United States Department of Agriculture

Forest Service

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Environmental Assessment

Baldwin Grazing Allotment

Lake Tahoe Basin Management Unit, Region 5—US Forest Service

Legal Description: The Baldwin Grazing Allotment is located in Eldorado County on the south shore of Lake Tahoe in the Fallen Leaf Management Area. SW 1/4, Section 26 and NW 1/4, Section 35, Township 13 North, Range 17 East, Mt. Diablo Meridian.

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Table of Contents

Summary 2

Introduction 3
Document Structure 3
Background 4
Purpose and Need for Action 4
Proposed Action 7
Management Direction 7
Desired Conditions 11
Decision Framework 12
Public Involvement 13
Issues **Error! Bookmark not defined.**

Alternatives, including the Proposed Action 14
Alternatives 14
Design Features Common to All Alternatives 16
Comparison of Alternatives 17

Environmental Consequences 18
Rangeland Resources 19 **Error! Bookmark not defined.**
Hydrology and Soils 24
Recreation 30
Scenery 32
Wildlife and Aquatic Species 32
Botanical Resources 39
Heritage Resources 45

Consultation and Coordination 45
ID Team Members 45
Federal, State, and Local Agencies 46
Tribes 46

1.0 SUMMARY

The Lake Tahoe Basin Management Unit (LTBMU) proposes to:

1) Discontinue authorized livestock grazing on the Baldwin Allotment in order to meet state and federal resource standards and achieve desired conditions; and

2) Amend the 1988 LTBMU Land and Resource Management Plan (Forest Plan) to close the Baldwin Grazing Allotment to eliminate grazing in the future.

The project area is approximately 200 acres and is adjacent to Baldwin Beach on the south shore of Lake Tahoe. A capability and suitability analysis for the allotment determined that only two percent of the entire project area is suitable for livestock grazing. Suitability is defined as: "The appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices." (CFR 219.3).

This action is needed to ensure natural and cultural resources are protected, State and Federal regulations are met, and existing environmental conditions and trends in the area are moving towards desired conditions.

The proposed action is expected to lead to improved conditions in the functioning of riparian, meadow, aquatic, and terrestrial ecosystems by improving floodplain characteristics and function, reducing sedimentation, improving meadow habitat and function, improving water quality, improving species composition and structural habitat and encouraging long-term sustainability of riparian vegetation, including aspen stands and willow shrub densities.

In addition to the proposed action, the Forest Service also considered the following alternative:

- *Alternative 2* — Exclude grazing from the majority of Stream Environment Zone (SEZ) and allow late season livestock grazing, after August 15th, in the C pasture only permitting 30 horses for 3 days.

Two alternatives were considered but eliminated from detailed study.

- Allow grazing under the previous term permit which permitted 45 horses to graze the entire allotment from July 1 until October 15 (or until standards were met).
- Construct fence around the SEZ. Create new pastures to exclude grazing from the SEZ and allow livestock in upland habitat only.

Based upon the effects of the alternatives, the responsible official will decide:

1) Whether or not to discontinue grazing on the Baldwin Allotment.

2) Whether or not to allow limited grazing on Pasture C of the Baldwin Allotment.

3) Whether or not to amend the LTBMU Forest Plan with permanent land management direction to close the Baldwin Allotment.

2.0 INTRODUCTION

2.1 Document Structure

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

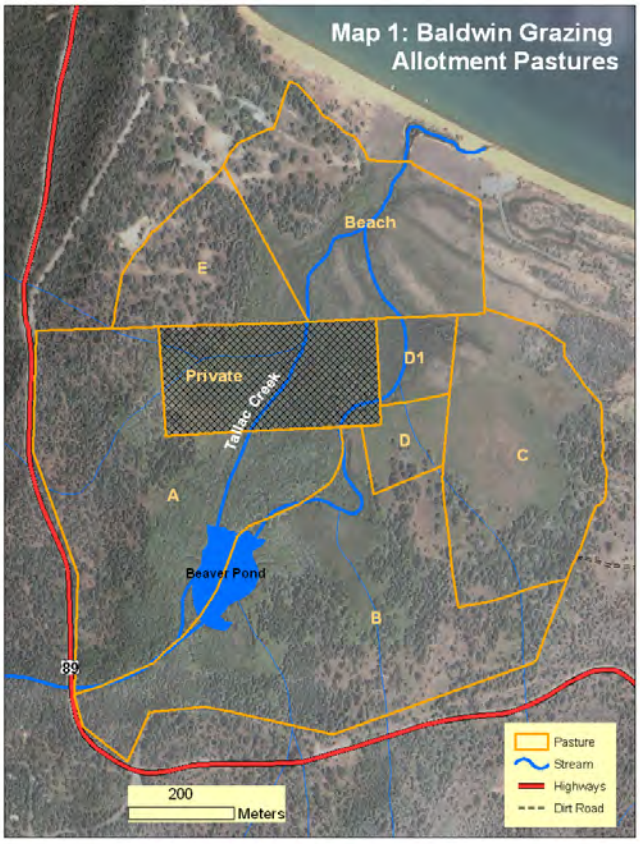
- *Introduction:* The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, including the Proposed Action:* This section provides a more detailed description of the agency's proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Environmental Consequences:* This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource area.

- *Agencies and Persons Consulted:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.
- *Appendices:* The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Additional documentation may be found in the project planning record located at Lake Tahoe Basin Management Unit of the US Forest Service in South Lake Tahoe, CA.

2.2 Background

The U. S. Forest Service Lake Tahoe Basin Management Unit (LTBMU) manages the Baldwin Grazing Allotment in the Tallac Creek watershed. The allotment is approximately 200 acres and the only Forest Service allotment on the lakeshore of Lake Tahoe. The allotment is divided into seven pastures – A, B, C, D, D1, E, and beach pasture (Map 1). No grazing has occurred on the beach pasture since 2003. Additionally, pasture D1 was closed in 2004 and pasture E in 2005. Pasture sizes range from 5- 61 acres and include both mesic and xeric ecologic site transitions. The allotment is dissected by Tallac Creek, which provides inflow to Lake Tahoe and supports native and introduced fish species. Wetland and riparian areas provide habitat for wildlife species, such as willow flycatcher and sensitive plant taxa, including *Botricium spp.* and *Epilobium spp.* The beach pasture is also adjacent to a known Tahoe yellow cress population, which is identified in the Tahoe Yellow Cress Conservation Plan as a medium priority restoration site. The allotment is also adjacent to a popular recreational beach facility.



The area encompassing the Baldwin Allotment has been grazed for over 100 years. The area was settled by the Brigham family, now known as the

Ebright family, in the late 1800's where the land was used for grazing dairy cows as well as horses. Since the late 1900's horses have been the only authorized stock animal to graze on the Baldwin Allotment.

There has been a long term permit holder for the Baldwin Grazing Allotment. There is a 20 acre in-holding within the allotment boundaries. The use on this allotment has been in association with Cascade Stables, which conducts trail rides on private property and outfitter guide activities in Desolation Wilderness authorized through a Special Use Permit. On October 20, 2008, the permit holder informed LTBMU staff that they intended to withdraw their term-grazing application for continued grazing privileges on the Baldwin Allotment. Because of this decision there is currently no active permit holder for the allotment.

Lake Tahoe is renowned for its optical clarity and deep blue color. It has been designated an "Outstanding National Water Resource" by the U.S. Environmental Protection Agency due to its ecological assets, scenic quality, and year-round recreational appeal. Unfortunately, the optical clarity of Lake Tahoe has decreased during the last four decades, the result of algal growth stimulated by nutrient input from atmospheric deposition, urban runoff, and transport of sediment into the lake. Currently, Lake Tahoe is listed on California's 303(d) list of Clean Water Act impaired water bodies. Because of these designations, there are higher water quality standards applied to land management activities within the Lake Tahoe basin than in surrounding areas of the Sierra Nevada.

The permitted use on this allotment has been out of compliance with Lahontan Regional Water Quality Control Board (LRWQCB) fecal coliform standards since 1999, when intensive monitoring began. The Forest Service was issued a Notice of Violation in 1999 and a Letter of Violation in 2008 for "Discharges of wastes in excess of Lahontan Basin Plan water quality objectives for fecal coliform on USFS/LTBMU grazing allotments".

Additionally, herbaceous utilization standards set by the Sierra Nevada Forest Plan Amendment (SNFPA) Record of Decision (ROD) have been exceeded annually since 2000 (Table 1). Monitoring results show that desired resource conditions were consistently exceeded even though various management strategies were implemented. Letters documenting monitoring results were issued to the permittee on March 25, 2003, August 18, 2004, April 4, 2005, and May 21, 2007. Because the term grazing permit expired on December 31, 2006 and no long term decision had been made on the allotment, a temporary grazing permit was issued for 2007 and 2008. Permitted use was modified from 45 horses from July 1 to October 15 to 30 horses for 3 days (or until standards were met) on the C Pasture only. All resource standards were met in 2007 and 2008 under this limited grazing strategy.

Table 1: Monitoring results from 1999 until 2008.

Year	Streambank Trampling	Herbaceous Utilization	Woody Utilization	Willow Flycatcher	Water Quality
1999	Not measured	**Standards not met**	Standards met	No active nests	**Standards not met**
2000	Not measured	**Standards not met**	Standards met	No active nests	Standards met
2001	Not measured	**Standards not met**	Standards met	No active nests	**Standards not met**
2002	Not measured	**Standards not met**	Standards met	No active nests	**Standards not met**
2003	Not measured	**Standards not met**	Standards met	No active nests	**Standards not met**
2004	**Standards not met**	**Standards not met**	Standards met	No active nests	**Standards not met**
2005	Standards met	**Standards not met**	Standards met	Active nest Standards met	**Standards not met**
2006	**Standards not met**	**Standards not met**	Standards met	Standards met	**Standards not met**
2007	Not measured	Standards met	Standards met	Standards met	Standards met
2008	Not measured	Standards met	Standards met	Active nest Standards met	Standards met

2.3 Purpose and Need for Action

The previous term grazing permit has expired and there is a need to determine whether to authorize grazing as an appropriate management tool to meet desired ecological conditions in the allotment.

There is need to meet water quality standards set by LRWQCB that state "*fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml.*"

There is a need to ensure management activities on the Baldwin Allotment meet Federal standards directed by the Forest Plan as amended by the Sierra Nevada Forest Plan Amendment Record of Decision 2004 designed to protect water quality, riparian and stream habitat, and upland terrestrial habitat. For the Baldwin Allotment, these standards include:

- Herbaceous utilization will not be greater than 40%.
- Willow utilization will not be greater than 20%.
- Streambank utilization will not be greater than 20%.

- In meadows with occupied willow flycatcher sites, only allow late-season grazing (after August 15) in the entire meadow.

There is a need to ensure management activities aid in the maintenance and further improvement of herbaceous vegetation conditions that are indicative of late seral meadow conditions.

There is a need to increase riparian shrub and aspen habitat to provide habitat for riparian dependant species and improve floodplain stability.

There is need to increase bank stability along Tallac Creek by increasing riparian vegetation.

There is a need to meet CFR direction for multiple-use objectives that states forage will be provided to qualified livestock operators in areas deemed *suitable* for grazing (36 CFR 222.2(c)).

2.4 Proposed Action

This section briefly summarizes the action proposed by the Forest Service to meet the purpose and need. It is described in detail in the Alternatives section of this document.

The proposed action is to discontinue authorized livestock grazing on the Baldwin Grazing Allotment and amend the Forest Plan to close the allotment. All fence material that currently delineates pasture and allotment boundaries on National Forest System land would be manually removed.

2.5 Management Direction

The following section summarizes key applicable management direction for this project:

<u>Forest Plan, page IV-29, Range Pasture Management Standards and Guidelines:</u>

> Study pastures near the lakeshore, or in other areas where meadow lands are serving as a last filtering system for sediment and nutrients carried by surface water, to determine if special utilization standards or management practices should be applied.

<u>Forest Plan, page IV-29, Range Allotment Management Standards and Guidelines:</u>

> Limit grazing or modify the grazing management system on deteriorating ranges to assist recovery.

Forest Plan, page IV-29, Range Allotment Management Standards and Guidelines:

Consider effects upon water quality, riparian areas, wildlife and fish before permitting grazing on a vacant allotment.

Forest Plan, page IV-34, Water Quality Maintenance and Improvements:

Do not allow solid and liquid wastes to be discharged 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.

Forest Plan, page IV-18, General Management:

In resolving conflicts, the following list of resources or uses are in order of priority and will normally apply:
(a.) Highest priority will be given to the protection of water quality and the enhancement of the clarity of water in Lake Tahoe.
(i.) Lowest priority will be given to forage grazing.

Forest Plan, page IV-29, Range Improvements:

Construct fences to prevent livestock from entering recreation and urbanized areas, highway corridors, areas of steep or otherwise sensitive soils, and where other resources values could be damaged.

