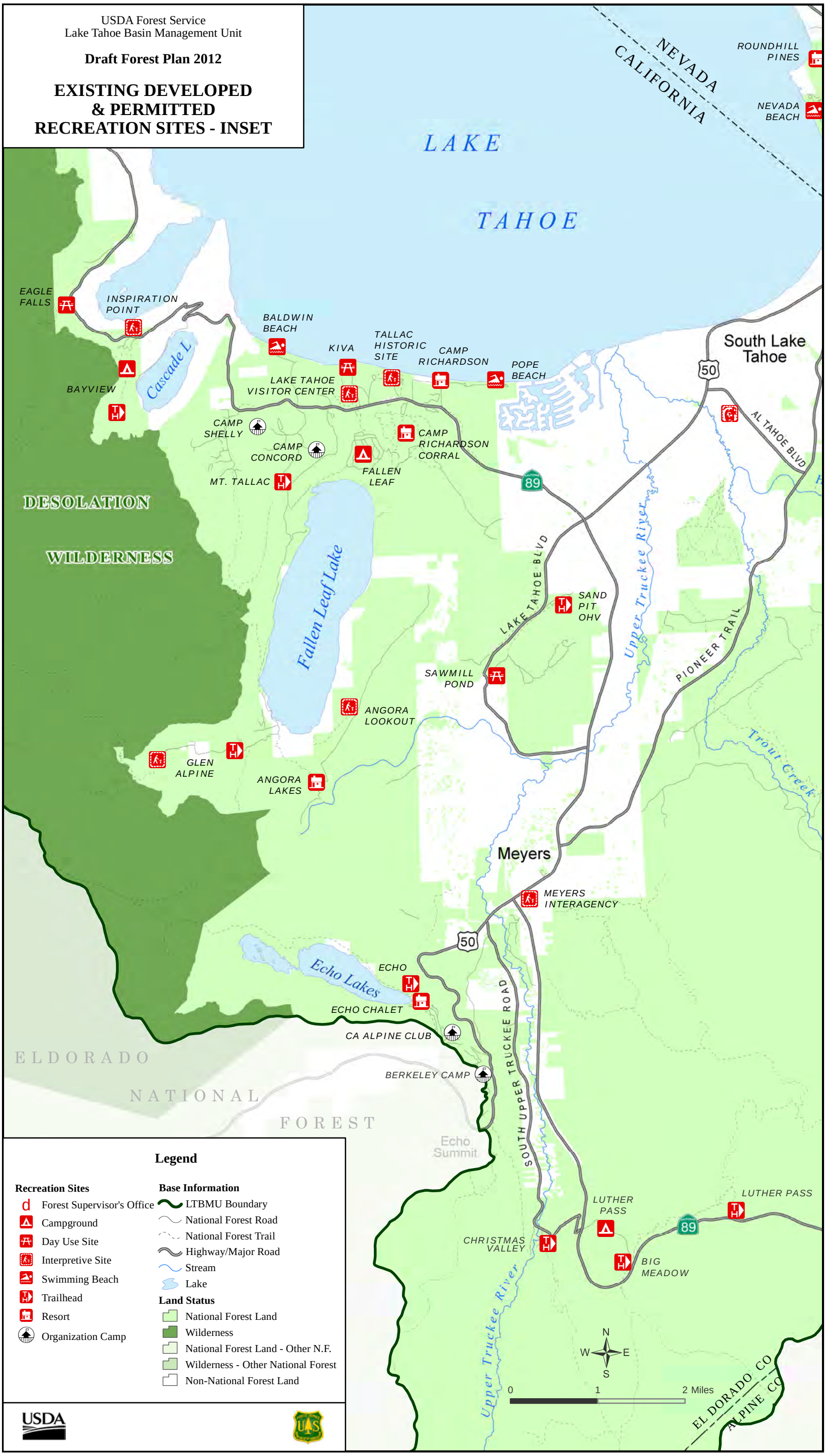
EXISTING DEVELOPED & PERMITTED RECREATION SITES - INSET



