3.10 BIOLOGICAL RESOURCES

This section summarizes the common and sensitive vegetation, terrestrial wildlife, and aquatic biological resources that are known or have the potential to occur in the Tahoe Region. Biological resources include common vegetation and animal species, sensitive plant communities, and special-status plant and animal species. TRPA, federal, state, and local regulations related to biological resources are summarized. Potential impacts of the proposed Regional Plan Update alternatives are analyzed, and mitigation measures are provided for those impacts determined to be significant.

3.10.1 REGULATORY BACKGROUND

Biological resources in the Tahoe Basin are regulated by several TRPA, federal, state, and local laws and policies. Key regulations and conservation planning issues applicable to the Regional Plan Update are discussed below.

TAHOE REGIONAL PLANNING AGENCY

TRPA implements its authority to regulate growth and development in the Lake Tahoe Region through the Regional Plan. The Regional Plan includes Resolution 82-11, the Environmental Threshold Carrying Capacities (threshold standards), Goals and Policies, Code of Ordinances, and other guidance documents.

ENVIRONMENTAL THRESHOLD CARRYING CAPACITIES

Through the adoption of Resolution 82-11, TRPA has established threshold standards for fish, vegetation, and wildlife, among others. TRPA cannot approve projects that would cause a significant adverse effect on a threshold standard without appropriate mitigation. Every 5 years TRPA conducts a comprehensive reevaluation to determine whether each threshold standard is being achieved and/or maintained, creates specific recommendations to address problem areas, and directs general planning efforts for the next 5-year period. The most recent (2011) threshold evaluation is scheduled for adoption in April 2012 (TRPA 2012).

The TRPA threshold standards define special attainment goals that have been developed to focus management efforts and provide a measure of progress for vegetation, wildlife, and fisheries. The Conservation Element of TRPA’s Goals and Policies specifically identifies several attainment goals or threshold standards for certain vegetation and wildlife resources. The adopted TRPA threshold standards for vegetation, wildlife, and fisheries are listed below, and Table 3.10-1 summarizes the draft 2011 attainment status for these threshold standards (TRPA 2012).

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Table 3.10-1. TRPA Vegetation, Wildlife, and Fisheries Resource Threshold Indicators and their Attainment Status

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<td>Implemented/Attainment</td>
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Source: TRPA 2012
Common Vegetation
Increase plant and structural diversity of forest communities through appropriate management practices as measured by diversity indices of species richness, relative abundance, and pattern by using the following indicators:

- provide for the perpetuation of yellow pine forest, red fir forest, subalpine forest, shrub associations, sagebrush scrub, deciduous riparian, meadow associations, wetland associations, cushion plant association;
- maintain at least 4 percent meadow and wetland vegetation, 4 percent deciduous riparian vegetation;
- maintain no more than 25 percent dominant shrub vegetation;
- maintain 15–25 percent of the yellow pine forest in seral stages other than mature;
- maintain 15–25 percent of the red fir forest in seral stages other than mature;
- limit acreage size of new forest openings to no more than 8 acres; and
- ensure that adjacent forest openings are not of the same relative age class or successional stage.

Uncommon Plant Communities
Provide for the nondegradation of the natural qualities of any plant community that is uncommon to the Tahoe Basin or of exceptional scientific, ecological, or scenic value. This Threshold Standard will apply but not be limited to the deep-water plants of Lake Tahoe, Grass Lake (sphagnum fen), Osgood Swamp, the Freeland Peak Cushion Plant Community, Hell Hole (sphagnum fen), Upper Truckee Marsh, Taylor Creek Marsh, and Pope Marsh.

Sensitive Plants
Maintain the following minimum number of population sites for TRPA special-interest plant species: Galena Creek rockcress (*Arabis rigidissima* var. *demota*) (seven sites); long-petaled lewisia (*Lewisia longipetala*) (two sites); Cup Lake draba (*Draba asterophora* var. *macrocarpa*) (two sites); Tahoe draba (*Draba asterophora* var. *asterophora*) (five sites); and Tahoe yellow cress (*Rorippa subumbellata*) (26 sites).

Late Seral/Old-Growth Ecosystems
Attain and maintain a minimum percentage of 55 percent by area of forested lands within the Tahoe Basin in a late seral or old-growth condition, and distributed across elevation zones. Forested lands within TRPA-designated urban areas are excluded in the calculations for threshold standard attainment.

Wildlife Species of Special Interest
Provide a minimum number of population sites for six TRPA special-interest wildlife taxa: northern goshawk (12 sites); osprey (four sites); bald eagle (two winter sites and one nesting site); golden eagle (four sites); peregrine falcon (two sites); and waterfowl (18 sites). Mule deer is also a special-interest species; however, no threshold site number for deer has been specified. Perching and nesting sites of special-interest bird species will not be physically disturbed. TRPA maintains a nondegradation standard within buffer zones (“disturbance zones”) around nest sites of these species. In areas outside existing urban areas, projects or land uses within the disturbance zones will not, directly or indirectly, significantly affect the habitat or cause the displacement or extirpation of the population. Habitat within disturbance zones will not be manipulated in any manner, except for habitat enhancement. The disturbance zone for northern goshawk and bald eagle is a 0.5-mile radius around each nest site; the disturbance zone for osprey, peregrine falcon, and golden eagle is a 0.25-mile radius around each nest site. TRPA has also mapped disturbance zones for wintering bald eagles. Disturbance zones for deer are meadows.

The nondegradation standard in wildlife disturbance zones does not apply to situations where these species select areas in proximity to existing developed parcels.
Habitats of Special Significance
Apply a nondegradation standard to habitats consisting of deciduous trees, wetlands, and meadows (i.e., riparian, wetland, and meadow habitats) while providing for opportunities to increase the acreage of such riparian associations. This includes but is not limited to preserving existing natural functioning stream environment zone (SEZ) lands in their natural hydrologic condition, restoring all disturbed SEZ lands in undeveloped, unsubdivided lands, and restoring 25 percent of the SEZ lands that have been identified as disturbed, developed, or subdivided, to attain a 5 percent total increase in the naturally functioning SEZ land.

Lake Habitat
Apply a nondegradation standard to fish habitat in Lake Tahoe. Achieve the equivalent of 5,948 total acres of excellent (prime) habitat.

Stream Habitat
Maintain 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat, as indicated by the map on page 76 of the EIS for the Establishment of Environmental Thresholds.

Instream Flow
Until instream flow standards are established in the Regional Plan to protect fishery values, a nondegradation standard will apply to instream flows.

Lahontan Cutthroat Trout
Support, in response to justifiable evidence, state and federal efforts to reintroduce Lahontan cutthroat trout.

REGIONAL PLAN

Elements of the existing Regional Plan that pertain to biological resources are described below.

Goals and Policies
The Conservation Element (Chapter IV) of the TRPA Goals and Policies document establishes goals for the preservation, development, utilization, and management of natural resources within the Tahoe Region. These policies and goals are designed to achieve and maintain adopted threshold standards and are implemented through the TRPA Code of Ordinances (Code).

The Conservation Element includes 10 subelements that address the range of Lake Tahoe’s natural and historical resources. The Vegetation, Wildlife, and SEZ Subelements are discussed in this section, and the goals related to each of these subelements are identified below.

Chapter IV of the Goals and Policies identifies the following five goals for vegetation:

- provide for a wide mix and increased diversity of plant communities;
- provide for maintenance and restoration of such unique ecosystems as wetlands, meadows, and other riparian vegetation;
- conserve threatened, endangered, and sensitive plant species and uncommon plant communities;
- provide for and increase the amount of late seral/old-growth stands; and
- retain appropriate stocking level and distribution of snags and coarse woody debris in the region’s forests to provide habitat for organisms that depend on such features and to perpetuate natural ecological processes.
The two goals identified for wildlife are as follows:

- maintain suitable habitats for all indigenous species of wildlife without preference to game or nongame species through maintenance of habitat diversity; and
- preserve, enhance, and where feasible, expand habitats essential for threatened, endangered, rare, or sensitive species found in the Tahoe Basin.

The goal identified for fisheries is:

- improve aquatic habitat essential for the growth, reproduction, and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin.

The goal identified for SEZs is:

- provide for the long-term preservation and restoration of stream environment zones.

**Code of Ordinances**

The applicable provisions of the TRPA Code regarding vegetation, wildlife, and fisheries are summarized below.

**Protection and Management of Vegetation**

The Code requires the protection and maintenance of all native vegetation types. Chapter 61, Vegetation and Forest Health, Section 61.3, Vegetation Protection and Management, provides for the protection of SEZ vegetation, other common vegetation, uncommon vegetation, and sensitive plants in SEZs (TRPA 2012). TRPA defines an SEZ as an area that owes its biological and physical characteristics to the presence of surface water or groundwater. SEZ includes perennial, intermittent, or ephemeral streams; meadows and marshes; and other areas with near-surface water influence within the Tahoe Basin. No project or activity may be implemented within the boundaries of an SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Code Chapter 30, Land Coverage. TRPA can require the preparation and implementation of a remedial vegetation management plan, where the need has been identified, for the purposes of threshold standard maintenance or attainment. In addition, Chapter 61, Section 61.4, Revegetation, specifies minimum criteria for revegetation programs.