Sierra Nevada Forest Plan Amendment, ROD page 63:

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 of cutting plant roots. This standard does not apply to developed recreation sites, sites authorized under Special Use Permits and designated off-highway vehicle routes.

Sierra Nevada Forest Plan Amendment, ROD page 65:

Under season-long grazing: 1) For meadows in early seral status: limit livestock utilization of grass and grass-like plants to 30 percent (or minimum 6-inch stubble height), 2) For meadows in late seral status: limit livestock utilization of grass and grass-like plants to a maximum of 40 percent (or minimum 4-inch stubble height). Determine ecological status on all key areas monitored for grazing utilization prior to establishing utilization levels. Use Regional ecological scorecards and range plant list in regional range handbooks to determine ecological status. Analyze meadow ecological status every 3 to 5 years. If meadow ecological status is determined to be moving in a downward trend, modify or suspend grazing. Include ecological

status data in a spatially explicit Geographical Information System database.

The Rescissions Act of 1995

The Rescissions Act mandated that each National Forest System unit shall establish and adhere to a schedule for the completion of NEPA. A schedule has been established by the USFS, Pacific Southwest Region and is updated annually in INFRA. The schedule identified that the Baldwin Allotment NEPA be completed in 2008.

Section 504b of the Act provides that a grazing permit that expires before the NEPA analysis and decision is completed according to the schedule shall be issued on the same terms and conditions and for the full term of the expired permit, unless there are other reasons other than the lack of the necessary NEPA analysis which justify not issuing a new permit. Section 504c of the Act states provides that regarding an expired permit, this section of the Act shall only apply if a new term grazing permit has not been issued to replace an expired permit solely because the analysis required under NEPA and other laws has not been completed. Under previous grazing operations outlined in the expired permit; State and Federal water quality standards were not met. The permit was therefore not reissued under the same terms and conditions. The 2004 Rider to the Rescissions Act states that if a grazing permit expires during FY 2004-2008, the terms and conditions continue in effect under the renewed permit until the permit is processed in compliance with applicable laws, at which time such permit may be canceled, suspended or modified.

California Regional Water Quality Control Board, Lahontan Region Order 6-98-36 NPDES No. CAG996001:

The fecal coliform concentration during any 30-day period shall not exceed a logarithmic mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml. The log mean shall ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100ml for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.

The LTBMU Forest Plan as amended (USDA 1988) guides overall LTBMU land management and resource protection through prescriptions, standards, and guidelines.

The 2004 SNFPA incorporates the Aquatic Management Strategy (AMS) to restore aquatic systems and associated wildlife habitats as a fundamental component (USDA 2004a). The basic principle of the AMS is to retain,

restore, and protect the processes and landforms that provide habitat for aquatic and riparian dependent organisms while producing the highest levels of water quality.

AMS goals (SNFPA ROD pg. 32) target and provide management direction for the following areas important to ecosystem function:

Water Quality: Improve water quality to meet goals of the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA).

Wildlife Species Viability: Maintain and restore habitat as a means to restore and maintain wildlife species viability.

Plant and Animal Community Diversity: Maintain and restore species composition and structural diversity of plant and animal communities in riparian and meadow settings and provide desired habitats and ecological functions.

Special Habitats: Provide self-sustaining habitat for species dependent upon unique habitat areas, such as springs, seeps, vernal pools, and fen.

Watershed Connectivity: Maintain and restore connectivity within and between watersheds to provide for unobstructed movement for survival, migration, and reproduction of wildlife species.

Floodplains and Water Tables: Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flow and sustain the diverse habitats that result from flooding processes.

Watershed Conditions: Maintain and restore favorable soil and vegetative conditions to absorb and filter precipitation and regulate runoff to sustain favorable streamflow conditions.

Streamflow Pattern and Sediment Regime: Maintain and restore streamflows sufficient to sustain desired conditions for riparian, aquatic, wetland, and meadow habitats, and keep sediment regimes as close as possible to those with which aquatic and riparian biota evolved.

Stream Banks and Shorelines: Maintain and restore the physical structure and conditions of stream banks and shorelines to minimize erosion and sustain desired habitat diversity

2.6 Baldwin Allotment

Site-specific analysis indicates that:

- Due to availability of forage, approximately 60% (125 acres) of the 206 allotment acres meet grazing capability criteria as defined in 36 CFR 219.3.
- Due to the natural and cultural resources within the project area and Federal and State mandated regulations; only approximately 3% (4 acres) of the 125 capable allotment acres meet grazing suitability criteria as defined in 36 CFR 219.3.
- This allotment was out of compliance with Lahontan Regional Water Quality Control Board standards that state "*fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of allsamples collected during any 30-day period exceed 40/100 ml*" from 1999 until 2006 (with the exception of 2000).
- Even with reduction in number and use (permit modified in 2004), SNFPA ROD 2004 forage utilization standards (Table 1) were exceeded from 2000-2006.
- Various management strategies were implemented from 1999 through 2008 including but not limited to various rotation patterns, use of electric and temporary fencing, reduction in numbers, reduction in use, and seasonal resting of pastures. Monitoring efforts have been implemented annually since 1999. Regardless of strategy, water quality and forage utilization standards were exceeded annually (except 2000) until 2007/2008 (Table 1). Federal and State resource protection standards were only met in 2007 and 2008 due to drastic reduction in use (30 horses for 3 days on the C pasture only).
- The capability and suitability analysis (Appendix A) determined that of the 33 acres designated in the C Pasture, due to resource conditions within the pasture, only 1 acre is suitable for grazing.

2.7 Desired Conditions

The 2004 SNFPA (USDA 2004a) states that the desired condition for meadow and riparian ecosystems, such as those at the Baldwin Grazing Allotment, are as follows:

- Attain ecological conditions of meadow vegetation that are late seral—50% or more of the relative cover of herbaceous layer is late seral with high similarity to the potential natural community. A diversity of age classes of hardwood shrubs is present and regeneration is occurring (SNFPA ROD, pg. 43)

- Attain meadows that are hydrologically functional where areas of accelerated erosion are stabilizing and healing and vegetation rooting occurs throughout the available soil profile. Meadows exposed to perennial and intermittent streams have the following characteristics: stream energy from high flows is dissipated, reducing erosion and improving water quality; sediments are filtered and bedload captured, thereby aiding floodplain development; flood water retention and groundwater recharge are enhanced; and streambanks are stabilized by root masses against erosive action (SNFPA ROD, pg. 43).
- Attain water quality conditions that meet goals of the Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment (SNFPA ROD, pg. 42).
- Improve habitats to support viable populations of riparian dependant native plant species. Prevent new introductions of invasive species (SNFPA ROD, pg. 42).
- Improve the species composition and structural habitat diversity for plant and animal communities that rely on riparian areas, wetlands, and meadows ecosystems (SNFPA ROD, pg. 43).
- Improve the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats (SNFPA ROD, pg. 43).
- Attain soil conditions that favor infiltration characteristics and support diversity of vegetative cover to absorb and filter precipitation and to sustain favorable conditions of stream flows (SNFPA ROD, pg. 43).
- Improve the physical structure and condition of streambanks and shorelines to minimize erosion and sustain aquatic habitat diversity (SNFPA ROD, pg. 43).
- The area is compatible with scenic, visual and recreation values and associated uses.

2.7 Decision Framework

Given the purpose and need, the deciding official will review the proposed action and the other alternatives in order to make the following decisions:

1) Whether or not to discontinue authorized livestock grazing on the Baldwin Allotment, and if authorized, how much and were will it be authorized.

2) Whether or not to amend the LTBMU Forest Plan with permanent land management direction to close the Baldwin Allotment.

3) Whether or not the effects of the selected action have any significant environmental effects.

The Regional Forester granted delegation of authority per WO amendment 2200-2005-8, FSM 2204.2 on May 5, 2009 giving the Forest Supervisor the authority to close areas to livestock grazing when justified by the Forest planning process.

2.8 Public Involvement

The proposal was listed in the Schedule of Proposed Actions on January 1, 2009. The proposal was provided to the public and other agencies for comment during scoping, which began on February 9, 2009 and ended on March 9, 2009. Public scoping included 19 scoping letters mailed or hand delivered on February 6, 2009 to interested parties and posting of project information on the LTBMU website.

In response to the scoping request, formal input was received from the following organizations and individuals on the dates indicated.

- California Trout—February 26, 2009
- League to Save Lake Tahoe—March 9, 2009
- Tahoe Area Sierra Club—March 5, 2009
- Central Sierra Audubon Society—February 6, 2009

2.8.1 Summary of Comments

All comments received during public scoping were in support of the proposed action to discontinue grazing and amend the Forest Plan to close the allotment. No significant issues (as defined below) were raised during public scoping.

- **Significant Issues considered but eliminated from detailed study** are relevant to the Purpose and Need for the project but were considered in alternatives already studied and eliminated, or additional project design features were developed that reduced or eliminated the effects.
- **Significant Issues** are relevant to the Purpose and Need for the project and are significant in the extent of the geographic distribution, the duration of effects, or the intensity of interest or resource conflict and therefore merit consideration for the development of an alternative to the proposed action.

3.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Baldwin Grazing Allotment Management Project. It includes a description of each action alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

3.1 Alternatives

3.1.1 Alternatives Considered and Dismissed From Consideration

An alternative to permit livestock grazing under the same terms and conditions as the previous long term grazing permit (1996 – 2006), which permitted 45 horse/mules to graze the entire allotment from July 1 until October 15, or until standards were met, was considered. This alternative was not studied in detail for the following reasons:

- Under this management a notice of non-compliance was issued from LRWQCB because the water quality standard that states "*fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml*" was not being met. Regardless of various management strategies that were implemented during the course of the 10 year term permit, water quality standards were exceeded annually from 1999 through 2006 (except in 2000) (Table 1).
- Although various rotation and management strategies were implemented, herbaceous utilization standards set by the SNFPA, which state herbaceous utilization will not be greater than 40 percent, were exceed annually from 2000 through 2006 (Table 1). Additionally, two of the three years when streambank trampling was measured standards were exceeded (Table 1).
- Based on the capability and suitability analysis (Appendix A) of the approximately 200 acre allotment 125 acres were capable of supporting livestock grazing and only 4.2 of the capable acres were suitable of supporting grazing.
- This alternative does not meet the Purpose and Need or Desired Conditions.
- This alternative does not meet management guidelines set by the LTBMU Forest Plan as amended by the SNFPA ROD.

An alternative to construct fence around the entire SEZ and re-allocate pasture to provide grazing was considered. This alternative was not studied in detail for the following reasons:

- Based on the capability and suitability analysis (Appendix A) of the approximately 200 acre allotment, 125 acres were capable of supporting livestock grazing and only 4.2 of the capable acres were suitable of supporting grazing. This allotment is not suitable for grazing.
- Although various rotation and management strategies were implemented, herbaceous utilization standards set by the SNFPA, which state herbaceous utilization will not be greater than 40 percent, were exceed annually from 2000 through 2006 (Table 1). Intensive monitoring in 2007 and 2008 suggests that within 3 to 7 days of grazing pressure by 30 horses, herbaceous utilization is near the standard (40%).

The cost for installing new fence around the SEZ would cost approximately $18,000, which includes labor for removal approximately 1 mile of current fence and installation of 1.5 miles of new fence. This cost would be incurred by the permittee.

3.1.2 Alternatives Considered in Detail

Alternative 1— Proposed Action

The proposed action is to discontinue authorized livestock grazing in the Baldwin Grazing Allotment and amend the Forest Plan to close the allotment. All fence material that currently delineates pasture and allotment boundaries on National Forest System land would be manually removed. While this alternative is the Proposed Action it would also be considered the No Action (no grazing) alternative for the purposes of NEPA compliance.

Alternative 2—Allow late season grazing on Pasture C.

Under this alternative livestock grazing would be permitted on the C pasture only (Map 1). This alternative would allow 30 horse/mules to graze for 3 days or until standards were met. Because the C pasture does not have a water source, drafting from the Tallac Creek might be required to provide water to livestock. Additionally, an access point would need to be developed to allow livestock access on and off the pasture. Intensive monitoring for herbaceous utilization would continue to ensure standards were met. Because livestock would have no stream access on National Forest System land under this alternative, water quality sampling would not take place.

3.2 Design Features

Activities associated with implementation of action alternatives could have localized, short-term effects. These design features are intended to minimize or avoid effects to soils, water, vegetation, wildlife, fisheries, heritage resources, recreational resources, and air quality. No design features were identified for the proposed action.

3.2.1 Design Requirements Applicable to Alternative 2 (Pasture C)

Heritage Resources

- Fence and avoid identified cultural resource areas within the Area of Potential Effect.

Botany

- The project area would be surveyed prior to on-date to determine where sensitive plants are found within the C pasture. These plants would be fenced and avoided to ensure they were protected from grazing impacts. Surveys would be conducted every five years.
- The project area would be surveyed for noxious weeds prior to on-date. Any weeds detected would be treated prior to grazing. These surveys would be conducted annually.
- Weed free hay would be provided to livestock prior (two weeks) to grazing on Pasture C.