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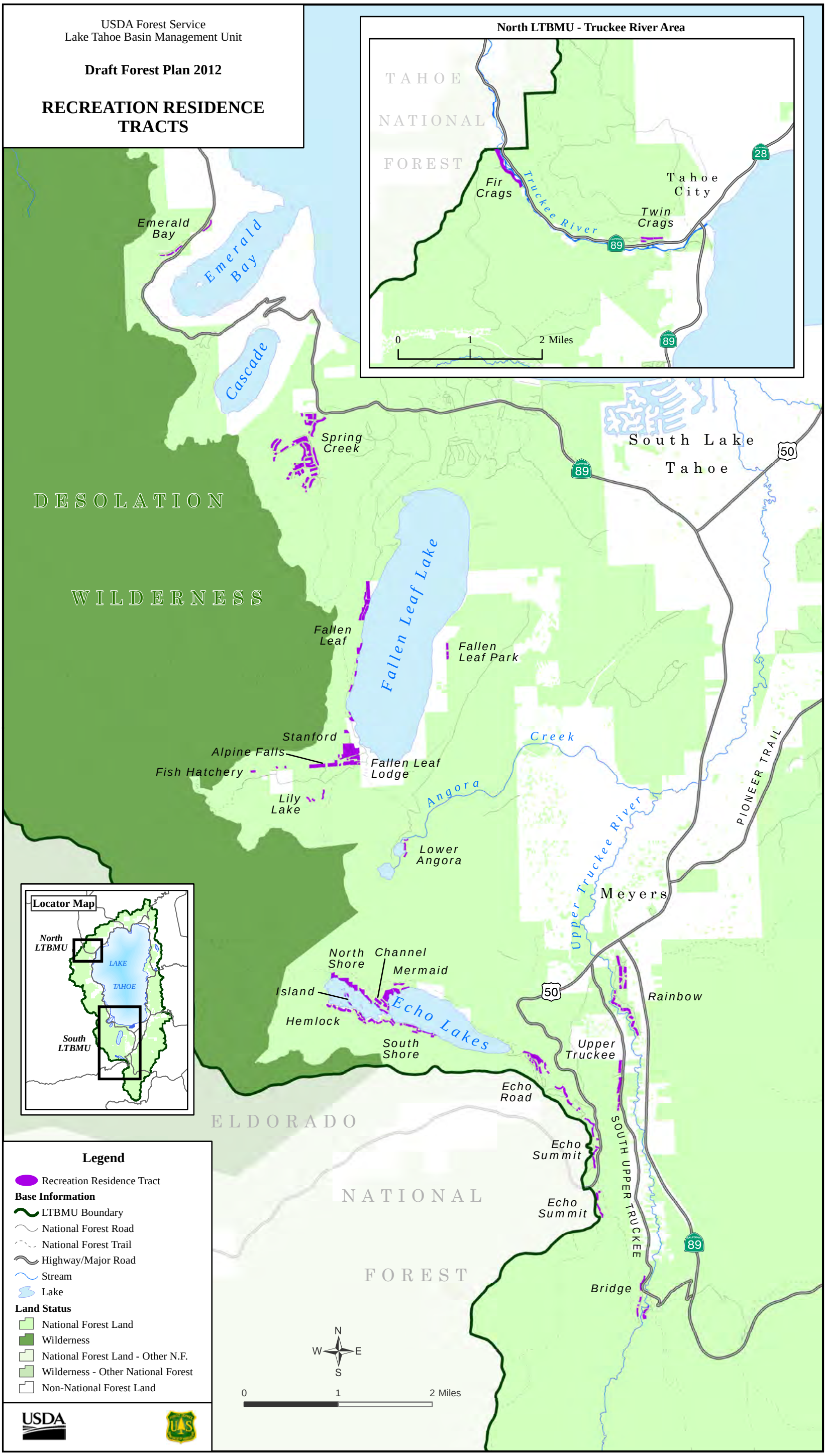
RECREATION RESIDENCE TRACTS