**Protection of Sensitive and Uncommon Plants**

Code Chapter 61, Section 61.3.6, Sensitive and Uncommon Plant Protection and Fire Hazard Reduction, establishes standards for preserving and managing sensitive plants and uncommon plant communities, as referenced above in Environmental Threshold Carrying Capacities. Projects and activities that are likely to harm, destroy, or otherwise jeopardize sensitive plants or their habitat must fully mitigate their significant adverse effects. Measures to protect sensitive plants and their habitat include:

- fencing to enclose individual populations or habitat,
- restricting access or intensity of use,
- modifying project design as necessary to avoid adverse impacts,
- dedicating open space to include entire areas of suitable habitat, or
- restoring disturbed habitat.

**Tree Removal**

TRPA regulates the management of forest resources in the Tahoe Basin to achieve and maintain the threshold standards for species and structural diversity, to promote the long-term health of the resources, and to create and maintain suitable habitats for diverse wildlife species. Tree removal is subject to review and approval by TRPA (TRPA 2012). Provisions for tree removal are provided in the following chapters and sections of the TRPA
Code: Chapter 61, Vegetation and Forest Health, Section 61.1, Tree Removal, Section 61.3.6, Sensitive and Uncommon Plant Protection and Fire Hazard Reduction, and Section 61.4, Revegetation; Chapter 36, Design Standards; and Chapter 33, Grading and Construction, Section 33.6, Vegetation Protection During Construction.

Project proponents must obtain a tree removal permit from TRPA for cutting of live trees 14 inches diameter at breast height (dbh) or greater. However, trees of any size marked as a fire hazard by a fire protection district or fire department that operates under a memorandum of understanding with TRPA can be removed without a separate tree permit.

With limited exceptions, Code Section 61.1.4, Old Growth Enhancement and Protection, prohibits the removal of trees greater than 24 and 30 inches dbh in eastside and westside forest types, respectively. Code Section 61.1.4 allows private landowners to remove trees larger than these size classes provided the landowner follows one of the planning processes identified in that section of the Code.

In addition, trees and vegetation not scheduled to be removed must be protected during construction in accordance with Chapter 33, Grading and Construction, Section 33.6, Vegetation Protection During Construction.

If a project would result in substantial tree removal (as defined by Code Section 61.1.8), a tree removal or harvest plan must be prepared by a qualified forester. The required elements of this plan, and TRPA’s review process for tree removal plans, are described in Chapter 61, Section 61.1.5 of the Code.

Code Chapter 62 also provides quantitative requirements for retention and protection of snags and coarse woody debris by forest type, in terms of size, density, and decay class.

**Wildlife**

TRPA sets standards for preserving and managing wildlife habitats, with special emphasis on protecting or increasing habitats of special significance, such as deciduous trees, wetlands, meadows, and riparian areas (Code Chapter 62). Specific habitats that are protected include riparian areas, wetlands, and SEZs; wildlife movement and migration corridors; important habitat for any species of concern; critical habitat necessary for the survival of any species; nesting habitat for raptors and waterfowl; fawning habitat for deer; and snags and coarse woody debris. In addition, TRPA-designated special-interest species (also referred to as “threshold species”), which are locally important because of rarity or other public interest, and species listed under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) are protected from habitat disturbance by conflicting land uses.

TRPA-designated special-interest wildlife species are northern goshawk (*Accipiter gentilis*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus anatum*), mule deer (*Odocoileus hemionus*), and waterfowl species.

The Code includes the following requirements for protection of wildlife movement and migration corridors:

- SEZs adjoining creeks and major drainages that link islands of habitat will be managed, in part, for use by wildlife as movement corridors. Structures, such as bridges, proposed within these movement corridors will be designed to avoid impairment of wildlife movement.
- Projects and activities in the vicinity of deer migration areas will be required to mitigate or avoid significant adverse impacts.

The Code also contains several provisions regarding critical habitat. TRPA defines critical habitat as any element of the overall habitat for any species of concern that, if diminished, could reduce the existing population or impair the stability or viability of the population. This applies also to habitat for special-interest species native to
the Tahoe Basin whose breeding populations have been extirpated, but could return or be reintroduced. The Code includes the following critical-habitat provisions:

- No project or activity will cause, or threaten to cause, the loss of any habitat component considered critical to the survival of a particular wildlife species.
- No project or activity will threaten, damage, or destroy nesting habitat of raptors and waterfowl or fawning habitat of deer.
- Wetlands will be preserved and managed for their ecological significance, including their value as nursery habitat to fishes, nesting and resting sites for waterfowl, and as a source of stream recharge, except as permitted pursuant to Chapter 30 of the TRPA Code.
- No project or activity will be implemented within the boundaries of an SEZ except as otherwise permitted for habitat improvement, dispersed recreation, vegetation management, or as provided in Chapter 30 of the Code of Ordinances.

**Fish Resources**
Chapter 63, Fish Resources, of the Code includes provisions for the protection of fish habitat, enhancement of degraded habitat, and prevention of the introduction and spread of aquatic invasive species. For instream habitats, protection provisions include prohibiting stream channel alterations, facilitating fish movement at stream crossings, removing barriers to fish movement, mitigating impacts on fish habitat from development, maintaining instream flows, preventing sediment entry into the stream system, and encouraging native vegetative cover.

The maintenance of essential habitat serves as the fisheries management emphasis for the Conservation Element of TRPA’s Goals and Policies. The first goal of the Conservation Element for fisheries is to “improve aquatic habitat essential for the growth, reproduction and perpetuation of existing and threatened fish resources in the Lake Tahoe Basin.” For streams within the Tahoe Basin, management focus is on the quality and quantity of habitat provided for fish species, including spawning and rearing habitat, food supply, and cover. The Conservation Element identifies the following five policies related to instream fish habitat:

- Development proposals affecting streams, lakes, and adjacent lands will evaluate impacts on the fishery.
- Unnatural blockages and other impediments to fish movement will be prohibited and removed wherever appropriate.
- Habitat improvement projects in streams and lakes will be encouraged.
- Instream flows will be maintained or enhanced.
- State and federal efforts to reintroduce Lahontan cutthroat trout will be supported.

**Aquatic Invasive Species**
Code Section 63.4, Aquatic Invasive Species, states that Aquatic Invasive Species pose a serious threat to the waters of the Lake Tahoe Region and can have a disastrous impact to the ecology and economy of the Tahoe Region. Section 63.4 includes the following provisions necessary to prevent the introduction and spread of aquatic invasive species:

**Prohibition**

A. The transport or introduction of aquatic invasive species into the Lake Tahoe Region.
B. The launching of any watercraft or landing of any seaplane contaminated with aquatic invasive species into the waters of the Tahoe Region.
C. The provision of inaccurate or false information to the TRPA or persons designated to conduct inspections pursuant to subsection 63.4.2.
D. The alteration or modification of any inspection seal or other device used by TRPA or its designee to indicate that a watercraft or seaplane last entered the waters of the Lake Tahoe Region.

Watercraft Inspections and Decontamination

A. All motorized watercraft shall be inspected by TRPA or its designee prior to launching into the waters of the Lake Tahoe Region to detect the presence, and prevent the introduction of, aquatic invasive species. Non-motorized watercraft and seaplanes may be subject to an inspection prior to entering the waters of the Lake Tahoe Region if determined necessary by TRPA or its designee.

B. All watercraft and seaplanes inspected pursuant to subparagraph 63.4.2.A shall be subject to decontamination if determined necessary by TRPA or its designee.

C. All watercraft and seaplanes subject to decontamination pursuant to subparagraph 63.3.2.A shall be permitted to enter the waters of the Lake Tahoe Region only if: (a) the decontamination is performed and completed by an individual trained and certified pursuant to TRPA standards and requirements for aquatic invasive species decontamination, and (b) following decontamination, the launch or landing, as appropriate, is authorized by an inspector trained and certified pursuant to TRPA’s standards and requirements for aquatic invasive species inspections.

D. Inspections and decontaminations performed pursuant to Section 63.4 shall be subject to a fee related to the costs of performing such services and other watercraft inspection program costs. The TRPA Governing Board shall review and approve the fee amount and structure annually.

E. An owner and/or operator of a boat ramp (excluding Marine Railway Systems) or other boat launch facility shall close any ramp or facility if the provisions of subparagraphs 63.4.2.A-C are not met in order to prevent the launching of motorized watercraft.

F. Any watercraft or seaplane entering the waters of the Lake Tahoe Region in violation of Chapter 63 shall be removed from those waters immediately.

G. Any individual who launches watercraft in violation of Section 63.4 may be held responsible for the costs expended by TRPA or its designee for response and mitigation of impacts.

FEDERAL

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) are charged with oversight of species designated as threatened or endangered under the federal Endangered Species Act of 1973 (Title 50, Part 17 of the Code of Federal Regulations [i.e., 50 CFR 17]), as amended under the USFWS Mitigation Policy of 1956 (Title 16, Chapter 35, Section 1531 of the United States Code [16 USC 1531 et seq.]), as well as those species that are designated by Region 1 of USFWS as species of concern.