Soil and Hydrology

- Prior to drafting water from Tallac Creek, determine what water rights restrictions apply to Tallac Creek.
- A hydrologist will conduct pre-drafting surveys to ensure Tallac Creek has sufficient flows available to provide water for livestock.
- Screens will be required on draft hoses placed in Tallac Creek.
- No vehicle will be permitted on Pasture C. Livestock will be herded to the C pasture from the Baldwin Beach access road. Vehicles would be required to remain on paved roads and are not allowed to drive on any dirt roads that connect to the Baldwin Beach Road.
- If drafting water from nearby water courses, use screening devices for water drafting pumps to prevent. Use pumps with low entry velocity to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. Locate water drafting sites to avoid adverse effects to in stream flows and depletion of pool habitat (SNFPA, 2004).

3.3 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative (Table 2). Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 2. Summary of Effects of Alternatives

	Alternative 1 (Proposed Action)	**Alternative 2 (Pasture C)**
Rangeland Resources	Because past grazing pressure has altered stream characteristic, by removing this activity connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats will be enhanced. Additionally, the physical structure and condition of stream banks along Tallac Creek will be enhanced thus minimizing erosion and sustaining aquatic habitat diversity. Capability and suitability determinations would be consistent w/direction. State and Federal standards would be met.	Continued grazing pressure on the C pasture would further impact meadow function including but not limited to potential reduction of plant vigor, reduction of native plant diversity, reduced ground water levels due to soil compaction, and a reduction in overall plant cover. With intense monitoring, Federal standards would be met. State water quality standards would be met on National Forest System land.
Hydrology and Soils	Water quality standards regarding fecal coliform concentrations will be met. Two miles of stream and 94 acres of SEZ would be enhanced. Infiltration would improve thus reducing potential soil erosion. Reduction in soil compaction would also increase groundwater levels. Removal of grazing pressure would allow riparian vegetation and bank stability.	It is expected that water quality standards regarding fecal coliform concentrations will be met. Two miles of stream and 74 acres of SEZ would be enhanced. Grazing on the C pasture would continue to compact soil and reduce the vigor, health and abundance of riparian vegetation.
Recreation	No effect on known resources.	No effect on known resources.
Scenery	No effect on known resources.	No effect on known resources.

	Alternative 1 (Proposed Action)	Alternative 2 (Pasture C)
Wildlife	Livestock driven disturbance would be eliminated thus providing improved habitat conditions for willow flycatcher and other riparian dependent species.	Livestock driven disturbance will continue on Pasture C that affects individuals of and habitat for willow flycater and other riparian dependant species.
Aquatic Resources	Because past grazing pressure has altered stream characteristic, by removing this activity connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats will be enhanced. Additionally, the physical structure and condition of stream banks along Tallac Creek will be enhanced thus minimizing erosion and sustaining aquatic habitat diversity (i.e. riffle and pool habitat).	Although no direct impacts will occur to aquatic species, the potential drafting of water could have short term negative effects.
Botanical Resources	By removing grazing on the Baldwin Allotment sensitive plant species habitat for five Forest Service sensitive species will improve and may improve habitat for an additional eight sensitive species.	By allowing grazing on the C pasture, sensitive plant habitat will improve for two Forest Service sensitive plant species and may improve habitat for 11 additional sensitive species.
Heritage Resources	No effect on known resources.	Cultural resources will be flagged and avoided. No effect on known resources.

4.0 ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, and social environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

The following are the past, present, and foreseeable future actions that have affected or may affect resources in the Baldwin Grazing Allotment Management project area.

Past and Present Actions

Engineering Actions

- Construction of Baldwin Beach access road and parking lots, late 1950's
- Construction of sewer line across Tallac Creek, late 1950's
- Baldwin Beach Toilet, 2006
- Ebright Beach Toilet, 2006
- Baldwin Beach Tree and Kiosk, 2007
- Tallac Creek Bridge and Channel Reconstruction, 2008

Vegetation Actions

- Spring Creek Hand Thinning, 2002
- Cathedral Fuel Reduction and Aspen Habitat Enhancement Project CE, 2004
- Pioneer Small Tree Removal, 2007
- Lake Tahoe Ecosystem Underburn, 2008+
- Over 100 years of grazing

Future Treatment Actions

Vegetation Actions

- South Shore Fuels and Healthy Forest Project, 2009+

Ecosystem Conservation Actions

- Aspen Community Restoration Project, 2009+
- Fire Adapted Meadow Restoration Project, 2010+
- Taylor-Tallac Restoration, 2012-2013

All of the past, present and future toilet and kiosk projects are designed to facilitate recreational use of Baldwin Beach. The Tallac Creek Bridge and Channel Reconstruction project rebuilt the Tallac Creek bridge over highway 89 and repaired damage to the stream channel. All of the past and present fuel reduction actions and South Shore Fuels project were designed to reduce fuel hazards by way of hand and mechanical thinning. The South Shore fuels project overlaps with all of the past and present vegetation actions listed above. The Aspen Community Restoration Project is designed to release growth in aspen stands by removing conifers. The Taylor-Tallac and Meadow Restoration projects will restore the historic stream channel, reduce conifer encroachment into the meadow, restore hydrologic function and reorganize the trail system to minimize resource damage.

4.1 Rangeland Resources

4.1.1 Overview

This section presents the existing conditions and then discusses the effects of the Proposed Action and Alternative Action.

4.1.2 Capability/Suitability

Land capability and suitability for livestock grazing is determined at the Forest- and site-specific level. Capability is defined in 36 CFR 219.3. Capability, specific to grazing, is defined as lands accessible to livestock, producing forage or having inherent forage-producing capability, and able to withstand grazing on a sustained basis under reasonable management practices. Accessible areas that produce forage as a result of timber management practices, fire, or other events may be classified as capable rangeland. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology. Non-capable lands include areas of steep slopes (not accessible), areas where palatable forage is lacking, where water sources are too distant, or where lands cannot be grazed without extensive management improvements added.

Suitable lands are capable lands in which grazing is consistent with other land management decisions for the site-specific area. Lands may be capable but unsuitable due to land management direction that would exclude grazing in an area. Examples of unsuitable lands include administrative sites, campgrounds, or other special management areas in which grazing would be incompatible with management direction. Within the project area, there are 81 acres that are not capable of supporting livestock grazing. Of the remaining 125 capable acres within the project area, 4.2 are suitable (Table 3).

Table 3. Total pasture, capable, and suitable acres of the Baldwin Allotment.				
Pasture	**Vegetation Type (acres)**	**Total Pasture Acres**	**Capable Acres**	**Suitable Acres**
A	Jeffrey Pine (25), Perennial Grasses/Forbs (2), Quaking Aspen (16), Willow (9)	52	27	0
B	Greenleaf Manzanita (3), Jeffrey Pine (22), Perennial Grasses/Forbs (2), Quaking Aspen (14), Conifer (1), Willow (19)	61	35	0
C	Greenleaf Manzanita (1), Jeffrey Pine (12), Perennial Grasses/Forbs (16), Upper Montane Mixed Shrub (3), Willow (1)	33	20	1
D	Jeffrey Pine (1), Perennial Grasses/Forbs (4), Willow (1)	6	5	0
D1	Perennial Grasses/Forbs (1), Wet Grasses/Forbs (3), Willow (2)	6	6	0
E	Jeffrey Pine (11), Perennial Grasses/Forbs (5), Upper Montane Mixed Shrub (1)	16	5	0.2
Beach	Basin Sagebrush (2), Jeffrey Pine (5), Perennial Grasses/Forbs (23), Quaking Aspen (2)	32	27	3
Grand Total		**206**	**125**	**4.2**

The following factors were considered when determining which portions of the allotment were suitable to support livestock grazing:

- Ability to meet State mandated water quality standards in Tallac Creek.
- Ability to maintain and restore water quality to meet goals of Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment.
- Ability to meet Federal mandated standards designed to protect natural and cultural resource conditions.
- Potential social conflicts such as developed recreation sites and special use areas that could be impacted due to water quality issues.
- Key wildlife habitat areas (threatened, endangered, sensitive and management indicator species).
- Areas with soil erosion hazard ratings of high or very high.
- Areas where ground cover (vegetation, litter, rock greater than 1/4 inch) is insufficient to protect soil from erosion.
- Weed infestations where livestock use could impede noxious weed control objectives.

- Unique habitats such as fens, jurisdictional wetlands, or rare plant communities.
- Areas with sensitive plants or sensitive plant habitat.
- Areas where the existing condition or rehabilitation needs preclude grazing for the planning period.
- The presence of SEZ, which would indicate sensitive soils and potential water quality and aquatic habitat concerns.

4.1.3 Monitoring / Rangeland Health

Rangeland monitoring has been conducted in key areas within the allotment since 1999. Monitoring includes both long-term monitoring to determine rangeland health conditions and trends, and short-term monitoring to determine if forage utilization and range readiness standards are being met on a regular basis. Long-term monitoring is conducted on selected rangeland sites to determine if rangeland conditions (as determined by various rangeland health indicators) are meeting or moving toward desired conditions. Short-term monitoring is conducted on eight selected sites as part of implementation of the grazing permit through permit administration. Of these eight sites, two met standards in 2004 and 2005 while six were monitored to standards in 2006. Electric fence was used to keep horses off the Tallac Creek and two pastures were closed in 2006.

The most recent monitoring method for collecting long-term rangeland health and ecological condition and trend data for key areas within the allotments is the Rooted Frequency Vegetation Sampling. This methodology has been developed and refined as part of an overall Regional rangeland monitoring program. The purpose of the Forest Service Region 5 Range Monitoring Project was to establish permanent plots on key range sites across National Forest System lands in Region 5 (California) in order to provide long-term monitoring of range condition. Results from long-term vegetation plots indicate that that the overall vegetative condition is moderate with a 7-year stable trend (i.e. plot was moderate in the 2001 reading and moderate in the 2008 reading). The site was dominated by mid seral species.

Short-term monitoring to ensure State and Federal standards were met annually included:

- "Point Method for Measuring Streambank Alteration" to monitoring streambank trampling (Table 1).
- "Landscape Appearance" to monitor herbaceous utilization. The Landscape Appearance Method uses ocular estimate of forage utilization based on the general appearance of the rangeland (Table 1).
- "Microbiological examination for fecal coliform" to monitor water quality in Tallac Creek (Table 1).

4.1.4 Alternative 1: Proposed Action Effects

Direct and Indirect Effects

The long-term vegetation trend would likely show continued improvement in health and vigor moving from moderate to high vegetative status. The effect of removing livestock would be a short-term (10-40 years) increase in late successional plant species, an improvement in plant vigor, and a decrease in plant species diversity (due to the loss of early seral species) (Weixelmann pers. comm.). Woody vegetation including willow (*Salix* spp.) and aspen (*Populus* spp.) would increase over time due to lack of browsing by livestock. Woody species would most likely increase along the greenline corridor adjacent to Tallac Creek (Weixelmann pers. comm.).

Habitat that provides for riparian dependant species and improved floodplain stability would increase. Herbaceous vegetation indicative of late seral meadow conditions would increase. Because health, vigor, and abundance of riparian vegetation would increase, bank stability along Tallac Creek would also increase.

Potentially conifer encroachment could occur without grazing pressure.

Water quality standards set by LRWQCB that state "*fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml*" would be met on National Forest System land.

Federal standards directed by the SNFPA ROD 2004 designed to protect water quality, riparian and stream habitat, and upland terrestrial habitat would be met. For the Baldwin Allotment, these standards include:

- Herbaceous utilization will not be greater than 40%.
- Willow utilization will not be greater than 20%.
- Streambank utilization will not be greater than 20%.
- In meadows with occupied willow flycatcher sites, only allow late-season grazing (after August 15) in the entire meadow.

Capability and suitability guidelines defined in 36 CFR 219.3 and Forest Service Manual 1905 would be met (Appendix A).

4.1.5 Alternative 2: Pasture C Effects

Direct and Indirect Effects

Range vegetation overall in the allotment would show an improvement in health and vigor. Range vegetation on the C pasture would continue to decline. The long-term vegetation trend would likely show a reduction in

health and vigor on Pasture C. Woody vegetation including willow (*Salix* spp.) and aspen (*Populus* spp.) would increase over time due to lack of browsing by livestock except on the Pasture C.

Potential conifer encroachment could occur without grazing pressure. Reintroduction of fire as a management tool would be needed.

Capability and suitability guidelines defined in 36 CFR 219.3 and Forest Service Manual 1905 would not be met. Of the 33 acres in the C pasture only 20 acres are capable and 1 is suitable of supporting livestock grazing.

4.2 Hydrology and Soils

4.2.1 Overview

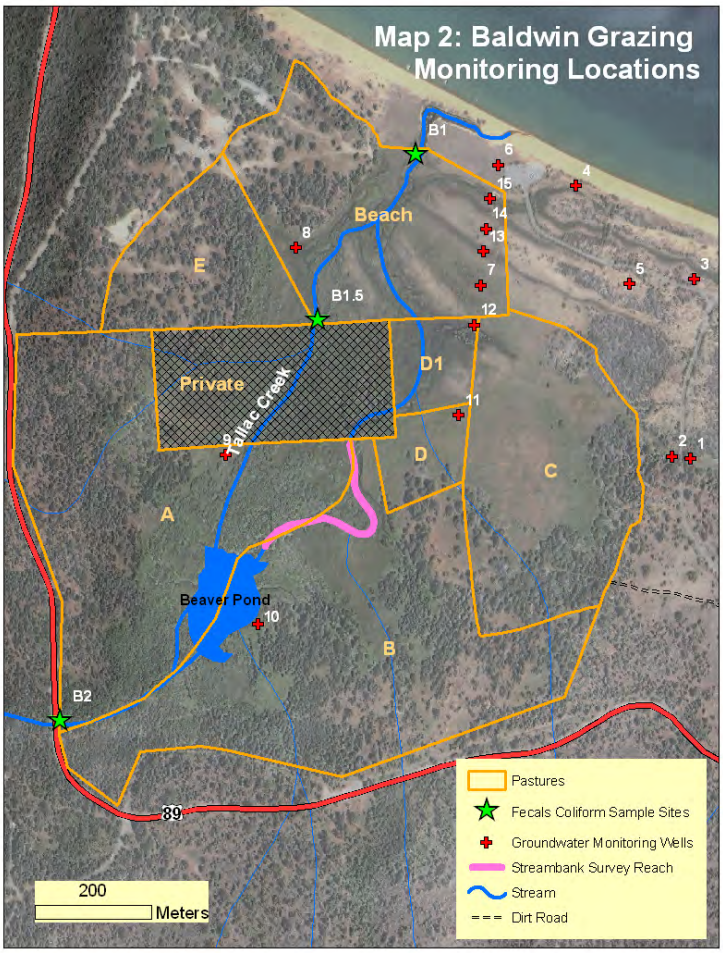
This section presents the existing conditions and then discusses the effects of the Proposed Action and Alternative Action.

4.2.2 Existing Conditions

Hydrology

Glaciers have reworked much of the landscape in the Tallac Creek watershed, leaving deposits throughout most of the lower watershed. In the Baldwin Meadow region, lake deposits and relict beach berms cover most of the landscape. In most years, wave action on the lake causes a seasonal beach berm to form in July or August that blocks the mouth of Tallac Creek, where it flows across the beach and into Lake Tahoe. Once blocked by sand, a lagoon forms that floods the lower part of Baldwin Meadow. During this time, Tallac Creek continues to flow into the lagoon and infiltrates into the groundwater and into Lake Tahoe, causing a local rise in groundwater levels. This lagoon remains in place until the first high flow occurs in Tallac Creek that cuts a new channel through the beach berm. (EDAW, 2005 and Hamann, personal communication, 2009).

Groundwater wells have been monitored in Baldwin Meadow since 2002 (Map 2). Based on the groundwater data, the groundwater table in the northeastern part of the allotment (the section of the allotment closest to Lake Tahoe) is strongly influenced by the elevation of Lake Tahoe when the outflow of Tallac Creek is not blocked by a sand berm. When blocked, a large pond forms extending back into the meadow and between several of the relict beach berms, as discussed above. Further away from Lake Tahoe the trends in groundwater levels are more closely related to the streamflow in Tallac Creek, with a maximum groundwater elevation occurring during the approximate peak spring streamflow each year.



A series of large beaver ponds exist along perennial Tallac Creek about 250 meters downstream from highway 89. Downstream of the beaver ponds, Tallac Creek flows in two main channels for approximately 650 meters. There, the two channels join again to form a single thread channel before flowing into Lake Tahoe. An island of dense riparian vegetation and a series of secondary channels are present between the two forks of Tallac Creek. According to the LTBMU GIS database there are several other ephemeral stream channels flowing into the Baldwin Grazing Allotment, but their exact locations have not been field verified.

Arial photography shows that downstream of the beaver ponds, the perennial channels through the Baldwin Grazing Allotment have been laterally stable since the 1940's. Stream surveys along Tallac Creek show excessive bank trampling and multiple animal trails that have formed due to livestock accessing the channel. Aside from bank trampling, the channel does not appear incised and is still well connected to its floodplain (EDAW, 2005).

In 2004, 2005 and 2006 the "Point Method for Measuring Streambank Alteration" monitoring protocol was employed along a 250 meter reach of Tallac Creek (Map 2) within the Baldwin Grazing Allotment to quantify the impacts of livestock on the stream channel and its banks. Using this method, 500 sample points were monitored within 6 meters of the wet edge of Tallac Creek, along both banks. At each point, the surveyor determined whether the location was disturbed and, if disturbed, whether the disturbance was caused by livestock (Table 1).

In 2004, surveys were done three times along the same reach in the B Pasture (between the beaver ponds and the private property). On average, these surveys found some form of livestock trampling on 20.8% of the points surveyed. In 2005 an electric fence was used to limit access to the stream channel by livestock and the rating decreased to only 3.8%. From August 20 to October 2 of 2006, the gates between all pastures were left open to try and disperse the livestock throughout the allotment. When the stream banks were surveyed on October 18, 39% of the survey points showed disturbance by livestock.

Fecal coliform measurements were collected at two locations in Tallac Creek (B1 and B2) from 1999 through 2003 (Map2). Site B1 is at the downstream end of the allotment prior to entering Lake Tahoe and site B2 is upstream of the grazing allotment at highway 89 and was the control site. During the following five seasons between 2004 and 2008 fecal coliform measurements were taken at the same two sites (B1 and B2) and at an additional site, B1.5, located 350 meters upstream from site B1 (Map 2).

The LRWQCB sets standards for fecal coliform levels in streams in the Lake Tahoe Basin. With the exception of 2000, violations occurred each year that water samples were gathered while livestock were grazing the entire allotment (Table 4). In 2007 and 2008 grazing occurred with the temporary permit and grazing was limited to the C Pasture. Tallac Creek does not flow through the C Pasture. Livestock access to the stream on National Forest System land was eliminated and an alternate water source was provided. Standards were met in 2007 and 2008.

Table 4: Fecal Coliform Violation Summary for Tallac Creek		
Year	**Violation?**	**Sampling Sites Out of Compliance**
1999	Yes	B1
2000	No	
2001	Yes	B1
2002	Yes	B1
2003	Yes	B1
2004	Yes	B1 and B1.5
2005	Yes	B1 and B1.5
2006	Yes	B1 and B1.5
2007	No	
2008	No	

Soils

Soils within the Baldwin Grazing Allotment fall on terrain that is predominantly flat with little topographical relief. Soil survey data for the Baldwin Grazing Allotment was obtained from the NRCS Web Soil Survey and is summarized in Tables 5 and 6 (NRCS, 2007).

According to the NRCS, all soils in the C Pasture are rated as hydric. This means that the soil formed under saturated conditions during part of each growing season. Under natural conditions, these soils typically support hydrophytic vegetation (plants that are adapted to grow in water). Additionally, 20.06 acres (67%) of the C Pasture are at least occasionally ponded and are subject to flooding for long periods of time.

Table 5: Soils found within the entire Baldwin Grazing Allotment (all seven pastures).		
Map Unit Symbol	**Soil Type**	**Total Allotment Acres**
7011	Beaches	2.23
7451	Gefo gravelly loamy coarse sand, 2 to 9 percent slopes	21.50
7452	Gefo gravelly loamy coarse sand, 9 to 30 percent slopes	24.27
7041	Tahoe complex, 0 to 2 percent slopes	64.64
7042	Tahoe complex, 0 to 5 percent slopes, gravelly	32.02
7524	Tallac gravelly coarse sandy loam, moderately well drained, 0 to 5 percent slopes	9.81
7525	Tallac gravelly coarse sandy loam, moderately well drained, 5 to 9 percent slopes	23.73
7071	Watah peat, 0 to 2 percent slopes	27.70
	TOTAL ACRES	205.89

Table 6: Soils Found only in the C Pasture of the Baldwin Allotment.		
Map Unit Symbol	**Soil Type**	**Total Acres in C Pasture**
7011	Beaches	1.70
7042	Tahoe complex, 0 to 5 percent slopes, gravelly	19.06
7524	Tallac gravelly coarse sandy loam, moderately well drained, 0 to 5 percent slopes	9.32
7525	Tallac gravelly coarse sandy loam, moderately well drained, 5 to 9 percent slopes	1.65
7071	Watah peat, 0 to 2 percent slopes	1.30
	TOTAL ACRES	33.04

4.2.3 Alternative 1: Proposed Action Effects

Direct and Indirect Effects

Hydrology

The proposed action to discontinue livestock grazing and close the allotment through an amendment to the LTBMU Forest Plan would enhance 2 miles of stream and 94 acres of SEZ.

The Tallac Creek channel banks exhibit signs of trampling due to the long history of grazing on the allotment. Removing grazing will remove the source of disturbance from the channel and will allow it to recover naturally. Additionally, removing grazing will decrease the mechanical erosion occurring along the stream banks, and will likely reduce the amount of sediment reaching the streams in the project area and Lake Tahoe.

By removing grazing from the entire allotment, fecal coliform concentration from livestock would be met in the upstream (above the private in-holding) portion of the allotment. Pending the use within the private in-holding, fecal coliform concentrations could exceed State water quality standards at the downstream portion of the allotment. However, there would be no fecal coliform contribution from livestock grazing on National Forest System land.

Groundwater in the allotment could also benefit from removing grazing from the project area due to higher soil infiltration rates since the source of soil compaction would be removed and vegetation that was previously grazed would be allowed to grow and help slow overland flow rates.

These desired conditions from SNFPA AMS establish the framework for the following general restoration objectives for the Baldwin Grazing Allotment:

- Attain water quality conditions that meet goals of the Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment.
- Improve the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats.

Soils

Soils would also see a benefit from the removal of grazing from the allotment. With no livestock present, the source of soil compaction would be removed and additional compaction would not occur. With the removal of grazing, vegetative cover would have a chance to recover over several growing seasons and would likely help increase nutrient uptake by plants, thus reducing the nutrients reaching Tallac Creek and Lake Tahoe. Additionally, as vegetation recovers from past grazing and the source of compaction and cause of bare soil is removed, the soil infiltration rates will likely increase thereby decreasing the rate of erosion from the allotment.

4.2.4 Alternative 2 Pasture C Effects

Direct and Indirect Effects

Hydrology

Based on the suitability analysis of the total 33 acre pasture, only 1 acre is deemed suitable for grazing. Continued grazing on the C Pasture would further decrease vegetation from natural levels and could result in a decrease in infiltration rates and may contribute to increased erosion levels.

Because of the geographical separation between the C pasture and Tallac Creek, sediment delivery to Lake Tahoe and fecal coliform contributions to Tallac Creek is not expected to result from Alternative 2, therefore no significant effects to water quality are expected.

Soils

Soils in the C Pasture will be impacted by the proposed action. The NRCS soil survey shows that soils in the C Pasture are hydric, periodically flooded, and frequently pond water. This will make the soils in the C Pasture more susceptible to compaction. With a long history of grazing in the allotment, the soils in this pasture have likely already become compacted. Continuing to graze the C Pasture will not allow the soil to recover from this disturbance and the soil surface will likely remain compacted possibly leading to increased erosion rates (see Hydrology section above). Because of the limited

extent of the C pasture, the existing use of grazing on this pasture, and the limited amount of time each year that grazing would be allowed, no significant effects to soil quality are expected to result from the proposed action.

Cumulative Effects

In 2008, a cumulative watershed effects (CWE) analysis using the equivalent roaded acre (ERA) methodology was completed for the South Shore Fuels Reduction Project which included the Tallac Creek watershed. The analysis was done for the Tallac Creek Hydrologic Unit Code 7 (HUC7) watershed. HUC7 is a watershed boundary designated by the U.S. Geologic Survey. The Tallac Creek HUC7 watershed contains all of Tallac Creek and its tributaries, and is 2,790 acres in size. The ERA methodology involves calculating the area of a watershed that is disturbed by any land use activities that may affect the natural soil infiltration rates (i.e. roads, logging, controlled burns, wildfires, etc.). The acres of disturbed area are then multiplied by a land use coefficient developed by the LTBMU for use in the Lake Tahoe Basin. Most disturbances will recover with time, and therefore a 20 year recovery to background levels is assumed for all land uses other than permanent roads, buildings, and trails. The ERA for a watershed is then calculated by summing the product of each land use coefficient and the corresponding disturbed acreage. The ERA calculated for the Tallac Creek HUC7 watershed did not include grazing in the Baldwin Grazing Allotment because the LTBMU does not have a recommended coefficient to use for grazing disturbance.