USFWS has authority over projects that may result in take of a federally listed species. Under the ESA, “take” is to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or to attempt to engage in any such conduct” (Public Law 93-205, as amended by Section 3 of Public Law 107-136 [16 USC 1532]). The loss of habitat can also be considered “take” under the ESA. During project development and preparation of environmental documents, consultation occurs between the project proponent and the federal agency. If the project has a federal nexus, the process is accomplished through consultation under ESA Section 7 (16 USC 1536[a][2]), which produces a biological assessment (BA) to describe the impact mechanisms and any adverse effects on the listed population. Information within the BA is used to prepare the biological opinion (BO). If there is no federal nexus, the consultation occurs through Section 10 of the ESA and a habitat conservation plan is prepared to define the reasonable and prudent alternative (RPA) and incidental take statement.
**MIGRATORY BIRD TREATY ACT**

The Migratory Bird Treaty Act (MBTA), enacted in 1918, domestically implements a series of international treaties that provide protection for migratory birds. It authorizes the Secretary of the Interior to regulate the taking of migratory birds and provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird (16 USC 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species, which is essentially all the native birds.

**Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden eagles without a permit from the Secretary of the Interior. Similar to the ESA, the Bald and Golden Eagle Protection Act defines “take” to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb” (16 USC 668-668c). For the purpose of the act, disturbance that would injure an eagle, decrease productivity, or cause nest abandonment, including habitat alterations that could have these results, are considered take and can result in civil or criminal penalties.

**Executive Order 11990, Protection of Wetlands**

Executive Order 11990 established the protection of wetlands and riparian systems as the official policy of the federal government. The order requires all federal agencies to consider wetland protection as an important part of their policies and take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

**Executive Order 13112, National Invasive Species Management Plan**

Executive Order 13112 directs all federal agencies to prevent the introduction and control the spread of invasive non-native species in a cost-effective and environmentally sound manner to minimize economic, ecological, and human health impacts. It established a national Invasive Species Council made up of federal agencies and departments and a supporting Invasive Species Advisory Committee composed of state, local, and private entities. The Invasive Species Council and advisory committee oversee and facilitate implementation of the executive order.

**Section 404 of the Clean Water Act**

Section 404 of the Clean Water Act (CWA) establishes a requirement for a project applicant to obtain a permit before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Under Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) regulates and issues permits for activities that involve the discharge of dredged or fill materials into waters of the United States. Fills of less than 0.5 acre of nontidal waters of the United States for residential, commercial, or institutional development projects can generally be authorized under USACE’s nationwide permit (NWP) program, provided that the project satisfies the terms and conditions of the particular NWP. Fills that do not qualify for a NWP require a letter of permission or an individual permit.
SECTION 401 WATER QUALITY CERTIFICATION

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the State’s water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs).

U.S. FOREST SERVICE, LAKE TAHOE BASIN MANAGEMENT UNIT

The U.S. Forest Service (USFS), Lake Tahoe Basin Management Unit (LTBMU) manages 75 percent of lands within the Tahoe Basin. Management of USFS lands in the study area is guided by the LTBMU Forest Plan (USFS 1988). Specific standards and guidelines for biological and other resources are also described in detail in the Sierra Nevada Forest Plan Amendment (USFS 2004) and the resulting Record of Decision. LTBMU is in the process of revising the forest plan. According to the forest plan, USFS will do all of the following, in order of priority:

- protect and enhance water clarity and quality,
- protect threatened and endangered plant and animal species native to the area,
- preserve significant cultural resources,
- achieve air quality standards for health and visibility and prevent the adverse impacts of atmospheric deposition upon water quality,
- maintain viable populations of wildlife,
- achieve diverse vegetation communities, and
- enhance outdoor recreational opportunities.

In addition, LTBMU maintains a list of plants and animals designated as sensitive by the Regional Forester of USFS Region 5, and a list of management indicator species, that should be addressed when a project may affect LTBMU land.

STATE

CALIFORNIA ENDANGERED SPECIES ACT

CESA prohibits the taking of state-listed endangered or threatened species, as well as candidate species being considered for listing. Project proponents may obtain a Section 2081 incidental take permit if the impacts of the take are minimized and fully mitigated and the take would not jeopardize the continued existence of the species. A “take” of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include “harm” or “harass” as is included in the federal ESA. As a result, the threshold standard for a take under CESA may be higher than under ESA.

CALIFORNIA FISH AND GAME CODE SECTION 1602—STREAMBED ALTERATION

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by the California Department of Fish and Game (CDFG) under Sections 1600 et seq. of the California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFG, or use any material from the streambeds, without first notifying CDFG of such activity and obtaining a Lake or Streambed Alteration Agreement authorizing such activity. “Stream” is defined as a body of water that flows at least periodically or intermittently...
through a bed or channel having banks and that supports fish or other aquatic life. CDFG’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

**California Fish and Game Code Sections 3503–3503.5—Protection of Bird Nests and Raptors**

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., hawks, owls, eagles, and falcons), including their nests or eggs. Violations of these codes include destroying active nests by removing the vegetation in which the nests are located and disturbance of nesting pairs that results in the failure of active raptor nests.

**California Native Plant Protection Act**

In addition to CESA, the California Native Plant Protection Act (CNPPA) provides protection to endangered and rare plant species, subspecies, and varieties of wild native plants in California. The CNPPA’s definitions of “endangered” and “rare” closely parallel the CESA definitions of endangered and threatened plant species.

**Porter-Cologne Water Quality Control Act**

The Porter-Cologne Water Quality Control Act requires that each of the nine RWQCBs prepare and periodically update basin plans for water quality control. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCBs’ jurisdiction includes waters of the U.S. as well as areas that meet the definition of “waters of the state.” Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCBs have the discretion to take jurisdiction over areas not federally protected under Clean Water Act Section 404 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetland functions and values of waters of the state is typically required by the RWQCBs.

**Nevada Natural Heritage Program**

The Nevada Natural Heritage Program (NNHP) systematically collects information on Nevada’s at-risk, rare, endangered, and threatened biological features and acts as a single source of information on Nevada’s imperiled biodiversity. Taxa considered at risk and actively inventoried by NNHP typically include those with federal or other Nevada agency status, indicating some level of imperilment. The following statutes and codes specify guidelines and provisions for those species afforded some level of protection by the state of Nevada, and which are included in the NNHP at-risk species list.

**Nevada Administrative Code 527.010 and Nevada Revised Statutes 527.260, NRS 527.270, and NRS 527.300**

Under Nevada Revised Statutes (NRS) 527.270, state law provides that a species or subspecies of native flora shall be regarded as threatened with extinction when the state forester fire warden, after consultation with competent authorities, determines that its existence is endangered and its survival requires assistance because of overexploitation, disease, or other factors or because its habitat is threatened with destruction, drastic modification, or severe curtailment. These species are also on a state list of fully protected species of native flora (Nevada Administrative Code [NAC] 527.010), also known as the Critically Endangered Species List. The law also authorizes a program for the conservation, protection, restoration, and propagation of selected species of flora and for the perpetuation of the habitats of such species (NRS 527.260 and NRS 527.300).
NEVADA REVISED STATUTES, TITLE 45

The Nevada Department of Wildlife (NDOW) manages fish and wildlife resources on the Nevada side of the Tahoe Basin under Title 45, Wildlife, of the NRS. Title 45 consists of provisions that address wildlife management, including protective measures that establish a program for the conservation, protection, restoration, propagation, and perpetuation of native fish and other vertebrate wildlife species.

NEVADA REVISED STATUTES 503.610 AND NEVADA REVISED STATUTES 503.620

Bald eagles, golden eagles, and migratory birds are specifically protected under NRS 503.610 and NRS 503.620. Under these statutes, it is unlawful for any person or organization to “kill, destroy, wound, trap, injure, possess dead or alive, or in any other manner to catch or capture, or to pursue with such intent,” bald eagles and golden eagles or other birds protect under the MBTA (16 USC Section 703 et seq.).

3.10.2 AFFECTED ENVIRONMENT

The Regional Plan Update applies to the entire Lake Tahoe Basin, which includes numerous vegetation communities, terrestrial and aquatic habitats, special-status plant and animal habitats, and sensitive plant communities. By virtue of the nature and scope of the proposed goals, policies, and implementation measures, any of the Regional Plan Update alternatives is expected to primarily affect the more urbanized areas and transportation corridors of the Region, which are concentrated in the lower elevation ranges and areas of relatively moderate topography. Therefore, implementation of the Regional Plan Update would directly affect a relatively small proportion of biological resources in the basin. Nonetheless, because the Regional Plan Update applies to the whole Region and its implementation has the potential to affect resources Region-wide, the study area for biological resources includes the entire Tahoe Basin.

Because of the policy level and regional scope of this analysis, this Affected Environment section is not intended to provide a full inventory of all common and sensitive biological resources that are known or could occur in the study area or in a particular project area. During any project-level planning and evaluation, a combination of data sources and survey efforts would additionally be used to determine the specific biological resources known or with potential to occur in a particular project area.

ECOREGIONAL CONTEXT

The Tahoe Basin and Regional Plan Update study area occurs within the USFS Sierra Nevada Ecological Section (USFS 1997), which is also referred to generally as the Sierra Nevada ecoregion. The Sierra Nevada ecoregion is the temperate to very cold parts of the Sierra Nevada. The entire Sierra Nevada ecoregion is divided into 21 ecological subsections. The Tahoe Basin and Regional Plan Update study area includes portions of six of these subsections: Upper Batholith and Volcanic Flows, Tahoe-Truckee, Glaciated Batholith and Volcanic Flows, Tahoe Valley, Markleeville, and Carson Range subsections (Exhibit 3.10-1). These ecological subsections are distinguished primarily by their geologic and geomorphic properties and history, and by variation in climate and vegetation patterns.
Exhibit 3.10-1. USFS Ecological Subsections in the Lake Tahoe Basin

Source: TRPA 2011; USFS 1997
Table 3.10-2 summarizes the geographic location of and major vegetation communities within each Sierra Nevada ecological subsection that occurs in the study area. Additional information on soils, geology, hydrology, and vegetation conditions for each subsection is provided in Ecological Subregions of California: Section and Subsection Descriptions (USFS 1997, 1998). This description and Table 3.10-2 are intended to provide only a very general overview of large-scale vegetation patterns among the ecological subsections in the study area. The following section, Vegetation Communities and Wildlife Habitats, provides more discussion of the vegetation of the Tahoe Basin and a map of vegetation types in the Region.

<table>
<thead>
<tr>
<th>Section</th>
<th>Geographic Area in the Tahoe Basin</th>
<th>Predominant Vegetation Types</th>
<th>Other Vegetation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Batholith and Volcanic Flows</td>
<td>West-southwest portion of Basin, from Homewood south to Emerald Bay</td>
<td>The predominant natural plant communities are Jeffrey pine, mixed conifer, and white fir. This community occurs at lower elevations and on drier soils where cold air drainage and frost limit the regeneration of other conifers. Western white pine and whitebark pine occur at high elevations. Aspen and mountain alder are common in riparian or wet areas. Sedge meadow communities are common but not extensive. Western white pine and whitebark pine occur at high elevations.</td>
<td>Shrub-dominated vegetation includes bush chinquapin, greenleaf manzanita, huckleberry oak, mountain whitethorn, and tobacco brush. Alpine grassland and montane meadow are also present.</td>
</tr>
<tr>
<td>Tahoe-Truckee</td>
<td>Northwest portion of Basin, from Kings Beach south to Homewood</td>
<td>The predominant natural plant communities are Jeffrey pine, mixed conifer, white fir series, red fir series, and big sagebrush. Jeffrey pine is common in drier areas on shallow and rocky soils. Patches of mountain hemlock series occur at the highest elevations. Lodgepole pine series prevails on many wet soils and on drier soils where cold air drainage and frost limit the regeneration of other trees. Western white pine and whitebark pine occur at upper elevations. Sedge meadow communities are common but not extensive. Willow, mountain alder, and black cottonwood are common in riparian areas, and aspen is present.</td>
<td>Shrub-dominated vegetation includes big sagebrush, bitterbrush, and rabbitbrush. Alpine grassland and montane meadow are also present.</td>
</tr>
<tr>
<td>Glaciaded Batholith and Volcanic Flows</td>
<td>High-elevation regions of the south and southwest portions of the Basin</td>
<td>Most of this subsection is sparsely vegetated. The primary vegetation communities are mixed subalpine forest, red fir series, and subalpine meadow. Jeffrey pine is common on shallow and rocky soils. Patches of mountain hemlock occur at high elevations, and aspen occurs at lower elevations. Lodgepole pine is dominant on many wet soils and on drier soils where cold air drainage and frost limit the regeneration of other conifers. Western white pine and whitebark pine occur at upper elevations. Aspen frequently occurs where drifted snow accumulates and provides water during summer. Sedge meadow communities are common but not extensive.</td>
<td>Shrub-dominated vegetation includes chinquapin, greenleaf manzanita, huckleberry oak series, mountain whitethorn, subalpine upland shrub habitat, subalpine wetland shrub habitat, and tobacco brush. Alpine grassland, montane meadow, and subalpine meadow habitats are also present.</td>
</tr>
</tbody>
</table>
Table 3.10-2. Overview of Vegetation Communities Within Tahoe Basin Ecological Subsections

<table>
<thead>
<tr>
<th>Sierra Nevada Ecological Subsection</th>
<th>Geographic Area in the Tahoe Basin</th>
<th>Predominant Vegetation Types</th>
<th>Other Vegetation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tahoe Valley</td>
<td>Southern Tahoe Basin, including the Upper Truckee River watershed</td>
<td>The predominant natural plant communities on well-drained soils are Jeffrey pine and white fir. Sedge meadow communities and willow thickets predominate in wet areas, with lodgepole pine around the margins of wet areas. Aspen occurs in moist habitats.</td>
<td>Shrub-dominated vegetation includes big sagebrush, bitterbrush, and rabbitbrush. Montane meadows are also present.</td>
</tr>
<tr>
<td>Markleeville</td>
<td>Only a very small fraction of this section occurs in the Tahoe Basin, in the south portion of the Basin (see Exhibit 3.10-1)</td>
<td>The predominant natural plant communities are Jeffrey pine, white fir, mixed subalpine forest, and red fir. Lodgepole pine occurs on some wet soils, and on drier soils where cold air drainage and frost limit the regeneration of other conifers. Big sagebrush prevails at lower elevations. Aspen occurs where drifted snow accumulates and provides water during summer. Sedge meadow communities are not extensive. Western white pine and whitebark pine occur at upper elevations.</td>
<td>Shrub-dominated vegetation includes big sagebrush, bitterbrush, greenleaf manzanita, rabbitbrush, tobacco brush, subalpine upland shrub habitat, and subalpine wetland shrub habitat. Montane meadow and subalpine meadow habitats are also present.</td>
</tr>
<tr>
<td>Carson Range</td>
<td>Northeastern, eastern, and southeastern Tahoe Basin</td>
<td>Jeffrey pine and white fir occur at lower elevations. At higher elevations, red fir, western white pine, and, on north-facing slopes, small areas of mountain hemlock occur. Whitebark pine frequently occurs at the highest elevations. Sedge meadow communities and willow thickets predominate in wet areas, with lodgepole pine around the margins of wet areas.</td>
<td>Shrub-dominated vegetation includes big sagebrush, bitterbrush, greenleaf manzanita, rabbitbrush, and tobacco brush. Alpine grassland and montane meadow are also present.</td>
</tr>
</tbody>
</table>

Source: Adapted by Ascent Environmental in 2012 from USFS 1997, 1998

VEGETATION COMMUNITIES AND WILDLIFE HABITATS

The Lake Tahoe Region occurs within a unique Sierra Nevada geologic basin. The types, distribution, and functions of vegetation and wildlife resources in Tahoe are strongly influenced by the geology, climate, topography, and hydrology of the region, as well as development and land use patterns. The Lake elevation averages 6,225 feet, and surrounding peaks reach elevations of up to 10,880 feet. This elevation gradient results in three general vegetation zones that are recognized in the Basin: montane, upper montane, and subalpine. Numerous vegetation types are present within each vegetation zone. The hydrologic, topographic, and elevation gradients present in the Basin support a diverse mix of vegetation communities and wildlife habitats. For example, more than 50 vegetation types and 22 California Wildlife Habitat Relationships System (CWHR) habitat types are recognized in the Tahoe Basin.

Table 3.10-3 summarizes the CWHR vegetation communities and wildlife habitat types in the Tahoe Basin (USFS 2007). Exhibit 3.10-2 shows the distribution of these habitat types in the Basin. Vegetation/habitat types were mapped using the comprehensive existing vegetation (EVEG) databases that meet regional and national vegetation mapping standards. EVEG vegetation types are based on the Classification of California Vegetation (CALVEG) classification system (USFS 1981). CWHR classifications were derived primarily from CALVEG type and relative cover. Because of the large number of vegetation communities and wildlife habitats in the Tahoe Basin, these are not described in further detail in this EIR/EIS. Most of these vegetation/habitat types have been described numerous times in various environmental review and other documents; and descriptions can be found in the Lake Tahoe Watershed Assessment (Murphy and Knopp 2000) and A Guide to Wildlife Habitats of California (Mayer and Laudenslayer 1988, as revised).
Table 3.10-3. Vegetation Communities and Wildlife Habitats in the Lake Tahoe Basin and Regional Plan Update Study Area