A Threshold of Concern (TOC) is determined for each watershed that predicts an ERA value that, when exceeded, serves as a “yellow flag” indicator of increasing susceptibility for adverse cumulative effects within a watershed. A Risk Ratio (RR) is then calculated by dividing the calculated ERA for the given watershed by the TOC for that watershed (RR = [ERA/TOC] * 100). Using this methodology, the RR for the Tallac Creek watershed was 34.4%, indicating that the existing disturbance from land use and management actions have resulted in an ERA well below the TOC for the Tallac Creek watershed (a risk ratio of 100% would show that the ERA was at the TOC).

Alternative 1: Proposed Action

There will be some positive effects to watershed conditions from this alternative as the source of disturbance would be removed from the Baldwin Grazing Allotment. Other foreseeable vegetation management activities such as conifer thinning (associated with South Shore Fuels Reduction Project)

and reintroduction of fire (associated with Restoration of Fire Adapted Ecosystems Project), which are expected within the allotment boundary, have potential to increase groundwater availability. It is anticipated that the cumulative effect of all these projects has the potential to increase groundwater availability for a longer duration throughout the growing season.

Alternative 2: Pasture C

To analyze the potential for cumulative watershed effects from limited grazing on C pasture only, it is important to look at the scale of the Baldwin Grazing Allotment (Baldwin Grazing Allotment) within this watershed. The Baldwin Allotment is 205.89 acres and makes up only 7.38% of the Tallac Creek HUC7 Watershed. Furthermore, the C Pasture is 33.04 acres and contains only 1.18% of the watershed. Because the Baldwin Grazing Allotment makes up such a small percentage of the Tallac Creek watershed, any activity impacting the infiltration rates in the Baldwin Grazing Allotment would not result in measurable effects to the overall condition of the watershed. In fact, even if the entire C Pasture was paved and became impervious coverage, the ERA would still be well below the TOC for the Tallac Creek Watershed, still indicating little concern for susceptibility to adverse cumulative effects within a watershed.

With grazing only on the C Pasture, livestock will not have direct access to Tallac Creek as it is located 80 meters to the west of the C Pasture. While not directly connected, erosion, fecal coliform, or other water quality impacts from grazing on the C Pasture could still be transported to Tallac Creek by the ephemeral channel that crosses through the southwest corner of the C Pasture. This conveyance between the C Pasture and Tallac Creek would occur episodically when the ephemeral channel was flowing. While there is potential for some water quality impacts to Tallac Creek from grazing on the C Pasture, the impacts would likely not be outside of any expected natural variability, therefore, no cumulative watershed effects are expected.

4.3 Recreation

4.3.1 Overview

This section presents the existing conditions and then discusses the effects of the Proposed Action and Alternative Action.

4.3.2 Existing Conditions—Baldwin Grazing Allotment

Existing grazing activity and the fencing associated with managing grazing limits public access to National Forest System lands.

4.3.3 Alternative 1 Proposed Action Effects

Direct and Indirect Effects

Discontinuation of authorized livestock grazing in the Baldwin Grazing Allotment would not directly affect recreation. Removal of fencing that delineates pastures and allotment boundaries is unlikely to increase recreational use. Access to the area is not readily apparent to visitors.

There would be no indirect effects to recreation associated with implementing the Proposed Action.

Cumulative Effects

There would be no cumulative effects to recreation associated with implementing the Proposed Action.

4.3.4 Alternative 2 Pasture C Effects

Direct and Indirect Effects

Permitting livestock grazing on Pasture C of the Baldwin Grazing Allotment would not directly affect recreation. The construction of an access point to allow livestock access on and off the pasture has the potential to attract more recreation use by curious passerby that follow the access trail. This could increase dispersed recreation and establish user-created trails within the meadow.

There would be no indirect effects to recreation associated with implementing Alternative 2. Any increased recreation use within the previously fenced pastures is unlikely to increase overall recreation use within the broader South Shore area and will not generate increased vehicle traffic.

Cumulative Effects

There would be no cumulative effects to recreation associated with implementing Alternative 2.

4.4 Scenery

4.4.1 Overview

This section presents the existing conditions and then discusses the effects of the proposed action and alternative actions.

4.4.2 Existing Conditions

The area of the Baldwin Grazing Allotment has a Visual Quality Objective (VQO) of partial Retention as designated in the LTBMU Forest Plan This VQO allows for management activities that repeat visual patterns found in the surrounding landscape and that are visually subordinate to the surrounding landscape character. The surrounding landscape is characterized by low angle slope sagebrush with mixed conifer vegetation in drier areas. The areas dominant landscape feature is Tallac Creek and the marsh-meadow complex that surrounds it. The current grazing and associated fencing is consistent with the established VQO.

4.4.3 Alternative 1 Proposed Action Effects

Direct and Indirect Effects

There would be no direct effects of implementing the proposed action on scenic resources.

There would be no indirect effects of implementing the proposed action on scenic resources.

Cumulative Effects

There would be no cumulative effects of implementing the proposed action on scenic resources.

4.4.4 Alternative 2 Effects

Direct and Indirect Effects

Permitting livestock grazing on Pasture C of the Baldwin Grazing Allotment would not directly affect scenic resources. The construction of an access point to allow livestock access on and off the pasture has the potential to diminish the scenic integrity of the area, but would not be inconsistent with the VQO of Partial Retention as designated in the LTBMU Forest Plan. Removal of fencing would have incremental improvements in the scenic integrity of the area. Overall, there would be no direct effects of implementing alternative 2 on scenic resources.

There would be no indirect effects of implementing alternative 2 on scenic resources.

Cumulative Effects

There would be no cumulative effects of implementing the alternative 2 on scenic resources.

4.5 Wildlife and Aquatic Species

4.5.1 Overview

This section discloses, in separate sections, the existing conditions and the potential effects of the Baldwin Grazing Allotment Management Project on (1) species and their habitats listed as endangered, threatened, candidate, or proposed (under the federal Endangered Species Act of 1973 as amended (ESA) and species designated as sensitive by the Regional Forester in Region 5 (Biological Evaluation); (2) habitats designated for management indicator species (MIS) for the LTBMU (MIS report); and (3) wildlife and fisheries threshold standards as designated by the Tahoe Regional Planning Agency (TRPA report). This discussion is based on the Biological Assessment (BA) and Biological Evaluation (BE), which can be found in the project record. This section also addresses impacts in riparian habitat as it relates to potentially-affected species.

The BE provides a process through which potential effects of the proposed action on sensitive species are evaluated and considered during the planning and review process. The analysis in the BE is completed to determine whether the proposed action would result in a trend toward the sensitive species becoming federally listed.

Spotted owl and northern goshawk surveys took place in 2007 and 2008 in suitable habitat within the grazing allotment. Suitable habitat was determined using the LTBMU wildlife department California spotted owl and northern goshawk habitat models (2006). Using these models, high suitability habitat has predicted nest location of northern goshawks 79% of the time and spotted owls 90% of the time.

There are no known detections or nests of spotted owl within this project. However, the habitat may be utilized by the individuals inhabiting the territory that is just over 1 kilometer to the south.

There was a northern goshawk nest within the boundary of the grazing allotment in 1984. That territory has since moved south to the current location of the Spring Creek PAC. While separated from the grazing allotment by a busy road, the northern boundary of the PAC is less than 50m from the southern boundary of the grazing allotment. It is highly likely that the individuals inhabiting that territory are utilizing the suitable habitat in the allotment.

Willow flycatcher surveys have been conducted at Tallac Meadow in 2001 and 2003 - 2008. This site has been occupied for five of the last six years. In 2008 the first detection of an active nest was recorded. Under the current Region 5 monitoring plan for willow flyer, surveys will continue to

occur annually at this site. This monitoring effort is associated with range-wide status and trend determination and is not specific to the Baldwin Grazing Allotment.

A fish population survey in Tallac Creek occurred in 2007. Lahontan redside (*Richardsonius egregious*), speckled dace (*Rhinichthys osculus*), and Tahoe sucker (*Catostomus tahoensis*) were the only native fish found. The majority of fish were brook trout *(Salvelinus fontinalis*). Historically Tallac Creek supported a Sierra Nevada yellow-legged frog (*Rana sierrae*) population. No recent detections of this species have been documented. Amphibian surveys were conducted in 2005, 2006, and 2008.

4.5.2 Threatened, Endangered, and Sensitive Aquatic and Wildlife Species

Species Addressed

The most recent list of threatened, endangered, proposed, and candidate wildlife species was obtained from the USFWS on September 10, 2008. The list was updated on January 31, 2008. This list fulfills the requirements of the USFWS to provide a current species list pursuant to Section 7 of the ESA. No critical habitat for threatened or endangered species is designated in the LTBMU. No animal species that are currently proposed for listing by the USFWS occur in the project area.

Forest Service sensitive species are those animals identified by the Regional Forester for which population viability is a concern.

Potentially affected species were determined through an evaluation of whether each threatened, endangered or sensitive (TES) species was either (1) known to occur in the project action area, or (2) the project area contained suitable habitat within the current range of the species. The following table (Table 7) summarizes species considered in the effects analysis for the project as part of the BA and BE. There is no proposed or designated critical habitat for any species on the LTBMU.

Species Not Affected by either Alternative

The following species will not be addressed further in the analysis of effects because they are not known to occur in the project area and/or do not have suitable habitat in or within 0.5 mile of the project area. Therefore a determination of "No Effect" for both alternatives is found for:

- Lahontan Cutthroat Trout: Lahontan cutthroat trout do not occur in the project area (USDA 2008c).

- Delta Smelt and Central Valley Steelhead: The LTBMU is outside the historical and current range of the threatened Delta smelt and the Central Valley steelhead
- Yosemite Toad: The project area is not in the historic range of Yosemite toad.
- Sierra Nevada Yellow-Legged Frog: No Sierra Nevada yellow-legged frogs have been detected in Tallac Creek or associated swales. Because of the presence of non-native trout, suitable habitat does not currently exist.
- Pacific Fisher: This species does not currently occur in the LTBMU. No suitable denning/resting habitat is present.
- Wolverine: This species is not known to currently occur in the basin. The Baldwin grazing Allotment Management project would not affect this species or its habitat, and no further analysis is necessary.
- Northern Leopard Frog: This species is not known to currently occur in the Lake Tahoe basin. In addition, the project area is not considered suitable habitat because recent research suggests the Lake Tahoe basin in general is not in the historic range of northern leopard frog (Jennings et al 2004).
- Sierra Nevada Red Fox: This species is not known to currently occur in the basin. The Baldwin grazing Allotment Management project would not affect this species or its habitat, and no further analysis is necessary.
- Great Gray Owl: This species is not known to currently occur in the basin. The Baldwin grazing Allotment Management project would not affect this species or its habitat, and no further analysis is necessary.
- American Peregrine Falcon: No habitat for this species occurs in the project area. No further analysis is required.
- Great Basin Rams Horn:No habitat for this species occurs in the project area. No further analysis is required.
- Tui Chub: No habitat for this species occurs in the project area. No further analysis is required.

Species Potentially Affected by one or both Alternatives

Table 7a: Potentially Affected Threatened, Endangered, and Sensitive Species. Determinations of MANL = may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability. Refer to the project's Biological Evaluation report for a full discussion of project affects. Determinations are based on the Pacific Southwest Regional guidance for writing Biological Evaluations.

Species	**Special Status**	**Known to Occur in the Project Area**	**Suitable Habitat in the Project Area**	**Determination and Rationale – Alternative 1**	**Determination and Rational – Alternative 2**
Bald Eagle (*Haliaeetus leucocephalus*	Forest Sensitive Species	No	Yes	MANL – elimination of allotment activities is a beneficial affect on the habitat	MANL – allotment activities will contribute to some habitat and species disturbance
California Spotted Owl (*Strix occidentalis occidentalis*)	Forest Sensitive Species	No	Yes	MANL – elimination of allotment activities is a beneficial affect on the habitat	MANL – allotment activities will contribute to some habitat and species disturbance
Northern Goshawk (*Accipiter gentiles*)	Forest Sensitive Species	Yes	Yes	MANL – elimination of allotment activities is a beneficial affect on the habitat	MANL – allotment activities will contribute to some habitat and species disturbance
Willow Flycatcher (*Empidonax traillii adastus*)	Forest Sensitive Species	Yes	Yes	MANL – elimination of allotment activities is a beneficial affect on the habitat	MANL – allotment activities will contribute to some habitat and species disturbance

Species	Special Status	Known to Occur in the Project Area	Suitable Habitat in the Project Area	Determination and Rationale – Alternative 1	Determination and Rational – Alternative 2
Townsend's Big-Eared Bat (*Corynorhinus townsendii*)	Forest Sensitive Species	No	Yes	No Effect – elimation of allotment activities will have no effect on this species or habitat	No Effect – allotment activities are not known to contribute to affects on this species or habitat
American marten (*Martes americana*)	Forest Sensitive Species	No	Yes	MANL – elimination of allotment activities is a beneficial affect on the habitat	MANL – allotment activities will contribute to some habitat and species disturbance

4.5.3 Management Indicator Species

Management Indicator Species (MIS) for the LTBMU are identified in the 2007 Sierra Nevada Forests Management Indicator Species (SNF MIS) Amendment (USDA Forest Service 2007a). The habitats and ecosystem components and associated MIS analyzed for the project were selected from this list of MIS, as indicated in Table 7b. In addition to identifying the habitat or ecosystem components (1st column), the CWHR type(s) defining each habitat/ecosystem component (2nd column), and the associated MIS (3rd column), the table discloses whether or not the habitat of the MIS is potentially affected by the Baldwin Grazing Allotment Management Project (4th column). Refer to the project's MIS report for a full analysis of the effects on the project to MIS habitats.