<table>
<thead>
<tr>
<th>California Wildlife Habitat Relationship</th>
<th>Elevation Range (feet)</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpine Dwarf-Shrub</td>
<td>7,978—10,437</td>
<td>1,655</td>
</tr>
<tr>
<td>Aspen</td>
<td>6,218—8,854</td>
<td>921</td>
</tr>
<tr>
<td>Barren</td>
<td>6,200—10,535</td>
<td>10,987</td>
</tr>
<tr>
<td>Bitterbrush</td>
<td>6,233—6,244</td>
<td>45</td>
</tr>
<tr>
<td>Eastside Pine</td>
<td>6,233—8,414</td>
<td>1,406</td>
</tr>
<tr>
<td>Jeffrey Pine</td>
<td>6,155—8,949</td>
<td>32,893</td>
</tr>
<tr>
<td>Juniper</td>
<td>8,201—9,053</td>
<td>9</td>
</tr>
<tr>
<td>Lacustrine</td>
<td>6,164—9,356</td>
<td>126,135</td>
</tr>
<tr>
<td>Lodgepole Pine</td>
<td>6,214—9,804</td>
<td>9,530</td>
</tr>
<tr>
<td>Low Sage</td>
<td>7,950—9,839</td>
<td>571</td>
</tr>
<tr>
<td>Montane Chaparral</td>
<td>6,200—9,873</td>
<td>25,290</td>
</tr>
<tr>
<td>Montane Riparian</td>
<td>6,205—9,240</td>
<td>1,666</td>
</tr>
<tr>
<td>Montane-Hardwood-Conifer</td>
<td>6,233—8,687</td>
<td>222</td>
</tr>
<tr>
<td>Perennial Grassland</td>
<td>6,200—9,807</td>
<td>4,709</td>
</tr>
<tr>
<td>Red fir</td>
<td>6,431—9,436</td>
<td>24,070</td>
</tr>
<tr>
<td>Riverine</td>
<td>6,219—6,244</td>
<td>117</td>
</tr>
<tr>
<td>Sagebrush</td>
<td>6,243—9,566</td>
<td>1,467</td>
</tr>
<tr>
<td>Sierran Mixed Conifer</td>
<td>6,200—8,864</td>
<td>60,552</td>
</tr>
<tr>
<td>Subalpine Conifer</td>
<td>6,485—10,683</td>
<td>13,721</td>
</tr>
<tr>
<td>Urban</td>
<td>6,162—9,117</td>
<td>6,725</td>
</tr>
<tr>
<td>Wet Meadow</td>
<td>6,192—9,629</td>
<td>2,676</td>
</tr>
<tr>
<td>White Fir</td>
<td>6,231—8,628</td>
<td>6,527</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>331,894</strong></td>
</tr>
</tbody>
</table>

Source: USFS 2007

A wide variety of plants grow in the Basin. A total of 1,077 vascular plant species have been confirmed to occur, with another 360 potentially occurring. In addition, the Basin supports 115 species of nonvascular plants (Murphy and Knopp 2000). At least 289 terrestrial and semi-terrestrial vertebrates occur in the Lake Tahoe Basin as residents or regular visitors (Murphy and Knopp 2000), including 217 birds, 59 mammals, 5 amphibians, and 8 reptiles. An additional 57 terrestrial species have been recorded in the Basin as accidental visitors or as species potentially extirpated from the Basin (Murphy and Knopp 2000).

In addition to biophysical gradients, several other factors affect the distribution and quality of wildlife habitats, abundance and distribution of species, and plant and animal community structure in the area. These include recreation use, land use and management activities (e.g., agriculture, logging, fuels management), historic livestock grazing, and natural disturbance regimes (e.g., fire history). In particular, the existing vegetation patterns and conditions in the Lake Tahoe Basin are strongly influenced by past and current human activities (USDA 2000, Taylor 2007). Prior to the early 1800s, vegetation in the Tahoe Basin was managed only by the Washoe Tribe, and a combination of Washoe activities and natural processes maintained a diversity of forest types (USDA 2000). Logging activities began in 1859, and within 40 years, about 60 percent of the Tahoe watershed had been clear-cut (USDA 2000). The remaining unlogged land was mostly limited to alpine, barren, or inaccessible areas (USDA 2000). Consequently, most forestlands of the Basin are less than 150 years old, with few examples of young and very old forest stands (USDA 2000). After most of the logging was complete,
Exhibit 3.10-2. Lake Tahoe Region Vegetation Communities

Source: TRPA 2011; USFS 2007
federal and state governments began acquiring lands in 1899 and accelerated acquisitions in the 1930s. Until the late 1970s, the vegetation that had developed on the landscape in the past 100–150 years received little active management except fire suppression. As a result, most of the forestlands are even-aged and densely stocked (Beaty and Taylor 2008). Vegetation types that depend on frequent fire to maintain them (e.g., Jeffrey pine) are gradually being replaced by less fire-resistant species (Taylor 2007). The long history of fire suppression combined with periods of drought and insect-induced mortality has resulted in stands with a high concentration of hazardous fuels (USDA 2000, Raumann and Cablk 2008), which has increased the threat of large catastrophic fire. Starting in 2007 after the Angora Fire in South Lake Tahoe, several land management agencies have intensified the fuels-reduction treatment of conifer forests in the Basin, especially in areas surrounding urban development.

Housing, commercial, and infrastructure development have also influenced existing vegetation patterns. Development has resulted in the removal of vegetation cover and compositional changes through landscaping. These changes in cover and composition have resulted in increased erosion and nutrient runoff from developed lots and the introduction of non-native species into the Basin. Additionally, since 1900, 75 percent of the marshlands and 50 percent of the meadowlands in the Basin have been removed by urban development (USFS 1988, Murphy and Knopp 2000).

Currently, approximately 85 percent of the land in the Tahoe Basin is managed by the USFS, Nevada Division of State Parks, the California Department of Parks and Recreation, and the California Tahoe Conservancy; the remainder is privately owned. Because of the high proportion of lands in public ownership, most special-status plant and animal species and sensitive habitats are located on public lands; as a result, potential threats to most vegetation and wildlife resources in the Tahoe Region are reduced overall relative to many other regions.

**FISHERIES AND AQUATIC RESOURCES**

Several types of aquatic habitat occur in the Tahoe Region. Lakes within the Region range from small glacial tarns and snowmelt ponds to very large lakes, such as Lake Tahoe. Streams range from small ephemeral drainages and intermittent streams to large perennial rivers such as the Truckee River. Other aquatic habitats within the Region include marshes, seeps, springs, fens, and bogs. Riparian and wetland vegetation associated with all of these aquatic features provides important aquatic habitat functions.

Lakes and streams are the two primary aquatic habitats that support fish in the Lake Tahoe Region. Prior to the influence of Euro-American activities, seven species of fish occurred in the lakes and streams of the Lake Tahoe Region (Murphy and Knopp 2000). The composition and abundance of the fish community has changed considerably since the arrival of Euro-Americans to Lake Tahoe in the 1840s. Several factors are believed to have contributed to the decline or extirpation of native fish and the degradation of fish habitat in the Region. Logging, water diversions, grazing, commercial harvest, road building, and the introduction of non-native fish and other aquatic organisms have contributed cumulatively to the change in the Tahoe Region’s fisheries composition and degradation of fish habitat (Murphy and Knopp 2000). Since the Comstock Era (circa 1860), at least 20 additional species of non-native fish have been introduced into Tahoe Region aquatic communities. The variety of non-native fish introduced into the Tahoe Region is the result of numerous attempts by state agencies and anglers to establish sustainable commercial and recreational fisheries.

**Native Fish Species**

Of the native fish species, Lahontan cutthroat trout and mountain whitefish (*Prosopium williamsoni*) were abundant and revered by Native Americans because they provided ample food for their people. Today, restoration efforts to reintroduce the once-extirpated Lahontan cutthroat trout are underway, and the population numbers of mountain whitefish are believed to be very low (Murphy and Knopp 2000).
Lahontan cutthroat trout is the only trout species native to lakes and streams in the Tahoe Region. In the late 1800s and early 1900s, this species supported a commercial fishery in the Tahoe Region. The fishery declined in the 1920s and collapsed in the early 1930s (Cordone and Frantz 1966). By 1939, Lahontan cutthroat trout was extirpated in the Tahoe Region from overharvesting, habitat degradation, and the introduction of non-native fishes (California State Parks et al. 2010: p. 3.5-24). In 1970, the species was federally listed as endangered but was reclassified as threatened in 1975 (40 Federal Register 29864, July 16, 1975), to facilitate its management and allow angling.

Several efforts have been made to restore Lahontan cutthroat trout populations in streams and small lakes. Reintroduction efforts in the Tahoe Region have been hampered by the presence of non-native trout, which compete with, predate on, and/or hybridize with Lahontan cutthroat trout (California State Parks et al. 2010: p. 3.5-24).

Between 1956 and 1964, Lahontan cutthroat trout was planted annually in headwater streams of the Upper Truckee River (Cordone and Frantz 1966). In 1989 and 1990, CDFG reintroduced Lahontan cutthroat trout into the headwaters of the Upper Truckee River near Meiss Meadows. Between 1996 and 2001, large numbers of Lahontan cutthroat trout were stocked into lakes in the Upper Truckee River watershed. Through years of population monitoring and management, the Meiss Meadows population has become the only self-sustaining population of Lahontan cutthroat trout in the Lake Tahoe Region (Moore and Santora 2010).

Since 2002, USFWS has introduced Lahontan cutthroat trout to Fallen Leaf Lake as a pilot effort to learn what conditions are necessary for successful restoration of the species in a lake environment. Initial findings suggest that adverse interactions with non-native species, including predation by lake trout (Salvelinus namaycush), hybridization with rainbow trout (Oncorhynchus mykiss), changes in the food web, and competition for resources may pose challenges to the reintroduction of the species into lakes where non-native species are present (Vander Zanden et al. 2003). Overall, findings suggest that restoration of a viable Lahontan cutthroat trout population may be possible if it can establish a niche apart from other trout species.