Table 7b. Selection of MIS for Project-Level Habitat Analysis for the Baldwin Grazing Allotment Management Project.

Habitat or Ecosystem Component	CWHR Type(s) defining the habitat or ecosystem component[1]	Sierra Nevada Forests Management Indicator Species *Scientific Name*	Category for Project Analysis [2]
Riverine & Lacustrine	lacustrine (LAC) and riverine (RIV)	aquatic macroinvertabrates	3
Riparian	montane riparian (MRI), valley foothill riparian (VRI)	yellow warbler *Dendroica petechia*	1
Wet Meadow	Wet meadow (WTM), freshwater emergent wetland (FEW)	Pacific tree frog *Pseudacris regilla*	3
Early Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree sizes 1, 2, and 3, all canopy closures	Mountain quail *Oreortyx pictus*	1
Mid Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 4, all canopy closures	Mountain quail *Oreortyx pictus*	3
Late Seral Open Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 5, canopy closures S and P	Sooty (blue) grouse *Dendragapus obscurus*	1
Late Seral Closed Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), tree size 5 (canopy closures M and D), and tree size 6.	California spotted owl *Strix occidentalis occidentalis*	1
		American marten *Martes americana*	
		northern flying squirrel *Glaucomys sabrinus*	
Snags in Green Forest	Medium and large snags in green forest	hairy woodpecker *Picoides villosus*	2

[1] All CWHR size classes and canopy closures are included unless otherwise specified; **dbh** = diameter at breast height; **Canopy Closure classifications:** S=Sparse Cover (10-24% canopy closure); P= Open cover (25-39% canopy closure); M= Moderate cover (40-59% canopy closure); D= Dense cover (60-100% canopy closure); **Tree size classes:** 1 (Seedling)(<1" dbh); 2 (Sapling)(1"-5.9" dbh); 3 (Pole)(6"-10.9" dbh); 4 (Small tree)(11"-

23.9" dbh); 5 (Medium/Large tree)(≥24" dbh); 6 (Multi-layered Tree) [In PPN and SMC] (Mayer and Laudenslayer 1988).

[2] **Category 1:** MIS whose habitat is not in or adjacent to the project area and would not be affected by the project.
Category 2: MIS whose habitat is in or adjacent to project area, but would not be either directly or indirectly affected by the project.
Category 3: MIS whose habitat would be either directly or indirectly affected by the project.

For both Alternative 1 and 2

Summary of Riverine & Lacustrine / Aquatic Macroinvertebrates Status and Trend at the Bioregional Scale

The data collected at the bioregional scale indicate that the metrics for macroinvertebrates are stable. Changes in flow, sedimentation, and water surface shading as a result of the proposed project are positive and beneficial to aquatic macroinvertebrates, however, they are not likely to impact a substantial amount of existing riverine and lacustrine habitat within the Sierra Nevada. Therefore, the effects of the Baldwin Grazing Allotment Management Project will not alter the existing stable trend in the habitat for aquatic macroinvertebrates across the Sierra Nevada bioregion.

Summary of Wet Meadow / Pacific Tree Frog Status and Trend at the Bioregional Scale

Increases in wet meadow habitat as a result of the proposed action, while positive and potentially beneficial to Pacific tree frogs at the scale of the project and possibly the Lake Tahoe basin (potentially creating 7.6 acres of wet meadow habitat), would not alter the existing stable trend for wet meadow habitat. Therefore, the effects of the Baldwin Grazing Allotment Management Project would not alter the existing stable trend in the habitat for Pacific tree frog across the Sierra Nevada bioregion.

Summary of Mid Seral Coniferous Forest / Mountain Quail Status and Trend at the Bioregional Scale

The changes in tree size class, tree canopy closure, and understory shrub cover within 278 acres of mid seral coniferous habitat in the Baldwin Grazing Allotment Management Project may assist in future conversion of the forest away from mid seral dominated coniferous forest and towards a more balanced mixture of seral stages, but it would not likely alter the existing stable trend in the habitat at the Sierra Nevada scale.

4.6 Botanical Resources

4.6.1 Overview

This section presents the existing conditions and then discusses the effects of the proposed action and alternative actions. Refer to the project's botanical – Biological Evaluation report for a full analysis of the project.

4.6.2 Existing Conditions

There is currently suitable habitat within the allotment, based on existing soil and vegetation information, for the following botanical species: *Botrychium ascendens* (Upswept moonwort), *Botrychium crenulatum* (Scalloped moonwort), *Botrychium lineare* (Slender moonwort), *Botrychium lunaria* (Common moonwort), *Botrychium minganense* (Mingan moonwort), *Botrychium montanum* (Western goblin), *Bruchia bolanderi* (Bolander's candle moss), *Epilobium howellii* (Subalpine fireweed), *Helodium blandowii* (Blandow's bog-moss), *Lewisia kelloggii* ssp. *hutchisonii* (Kellogg's lewisia), *Lewisia kelloggii* ssp. *kelloggii* (Kellogg's lewisia), *Meesia triquetra* (Three-ranked hump-moss), *Meesia uliginosa* (Broad-nerved hump-moss), and *Peltigera hydrothyria* (Veined water lichen). *Rorippa subumbellata* (Tahoe yellow cress) a US Forest Service sensitive plant and US Fish and Wildlife Service (USFWS) candidate species for listing under Endangered Species Act (ESA) of 1973, as amended, exists near the beach pasture at approximately 38 meters from the grazing allotment. A botanical survey has not occurred within the allotment.

4.6.3 Alternative 1: Proposed Action Effects

Direct and Indirect Effects

The removal of grazing from the Baldwin Allotment will not result in any direct effects, because no activities will result from this action. Therefore, none of the habitat will be physically impacted as a result of the project.

Indirect effects are the primary effect that could occur as a result of removing grazing. The indirect effects from this project could be beneficial for sensitive plants that have potential habitat within the project area, depending on the species. Indirect effects from the removal of grazing include: changes in vegetation composition, changes in disturbance levels, and changes in hydrologic conditions.

Cumulative effects are not expected as a result of the removal of grazing. The past and present actions within the project area include grazing and

small scale meadow burn plots that were established in 2008. Future actions include using fire as a restoration tool within the larger meadow, but will be dependent on the response seen in the 2008 burn plots.

DETERMINATION

The effects determination is based on professional judgment, existing information, including the existing condition of the project area, and the potential impacts of the alternatives. The effects determination is based on an evaluation of all past and potential direct, indirect, and cumulative effects. Even if the potential direct effects are considered negligible, it is possible that the indirect or cumulative effects may affect (to some degree) the viability of the species.

There will be no effect to the following species:

- *Arabis rigidissima* var. *demota* (Galena Creek rock cress)
- *Arabis tiehmii* (Tiehm's rock cress)
- *Dendrocollybia racemosa* (Branched collybia)
- *Draba asterophora* var. *asterophora* (Tahoe draba)
- *Draba asterophora* var. *macrocarpa* (Cup Lake draba)
- *Erigeron miser* (Starved daisy)
- *Eriogonum umbellatum* var. *torreyanum* (Torrey's or Donner Pass buckwheat)
- *Hulsea brevifolia* (Short-leaved Hulsea)
- *Lewisia longipetala* (Long-petaled lewisia)

This determination is based on the absence of suitable habitat within the project area and the absence of individuals known or expected to occur.

There will be no effect to the following species:

- *Lewisia kelloggii* ssp. *hutchisonii* (Kellogg's lewisia)
- *Lewisia kelloggii* ssp. *kelloggii* (Kellogg's lewisia)

This determination is based on suitable habitat for this species will not be affected by this action.

May benefit species habitat and the following species:

- *Helodium blandowii* Blandow's bog-moss
- *Meesia triquetra* (Three-ranked hump-moss)
- *Meesia uliginosa* (Broad-nerved hump-moss)
- *Peltigera hydrothyria* (Veined water lichen)
- *Rorippa subumbellata* (Tahoe yellow cress)

This determination is based on improved water quality, removal of trampling, and removal of grazing.

May benefit species habitat or may effect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for:

- *Botrychium ascendens* (Upswept moonwort)
- *Botrychium crenulatum* (Scalloped moonwort)
- *Botrychium lineare* (Slender moonwort)
- *Botrychium lunaria* (Common moonwort)
- *Botrychium minganense* (Mingan moonwort)
- *Botrychium montanum* (Western goblin)
- *Bruchia bolanderi* (Bolander's candle moss)
- *Epilobium howellii* (Subalpine fireweed)

This determination is based on limited knowledge of what is currently present. The improved water quality, removal of trampling, and removal of grazing could benefit these species, while the removal of frequent disturbance from trampling and grazing may impact plants that are already present.

4.6.4. Alternative 2: Pasture C Effects

Direct and Indirect Effects

The effects analysis will discuss the effects of grazing of 30 horses on the C Pasture only for 3 days (August 20-August 23) or until standards are met in an area that has had grazing present for over 100 years.

Direct effects will result from trampling and grazing from horses that physically injure individual plants and plant populations.

The indirect effects from this project could be beneficial or unfavorable for sensitive plants that have potential habitat within the project area, depending on the species. Indirect effects from the reduction of grazing include: changes in vegetation composition, changes in disturbance levels, and changes in hydrologic conditions.

Cumulative effects are not expected as a result of the removal of grazing. The past and present actions within the project area include grazing and small scale meadow burn plots that were established in 2008. Future actions include using fire as a restoration tool within the larger meadow, but will be dependent on the response seen in the 2008 burn plots.

DETERMINATION

The effects determination is based on professional judgment, existing information, including the existing condition of the project area, and the potential impacts of the alternatives. The effects determination is based on an evaluation of all past and potential direct, indirect, and cumulative

effects. Even if the potential direct effects are considered negligible, it is possible that the indirect or cumulative effects may affect (to some degree) the viability of the species.

There will be no effect to the following species:

- *Arabis rigidissima* var. *demota* (Galena Creek rock cress)
- *Arabis tiehmii* (Tiehm's rock cress)
- *Dendrocollybia racemosa* (Branched collybia)
- *Draba asterophora* var. *asterophora* (Tahoe draba)
- *Draba asterophora* var. *macrocarpa* (Cup Lake draba)
- *Erigeron miser* (Starved daisy)
- *Eriogonum umbellatum* var. *torreyanum* (Torrey's or Donner Pass buckwheat)
- *Hulsea brevifolia* (Short-leaved Hulsea)
- *Lewisia longipetala* (Long-petaled lewisia)

This determination is based on the absence of suitable habitat within the project area and the absence of individuals known or expected to occur.

There will be no effect to the following species:

- *Lewisia kelloggii* ssp. *hutchisonii* (Kellogg's lewisia)
- *Lewisia kelloggii* ssp. *kelloggii* (Kellogg's lewisia)

This determination is based on suitable habitat for this species will not be affected by this action.

May benefit species habitat and the following species:

- *Peltigera hydrothyria* (Veined water lichen)
- *Rorippa subumbellata* (Tahoe yellow cress)

This determination is based on improved water quality, removal of trampling, and removal of grazing.

May benefit species habitat or may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for:

- *Botrychium ascendens* (Upswept moonwort)
- *Botrychium crenulatum* (Scalloped moonwort)
- *Botrychium lineare* (Slender moonwort)
- *Botrychium lunaria* (Common moonwort)
- *Botrychium minganense* (Mingan moonwort)
- *Botrychium montanum* (Western goblin)
- *Bruchia bolanderi* (Bolander's candle moss)
- *Epilobium howellii* (Subalpine fireweed)
- *Helodium blandowii* Blandow's bog-moss
- *Meesia triquetra* (Three-ranked hump-moss)
- *Meesia uliginosa* (Broad-nerved hump-moss)

This determination is based on limited knowledge of what is currently present. The improved water quality, removal of trampling, and removal of grazing could benefit these species, while the removal of frequent disturbance from trampling and grazing may impact plants that are already present.

4.7 Heritage Resources

4.7.1 Overview

This section presents the existing conditions and then discusses the effects of the proposed action and alternative actions.