Recent efforts toward reintroducing Lahontan cutthroat trout into Lake Tahoe itself, for recreational purposes, began during the summer of 2011. The Nevada Department of Wildlife stocked approximately 22,000 Lahontan cutthroat trout in Lake Tahoe (near Cave Rock) as part of their efforts to begin stocking native aquatic species for the benefit of anglers.

Other native fish species in the Tahoe Region include Tahoe sucker (Catostomus tahoensis), mountain sucker (Catostomus platyrhynchos), Paiute sculpin (Cottus beldingi), Lahontan speckled dace (Rhinichthyes osculus robustus), Lahontan redside (Richardsonius egregiosus), Lahontan lake tui chub (Gila bicolor pectinifer), and Lahontan stream tui chub (G. b. obesa).

**Non-native Fish and Aquatic Invasive Species**

Non-native aquatic invasive species have become a priority for education, prevention, and control in the Tahoe Region. The Lake Tahoe Region Aquatic Invasive Species Management Plan (USACE 2009) was released in 2009; this document details past introductions of aquatic non-native and invasive species, their current status, priority threats, and future management strategies to avoid additional introductions and spread of current non-native invasive populations (USACE 2009). Two invasive non-native aquatic mussels – quagga mussel (Dreissena bugensis) and zebra mussel (Dreissena polymorpha) – and an invasive aquatic snail – New Zealand mudsnail (Potamopyrgus antipodarum) – are not present in the Tahoe Region and are of particular concern due to their expanding range, highly invasive nature, and potential to disrupt ecosystem functions. Aquatic invasive species of serious concern that are present in Lake Tahoe include Asian clam (Corbicula fluminea), Eurasian watermilfoil (Myriophyllum spicatum, an aquatic weed), and curlyleaf pondweed (Potamogeton crispus, an aquatic weed).
Non-native introduced salmonid species that are present in Tahoe Region streams and lakes are lake trout (*Salvelinus namaycush*), brook trout (*S. fontinalis*), rainbow trout (*Oncorhynchus mykiss*), and brown trout (*Salmo trutta*). Several warm-water fish species have also been introduced into Lake Tahoe and some tributary streams, including bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), and brown bullhead catfish (*Ictalurus nebulosus*) (California State Parks et al. 2010: p. 3.5-26).

**TRPA-DESIGNATED FISH HABITAT**

TRPA has designated different types and qualities of fish habitat in Lake Tahoe. “Prime” fish habitat includes spawning habitat and feed and cover habitat, and is one of TRPA’s threshold indicators for fisheries. Spawning habitats are composed of relatively small-diameter, rocky or gravel substrates used by native minnows for spawning and rearing fry. Feed and cover habitats are composed of larger diameter cobbles and boulders that are used by a variety of native and non-native species as foraging habitat and to provide refuge from predation. TRPA-designated fish habitat in Lake Tahoe is shown in Exhibit 3.10-3.

**SENSITIVE BIOLOGICAL RESOURCES**

In this analysis, sensitive biological resources include those species and biological communities that receive special protection through the TRPA Code of Ordinances, ESA, CESA, CWA, USFS Manual, or local plans, policies, and regulations; or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Sensitive biological resources evaluated as part of this analysis include special-status species and sensitive natural communities. These resources are addressed in the following sections.

The California Natural Diversity Database (CNDDB) and its geographic information system (GIS) application, the California Native Plant Society (CNPS) online *Inventory of Rare and Endangered Plants*, TRPA GIS data, LTBMU GIS data, and Nevada Natural Heritage GIS data were used as the primary sources to identify and map previously reported occurrences of special-status species and sensitive natural communities within the study area. The CNDDB is a California statewide database managed by CDFG that is continually updated with the location and condition of the State’s rare and declining species and habitats. Although the CNDDB is the most current and reliable tool available for tracking occurrences of special-status species in California, it contains only those records that have been reported to CDFG. TRPA and LTBMU GIS data are supplemented and updated annually based on survey results or other confirmed occurrence records provided to the agencies.

During project-level planning and evaluation, a combination of data sources and survey efforts would additionally be used to determine the specific biological resources known or with potential to occur in a particular project area.

**SPECIAL-STATUS SPECIES**

Special-status species include plants and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. In this document, special-status species are defined as plants and animals in the following categories:

- Listed or proposed for listing as threatened or endangered under ESA
- Designated as a candidate for listing as threatened or endangered under ESA
- Designated as a sensitive, special-interest, or threshold species by TRPA
- Designated as sensitive by the USFS Regional Forester in Region 5
- Listed or a candidate for listing by the State of California as threatened or endangered under CESA
- Listed as fully protected under the California Fish and Game Code
- Animals identified by CDFG as species of special concern
Plants considered by CDFG to be “rare, threatened or endangered in California” (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere)—The California Rare Plant Ranks correspond with and replace former CNPS listings; while these rankings do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under the California Environmental Quality Act (CEQA)

- Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines Appendix G)
- Otherwise meets the definition of rare or endangered under CEQA Section 15380(b) and (d)
- Designated as protected in Nevada under NRS 501 and NAC 503, and with an NNHP state vulnerability/threat rank of 4 or lower
- Designated as protected in Nevada and further classified as Endangered or Sensitive under NRS 501 and NAC 503
- Plant species on Nevada’s state list of fully protected species of native flora (NAC 527.010), also known as the Critically Endangered Species List
- Designated as an At-Risk Species by the NNHP
- Considered by the NNHP as “watch list” or threatened plant species

Preliminary lists of special-status plant and animal species known or with potential to occur in the Tahoe Basin were developed based on a review of the following:

- a list of taxa designated by TRPA as sensitive or special interest/threshold species (TRPA 2002);
- TRPA and LTBMU GIS data;
- a records search and GIS query of the CNDDB (CDFG 2011) for the Tahoe Basin;
- the CNPS online Inventory of Rare and Endangered Plants;
- a list and GIS data of special-status species obtained from the NNHP (NNHP 2011);
- a list of special-status species tracked by the NNHP (NNHP 2005); and
- a list of federally endangered, threatened, or candidate species that may be affected by projects in the Lake Tahoe Basin (USFWS 2012).

**Special-Status Plants**

The initial data review preliminarily identified 41 special-status plant species known or with potential to occur in the Tahoe Basin. Table 3.10-4 summarizes the status, habitat association, and occurrence information of each special-status plant species evaluated during this analysis.

**Special-Status Wildlife**

The initial data review preliminarily identified 40 special-status wildlife species known or with potential to occur in the Tahoe Basin. Table 3.10-5 summarizes the status, habitat associations, and occurrence information of each special-status wildlife species evaluated during this analysis.
<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status</th>
<th>Habitat and Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washoe tall rockcress <em>Arabis rectissima var. simulans</em></td>
<td>TRPA, FSS, CRPR-1B, NNHP-AR</td>
<td>Jeffrey pine-fir forest on gentle slopes, in generally disturbed areas, on sandy granitic or andesitic soil; 6,000–7,400 ft. elev. Blooms June–July.</td>
</tr>
<tr>
<td>Galena Creek rockcress <em>Arabis rigidissima var. demota</em></td>
<td>FSS, CRPR-2, NNHP-AR</td>
<td>Fir- pine-quaking aspen associations, meadow edges, usually on north-facing slopes and rocky outcrops; 7,000–9,900 ft. elev. Blooms August.</td>
</tr>
<tr>
<td>Upswept moonwort <em>Botrychium ascendens</em></td>
<td>FSS</td>
<td>Coniferous forest in mesic substrates such as springs; 5,000–7,500 ft. elev. Fertile in August.</td>
</tr>
<tr>
<td>Scalloped (dainty) moonwort <em>Botrychium crenulatum</em></td>
<td>FSS, CRPR-2, NNHP-AR</td>
<td>Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps; 5,000–11,000 ft. elev. Fertile July–August.</td>
</tr>
<tr>
<td>Slender moonwort <em>Botrychium lineare</em></td>
<td>FSS</td>
<td>Upper montane coniferous forest, often in disturbed areas; 8,500 ft. elev. Fertile period not known.</td>
</tr>
<tr>
<td>Common moonwort <em>Botrychium lunaria</em></td>
<td>FSS, CRPR-2</td>
<td>Subalpine and upper montane coniferous forest, meadows and seeps; 7,500–11,200 ft. elev. Fertile in August.</td>
</tr>
<tr>
<td>Mingan moonwort <em>Botrychium minganense</em></td>
<td>FSS, CRPR-2</td>
<td>Lower montane and upper montane coniferous forest in mesic soils; 5,000–7,000 ft. elev. Fertile July–Sept.</td>
</tr>
<tr>
<td>Western goblin <em>Botrychium montanum</em></td>
<td>FSS, CRPR-2</td>
<td>Lower montane and upper montane coniferous forest in mesic soils; 5,000–7,000 ft. elev. Fertile July-Sept.</td>
</tr>
<tr>
<td>Bolander’s candle moss <em>Bruchia bolanderi</em></td>
<td>FSS, CRPR-2, NNHP-AR</td>
<td>Lower montane coniferous forest in mesic soils; 5,600–9,000 ft. elev. Fertile period not specified.</td>
</tr>
<tr>
<td>Branched collybia <em>Dendrocollybia racemosa</em></td>
<td>FSS</td>
<td>Mycorrhizal growing on old decayed or blackened mushrooms or occasionally in coniferous duff, usually within old growth stands.</td>
</tr>
<tr>
<td>Davy’s sedge <em>Carex davyi</em></td>
<td>–, CRPR-1B</td>
<td>Subalpine and upper montane coniferous forests. Blooms May–August</td>
</tr>
<tr>
<td>Woolly-fruited sedge <em>Carex lasiocarpa</em></td>
<td>–, CRPR-2</td>
<td>Bogs, fens, marshes, and swamps, along freshwater lake margins. Blooms June–July</td>
</tr>
<tr>
<td>Mud sedge <em>Carex limosa</em></td>
<td>–, CRPR-2</td>
<td>Upper montane coniferous forest, lower montane coniferous forest, bogs and fens, meadows and seeps, marshes and swamps (in floating bogs and soggy meadows, often at edges of lakes); 3,697–9,104 ft. elev. Blooms June–August.</td>
</tr>
</tbody>
</table>
Table 3.10-4. Special-Status Plant Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status</th>
<th>Habitat and Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TRPA/Federal</td>
<td>State</td>
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<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>Northern meadow sedge Carex praticola</td>
<td>–</td>
<td>CRPR-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mesic meadows and seeps.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms May–July</td>
</tr>
<tr>
<td>Tahoe draba Draba asterophora var. asterophora</td>
<td>TRPA, FSS</td>
<td>CRPR-1B, NNHP-AR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alpine boulder and rock fell field, subalpine coniferous forest; 8,200–10,500 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms July–September</td>
</tr>
<tr>
<td>Cup Lake draba Draba asterophora var. macrocarpa</td>
<td>TRPA, FSS</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subalpine coniferous forest; 8,200–9,200 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms July–August</td>
</tr>
<tr>
<td>Subalpine fireweed Epilobium howellii</td>
<td>FSS</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Subalpine coniferous forest, meadows and seeps; 6,500–8,500 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms July–August</td>
</tr>
<tr>
<td>Oregon fireweed Epilobium oreganum</td>
<td>–</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper montane coniferous forest, lower montane coniferous forest, in or near streams, 1,640–7,349 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms June–September</td>
</tr>
<tr>
<td>Marsh willowherb Epilobium palustre</td>
<td>–</td>
<td>CRPR-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bogs and fens, meadows, and seeps; 7,218 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms July–August</td>
</tr>
<tr>
<td>Starved daisy Erigeron miser</td>
<td>FSS</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper montane coniferous forest in rocky soils; 6,000–8,600 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms June–October</td>
</tr>
<tr>
<td>Torrey (Donner Pass) buckwheat Eriogonum umbellatum var. torreyanum</td>
<td>FSS</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rocky, volcanic substrate in meadows and upper montane coniferous forest; 6,000–8,600 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms July–September</td>
</tr>
<tr>
<td>American manna grass Glyceria grandis</td>
<td>–</td>
<td>CRPR-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bog, fens, meadows, seeps, marshes, and swamps; streambanks and lake margins.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms June–August</td>
</tr>
<tr>
<td>Plumas ivesia Ivesia sericoleuca</td>
<td>–</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vernally mesic, usually volcanic soils. Great Basin scrub, lower montane coniferous forest,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>meadows, seeps, and vernal pools.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms May–October</td>
</tr>
<tr>
<td>Santa Lucia dwarf rush Juncus luciensis</td>
<td>–</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chaparral, Great Basin scrub, lower montane coniferous forest, meadows, seeps, and vernal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pools; 985–6690 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms April–July</td>
</tr>
<tr>
<td>Blandow’s bog moss Helodium blandowii</td>
<td>FSS</td>
<td>CRPR-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bogs and fens, wet meadows, and along streams under willows; sub-alpine coniferous forest;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,100–8,860 ft. elev.</td>
</tr>
<tr>
<td>Short-leaved hulsea Hulsea brevifolia</td>
<td>FSS</td>
<td>CRPR-1B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower and upper montane coniferous forest, often on slate; 5,000–10,500 ft. elev.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Blooms May–August</td>
</tr>
<tr>
<td>Kellogg’s lewisia Lewisia kelloggii ssp. hutchisonii</td>
<td>FSS</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ridge tops or flat open spaces with widely spaced trees and sandy granitic to erosive</td>
</tr>
<tr>
<td></td>
<td></td>
<td>volcanic soil; about 5,000 to 7,000 ft. elev.</td>
</tr>
<tr>
<td>Common Name and Scientific Name</td>
<td>Regulatory Status¹</td>
<td>Habitat and Flowering Period</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Kellogg’s lewisia <em>Lewisia kelloggii ssp. kelloggii</em></td>
<td>FSS – –</td>
<td>Ridge tops or flat open spaces with widely spaced trees and sandy granitic to erosive volcanic soil; about 5,000 to 7,000 ft. elev.</td>
</tr>
<tr>
<td>Long-petaled lewisia <em>Lewisia longipetala</em></td>
<td>TRPA, FSS CRPR-1B –</td>
<td>Alpine boulder and rock field, subalpine coniferous forest; 8,200–9,900 ft. elev. Blooms July–August.</td>
</tr>
<tr>
<td>Stebbin’s phacelia <em>Phacelia stebbinsii</em></td>
<td>– CRPR-1B –</td>
<td>Cismontane woodland, lower montane coniferous forest, meadows, and seeps. 2,000-6,595 ft. elev. Blooms May–July.</td>
</tr>
<tr>
<td>Alder buckthorn <em>Rhamnus alnifolia</em></td>
<td>– CRPR-2 –</td>
<td>Lower and upper montane coniferous forests; meadows, seeps, and riparian scrub. 4,495-6,990 ft. elev. Blooms May–July.</td>
</tr>
<tr>
<td>Three-ranked hump moss <em>Melesia triqueta</em></td>
<td>FSS NNHP-AR NNPS-W</td>
<td>Bogs and fens, meadows and seeps, upper montane coniferous forest on mesic soil; 4,200–8,200 ft. elev. Fertile period not specified.</td>
</tr>
<tr>
<td>Broad-nerved hump moss <em>Melesia uliginosa</em></td>
<td>FSS CRPR-2 –</td>
<td>Bogs and fens, meadows and seeps, upper montane coniferous forest on mesic soil; 4,200–8,200 ft. elev. Fertile period not specified.</td>
</tr>
<tr>
<td>Veined water lichen <em>Peltigera hydrothyria</em></td>
<td>FSS – –</td>
<td>Cold unpolluted streams and springs in coniferous forest.</td>
</tr>
<tr>
<td>Tahoe yellow cress <em>Rorippa subumbellata</em></td>
<td>TRPA, FC, FSS CA-CE, CRPR-1B NCE NNHP-AR –</td>
<td>Decomposed granitic beaches on Lake Tahoe; species is endemic to Lake Tahoe Basin beaches; 6,217–6,234 ft. elev. Blooms May–Sept.</td>
</tr>
<tr>
<td>Water bulrush <em>Schoenoplectus subterminalis</em></td>
<td>– CRPR-2 –</td>
<td>Bogs and fens, marshes and swamps (montane lake margins in shallow water); 2,461–7,661 ft. elev. Blooms July–August.</td>
</tr>
<tr>
<td>Marsh skullcap <em>Scutellaria galericulata</em></td>
<td>– CRPR-2 –</td>
<td>Lower montane coniferous forest, meadows and seeps, marshes and swamps; 0–6,890 ft. elev. Blooms June–September.</td>
</tr>
<tr>
<td>Munro’s desert mallow <em>Sphaeralcea munroana</em></td>
<td>– CRPR-2 –</td>
<td>Great Basin scrub. Blooms May-June.</td>
</tr>
</tbody>
</table>
### Table 3.10-4. Special-Status Plant Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status1</th>
<th>Habitat and Flowering Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitebark pine <em>Pinus albicaulis</em></td>
<td>TRPA/Federal FC FSS</td>
<td>-</td>
</tr>
</tbody>
</table>

1Regulatory Status Codes:

**TRPA/Federal:**
- TRPA = TRPA sensitive/threshold species
- FC = Federal candidate for listing
- FT = Federal Threatened
- FSS = Forest Service Sensitive

**State:**
- CA (California Department of Fish and Game)
- CE = California Endangered
- CRPR = California Rare Plant Rank
- NCE = Nevada Critically Endangered (and Fully Protected under N.A.C 527.010)
- NNHP-AR = Nevada Natural Heritage Program At-Risk Species

**Other:**
- NNPS-T = Nevada Native Plant Society Threatened
- NNPS-W = Nevada Native Plant Society Watchlist

*Note:*NNPS-T and -W species are only included here if they are also designated as NNHP-AR. The NNPS list is located at [http://heritage.nv.gov/lists/nnpstat.pdf](http://heritage.nv.gov/lists/nnpstat.pdf).