4.7.2 Existing Conditions

The project area has been inventoried adequately to the standards outlined in the First Amended Regional Programmatic Agreement. There were three previous inventories that intersected the project area.

A total of four heritage resources were identified in the project area. All four of these resources were recorded in prior surveys. Out of the four sites, one is not eligible for the NRHP. Three sites are eligible are within the project area.

Direct, Indirect, and Cumulative Effects

Neither the Proposed Action nor Alternative 2 will have any direct, indirect, or cumulative effects on cultural resources.

5.0 CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals; federal, state, and local agencies; tribes; and non-Forest Service persons during the development of this environmental assessment:

5.1 ID Team Members

Sarah Muskopf

Shay Zanetti

Shana Gross

David Immeker

Daniel Cressy

Allie Wenzl

Mike LeFevre

5.2 Federal, State, and Local Agencies

Lahontan Regional Water Quality Control Board

Tahoe Regional Planning Agency

League to Save Lake Tahoe

California Trout

Tahoe Area Sierra Club

5.3 Tribes

Washoe Tribe of Nevada and California

APPENDIX

Appendix A: Baldwin Allotment Rangeland Capability and Suitability Analysis

The rangeland capability and suitability analysis is based on analysis of Ikonos vegetation data, field verification, and Interdisciplinary Team input and review. Aimee Smith, Range Specialist, from the Sierra National Forest assisted in the development of this analysis. The following definitions, taken from the Sierra Nevada Forest Plan Amendment FEIS (USDA Forest Service) are necessary to meet requirements for analysis in forest planning and were used to determine capability and suitability for the Baldwin Allotment.

Capability: *"The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices and at a given level of management intensity. Capability depends on current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silvilculture or protection from fire, insects, and disease."(CFR 219.3)*

Suitability: *"The appropriateness of applying certain resource management practices to a particular area of land as determined by an analysis of the economic and environmental consequences and alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices." (CFR 219.3).* **Additional suitability criteria may need to be applied through the IDT process.**

Authorizations granted to the Forest Service by Congress to administer livestock (including production and transportation livestock) on National Forest System lands can be found under Code of Federal Regulations 36 Part 222.2 Management of the range environment, 36 CFR 222.3 Issuance of Grazing and Livestock Use Permits.

The Baldwin Allotment range capability was determine using Ikonos vegetation layer which allowed the pastures to be broken down by vegetation type (Table 1). All areas with a slope less than 35%, containing deciduous open tree canopy, deciduous shrubland or herbaceous vegetation were considered capable of providing adequate forage (producing at least 200 pounds of forage per acre). Areas within the allotment dominated by evergreen open tree habitat or evergreen shrubland were excluded and not

considered capable. Of the approximately 206 acre allotment, 125 acres (Map 1) were capable of supporting grazing (Table 2).

Table 1: Vegetation types located on the Baldwin Allotment

Pasture Identifier	Vegetation Type (CV_TYPE)	Total
A	Jeffrey Pine	25
	Perennial Grasses/Forbs	2
	Quaking Aspen	16
	Willow	9
A Total		**52**
B	Greenleaf Manzanita	3
	Jeffrey Pine	22
	Perennial Grasses/Forbs	2
	Quaking Aspen	14
	Unknown Conifer	1
	Willow	19
B Total		**61**
Beach	Basin Sagebrush	2
	Jeffrey Pine	5
	Mixed Conifer - Fir	0
	Perennial Grasses/Forbs	23
	Quaking Aspen	2
	Unknown Wet Grasses/Forbs	0
	Willow	0
Beach Total		**33**
C	Basin Sagebrush	0
	Greenleaf Manzanita	1
	Jeffrey Pine	12
	Perennial Grasses/Forbs	16
	Unknown Wet Grasses/Forbs	0
	Upper Montane Mixed Shrub	3
	Willow	1
C Total		**33**
D	Jeffrey Pine	1
	Perennial Grasses/Forbs	4
	Willow	1
D Total		**5**
D1	Perennial Grasses/Forbs	1
	Unknown Wet Grasses/Forbs	3
	Willow	2
D1 Total		**6**
E	Jeffrey Pine	11
	Perennial Grasses/Forbs	4
	Upper Montane Mixed Shrub	2
E Total		**16**
Grand Total		**206**

Note: Pasture acres do not include private property inholding in Allotment.

Table 2. Capable rangeland acres and total pasture acres within the Baldwin Allotment.

Pasture	**Pasture Acres**	**Capable Acres**
A	52	27
B	61	35
C	33	20
D	5	4
D1	6	6
E	16	5
Beach	33	28
Total Allotment Acres:	**206**	**125**

Of the 125 acres capable of providing forage for livestock grazing, the Interdisciplinary Team determined how many acres, if any, were *suitable* for grazing (Maps 2 -5). The following factors were considered when determining which portions of the allotment were suitable to support livestock grazing:

- Ability to meet State mandated water quality standards in Tallac Creek.
- Ability to maintain and restore water quality to meet goals of Clean Water Act and Safe Drinking Water Act, providing water that is fishable, swimmable, and suitable for drinking after normal treatment.
- Ability to meet Federal mandated standards designed to protect natural and cultural resource conditions.
- Potential social conflicts such as developed recreation sites and special use areas that could be impacted due to water quality issues.
- Key wildlife habitat areas (threatened, endangered, sensitive and management indicator species)(Forest Plan IV-18)
- Areas with soil erosion hazard ratings of high or very high.
- Areas where ground cover (vegetation, litter, rock greater than 1/4 inch) is insufficient to protect soil from erosion.
- Weed infestations where livestock use could impede noxious weed control objectives.
- Unique habitats such as fens, jurisdictional wetlands, or rare plant communities (Forest Plan IV-18).

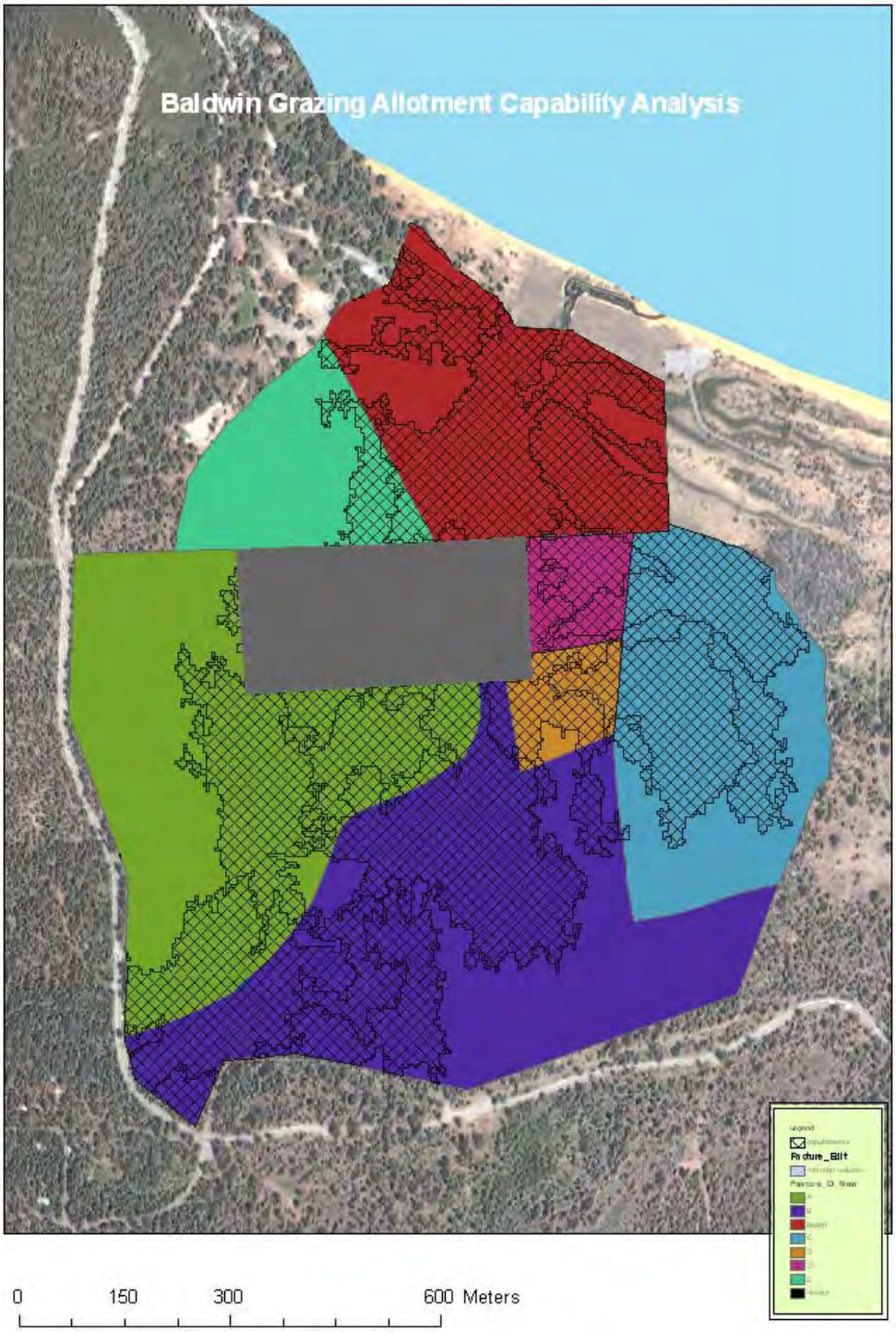
- Areas with sensitive plants or sensitive plant habitat (Forest Plan IV-18)..
- Areas where the existing condition or rehabilitation needs preclude grazing for the planning period.
- The presence of SEZ, which would indicate sensitive soils and potential water quality and aquatic habitat concerns.

When all unsuitable acres are combined, only 4.2 of the original 125 capable acres remain available for livestock grazing (Table 3). The following GIS output maps visually display portions of the allotment that are not suitable for livestock grazing based on the factors listed above (Maps 2-5).

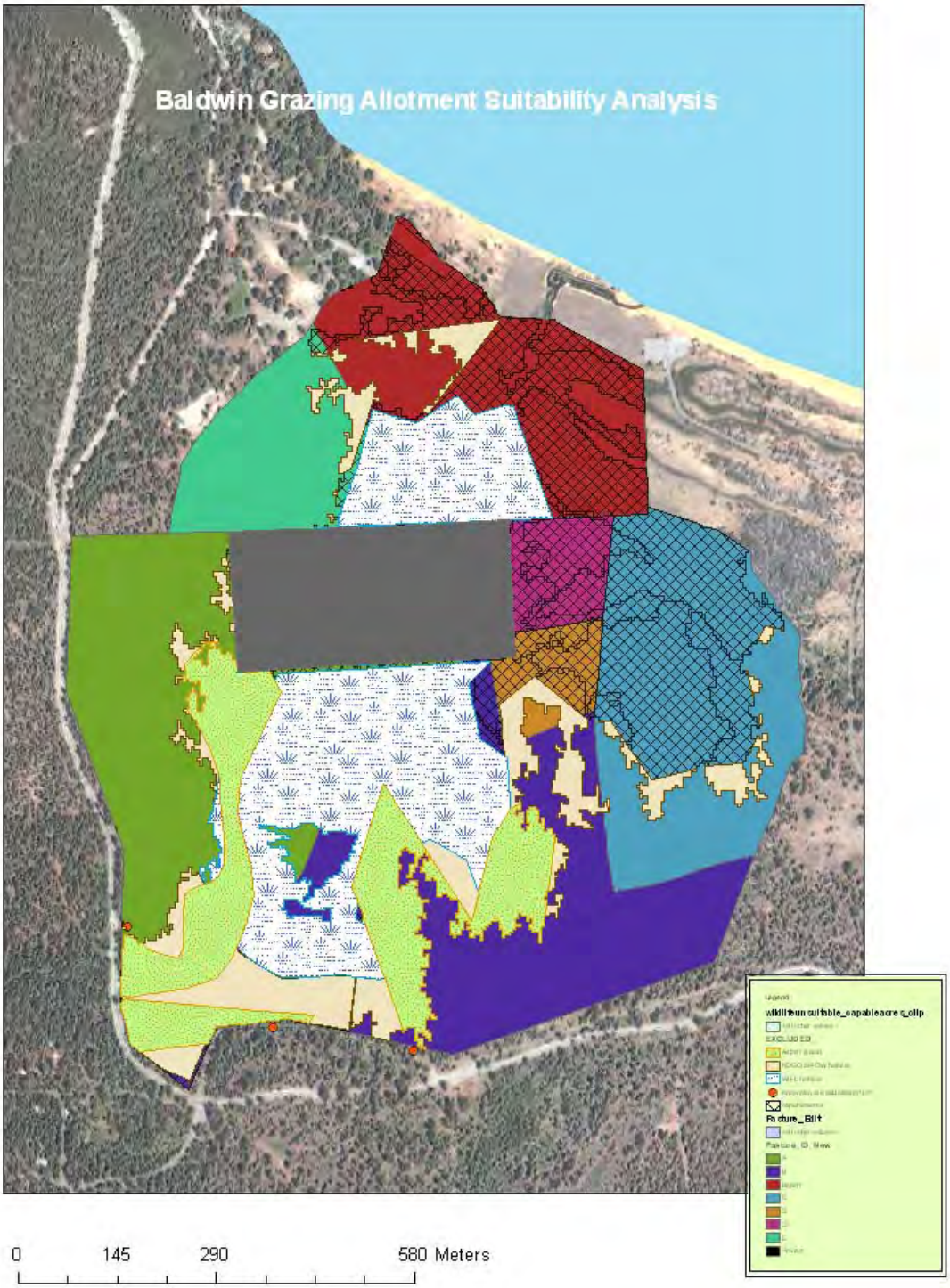
Table 3: Capable and Suitable Livestock Grazing Acres on the Baldwin Allotment.

Pasture	Total Pasture Acres	Capable Acres	Suitable Acres
A	52	27	0
B	61	35	0
C	33	20	1
D	5	4	0
D1	6	6	0
E	16	5	0.2
Beach	33	28	3
Grand Total	**206**	**125**	**4.2**
** Private pasture not included in analysis.			

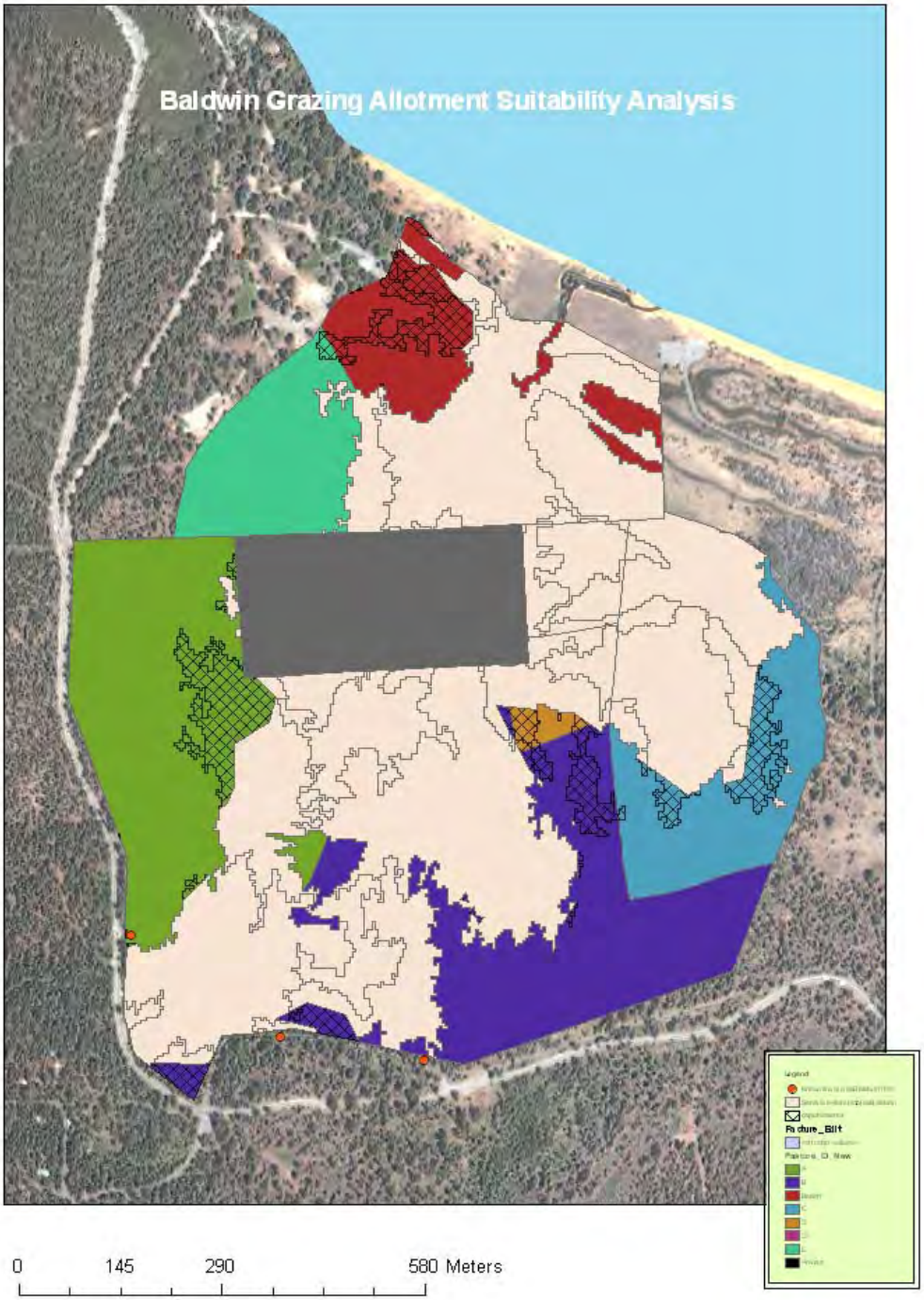
Map 1: Capable Acres



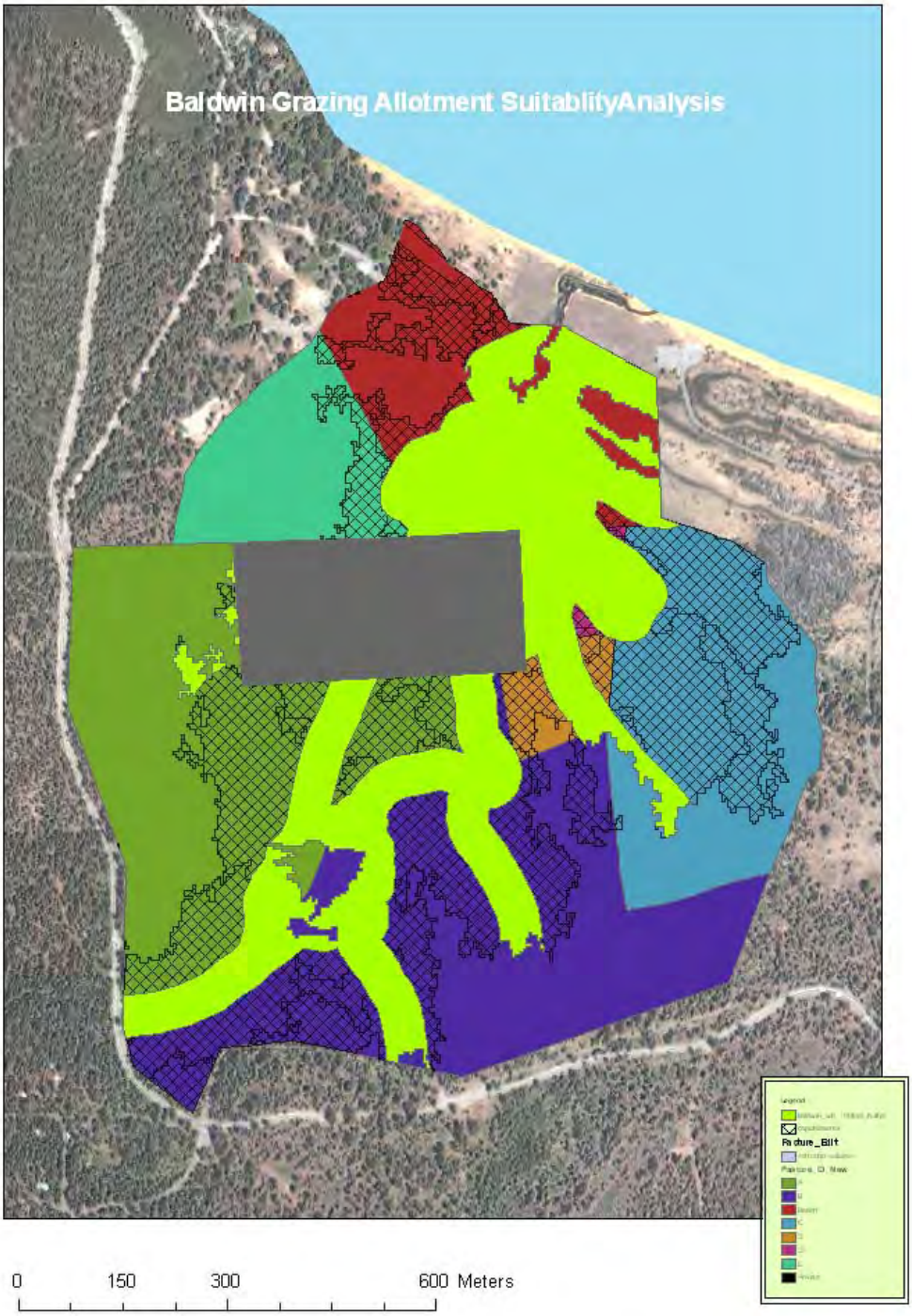
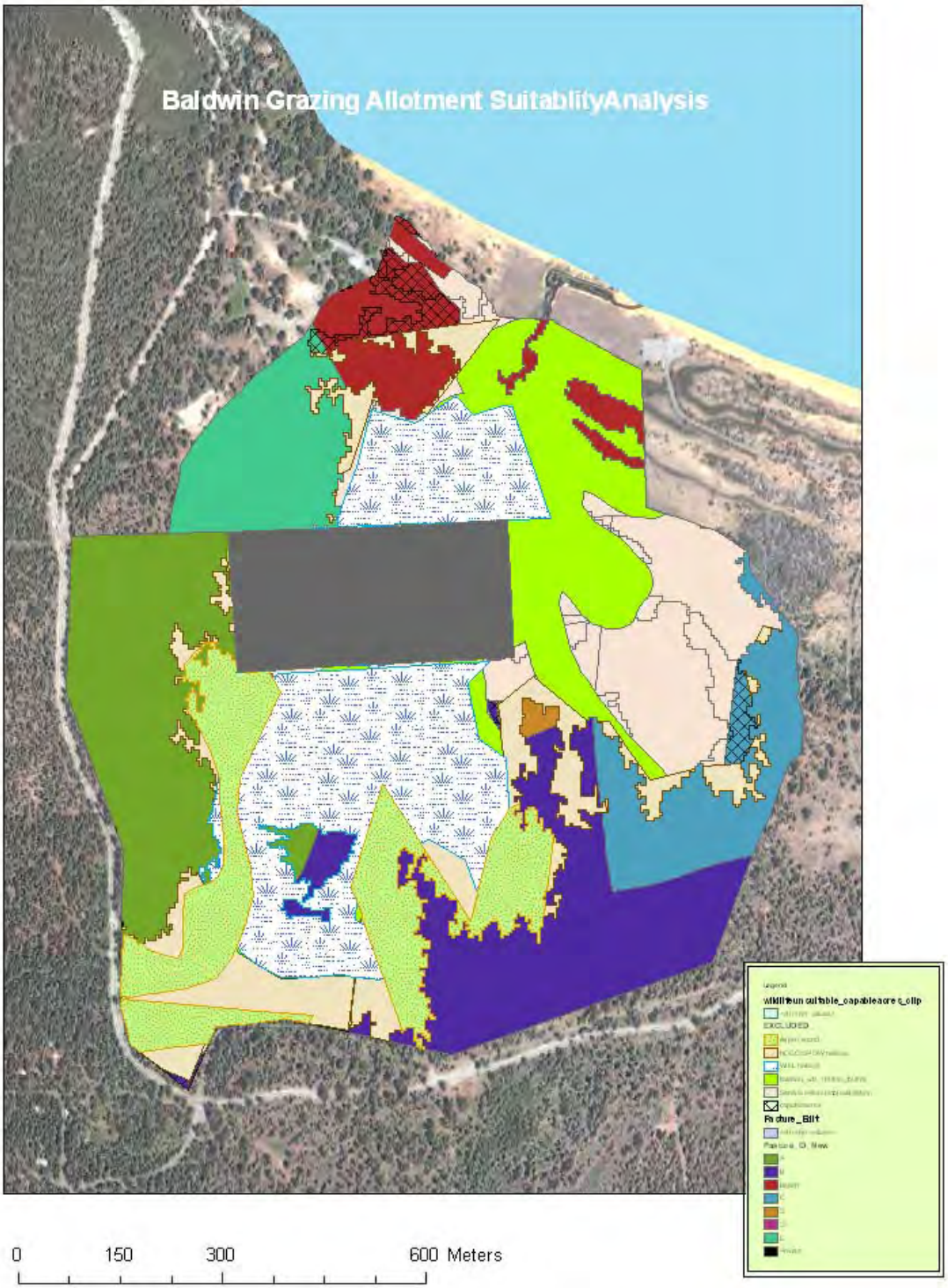
Map 2: Unsuitable acres based on wildlife habitat.



Map 3: Unsuitable acres based on sensitive plant habitat.



Map 4: Unsuitable acres based on streambank and water quality protection.



Map 5: Total Unsuitable Acres