Sources: NNHP 2011; TRPA 2002; USFWS 2012

### Table 3.10-5. Special-Status Fish and Wildlife Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status1</th>
<th>Habitat Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern Sierra endemic ant <em>Formica microphthalma</em></td>
<td>TRPA/Federal – State NNHP-AR</td>
<td>Montane ant found in coniferous forests of the northern Sierra.</td>
</tr>
<tr>
<td>Lake Tahoe benthic stonefly <em>Capnia lacustra</em></td>
<td>TRPA/Federal – State NNHP-AR</td>
<td>Endemic to Lake Tahoe; occurs at depths between 95 and 400 feet with algae, mosses, and liverworts.</td>
</tr>
<tr>
<td>Great Basin rams-horn <em>Helisoma newberryi</em></td>
<td>TRPA/Federal FSS</td>
<td>Larger lakes and slow rivers, including larger spring sources and spring-fed creeks. Snails burrow in soft mud.</td>
</tr>
<tr>
<td>Carson Valley silverspot <em>Speyeria nokomis carsonensis</em></td>
<td>TRPA/Federal – State NNHP-AR</td>
<td>Known from the Carson Valley. Host plant is the northern bog violet (<em>Viola nephrophylla</em>), and nectar sources include thistles.</td>
</tr>
<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lahontan lake tui chub <em>Gila bicolor pectinifer</em></td>
<td>TRPA, FT</td>
<td>Pelagic fish that feed on zooplankton in the open water of Lake Tahoe.</td>
</tr>
<tr>
<td>Lahontan cutthroat trout <em>Oncorhynchus clarki hanshawi</em></td>
<td>TRPA, FT</td>
<td>Only trout species native to lakes and streams in the Tahoe Basin. Found in both lake and stream habitats, but spawn in stream environments. Lahontan cutthroat trout requires gravels and riffles for spawning and generally does not persist or occur with non-native salmonids.</td>
</tr>
</tbody>
</table>
### Table 3.10-5. Special-Status Fish and Wildlife Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status</th>
<th>Habitat Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amphibians</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yosemite toad <em>Bufo canorus</em></td>
<td>FC, C-SSC</td>
<td>Endemic California toad found in wet meadows between 4,000 and 12,000 feet in the Sierra Nevada from Alpine County south to Fresno County.</td>
</tr>
<tr>
<td>Mount Lyell salamander <em>Hydromantes platycephalus</em></td>
<td>–, C-SSC</td>
<td>Isolated populations occur in the Sierra Nevada, from Sierra County south to Tulare County, at approximately 4,000–12,000 feet elevation. Associated with large rock outcrops in mixed conifer, red fir, lodgepole pine, and subalpine habitats. Individuals usually found on the ground surface, in areas of open water in the form of seeps, drips, or spray.</td>
</tr>
<tr>
<td>Northern leopard frog <em>Rana pipiens</em></td>
<td>FSS, C-SSC, NP</td>
<td>Usually occurs in permanent water with abundant aquatic vegetation. Associated with wet meadows, marshes, slow-moving streams, bogs, ponds, potholes, and reservoirs. No longer considered present in the Tahoe Basin; no current records.</td>
</tr>
<tr>
<td>Sierra Nevada yellow-legged frog <em>Rana sierraee</em></td>
<td>FC, FSS, C-C, C-SSC, NNHP-AR</td>
<td>Occurs in upper elevation lakes, ponds, bogs, and slow-moving alpine streams. Most Sierra Nevada populations are found between 6,000–12,000 feet elevation. Almost always found within a few feet of water, and associated with montane riparian habitats in lodgepole pine, ponderosa pine, Jeffrey pine, sugar pine, white fir, whitebark pine, and wet meadow vegetation types. Alpine lakes inhabited by mountain yellow-legged frogs generally have grassy or muddy margin habitat, although below tree line, sandy and rocky shores may be preferred. Suitable stream habitat can be highly variable, from high-gradient streams with plunge pools and waterfalls to low-gradient sections through alpine meadows. Low-gradient streams are preferred because breeding and tadpole development cannot occur in streams with fast-moving water. Small streams are generally unoccupied and have no potential breeding locations because of the lack of depth for overwintering and refuge. Although Sierra Nevada yellow-legged frogs have been observed successfully breeding in shallow locations less than 7 feet deep, typically depth is an important factor for breeding locations since adults and larvae require overwintering habitat. For up to 9 months, adults and larvae will live/hibernate below ice or in unfrozen portions of ponds or lakes, so adequate depth (greater than 2 meters) is necessary to avoid having the pond or lake freeze through.</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern goshawk <em>Accipiter gentilis</em></td>
<td>TRPA, FSS, C-SSC, NP-S, NNHP-AR</td>
<td>In the Sierra Nevada, this species generally requires mature conifer forests with large trees, snags, downed logs, dense canopy cover, and open understories for nesting; aspen stands also are used for nesting. Foraging habitat includes forests with dense to moderately open overstories and open understories interspersed with meadows, brush patches, riparian areas, or other natural or artificial openings. Goshawks reuse old nest structures and maintain alternate nest sites.</td>
</tr>
<tr>
<td>Common Name and Scientific Name</td>
<td>Regulatory Status</td>
<td>Habitat Associations</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Golden eagle <em>Aquila chrysaetos</em></td>
<td>TRPA, BGEPA, C-FP, C-WL</td>
<td>Mountains and foothills throughout California. Nest on cliffs and escarpments or in tall trees.</td>
</tr>
<tr>
<td>Long-eared owl <em>Asio otus</em></td>
<td>–</td>
<td>Found in a variety of habitat types throughout its range. Nest in woodland, forest, and open settings (e.g., grassland, shrub-steppe, and desert). Occupy wooded and non-wooded areas that support relatively dense vegetation (e.g., trees, shrubs) adjacent to or within larger open areas such as grasslands or meadows (i.e., habitat edges) (Bloom 1994; Marks, Evans, and Holt 1994). This species also has been documented breeding in contiguous conifer forest habitat with heavy mistletoe infestation (Bull, Wright, and Henjum 1989). Trees and shrubs used for nesting and roosting include oaks, willows, cottonwoods, conifers, and junipers (Marks, Evans, and Holt 1994).</td>
</tr>
<tr>
<td>Northern harrier <em>Circus cyaneus</em></td>
<td>–</td>
<td>Found in a variety of open grassland, wetland, and agricultural habitats. Open wetland habitats used for breeding include marshy meadows, wet and lightly grazed pastures, and freshwater and brackish marshes. Breeding habitat also includes dry upland habitats, such as grassland, cropland, drained marshland, and shrub-steppe in cold deserts. Winters throughout California where suitable habitat occurs. Wintering habitat includes open areas dominated by herbaceous vegetation, such as grassland, pastures, cropland, coastal sand dunes, brackish and freshwater marshes, and estuaries (Grinnell and Miller 1944, Martin 1987, MacWhirter and Bildstein 1996).</td>
</tr>
<tr>
<td>Olive-sided flycatcher <em>Contopus cooperi</em></td>
<td>–</td>
<td>Summer resident and migrant that breeds primarily in late-succession conifer forest with open canopy. Species prefers to forage near forest openings or edges.</td>
</tr>
<tr>
<td>Bank swallow <em>Riparia riparia</em></td>
<td>–</td>
<td>Nests in fine-textured or sandy banks or cliffs along rivers, streams, ponds, or lakes. Typically nests in colonies.</td>
</tr>
<tr>
<td>Black swift <em>Cypseloides niger</em></td>
<td>–</td>
<td>Nests on canyon walls near water and sheltered by overhanging rock or moss, preferably near waterfalls or on sea cliffs. It breeds in California from May to September.</td>
</tr>
<tr>
<td>Yellow warbler <em>Dendroica petechia</em></td>
<td>–</td>
<td>In the Sierra Nevada, yellow warbler typically breeds in wet areas with dense riparian vegetation. Breeding habitats primarily include willow patches in montane meadows, and riparian scrub and woodland dominated by willow, cottonwood, aspen, or alder with dense understory cover. Localized breeding has been documented in more xeric sites, including chaparral, wild rose (<em>Rosa</em> spp.) thickets, and young conifer stands (Siegel and DeSante 1999, RHJV 2004).</td>
</tr>
<tr>
<td>Willow flycatcher <em>Empidonax traillii</em></td>
<td>FSS</td>
<td>In the Sierra Nevada, suitable habitat typically consists of montane meadows that support riparian deciduous shrubs (particularly willows) and remain wet through the nesting season (i.e., midsummer). Important characteristics of suitable meadows include a high water table that results in standing or slow-moving water, or saturated soils (e.g., “swampy” conditions) during the</td>
</tr>
</tbody>
</table>
Table 3.10-5. Special-Status Fish and Wildlife Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status</th>
<th>Habitat Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peregrine falcon <em>Falco peregrinus</em></td>
<td>TRPA, FSS</td>
<td>Nest and roost on protected ledges of high cliffs, usually adjacent to water bodies and wetlands that support abundant avian prey.</td>
</tr>
<tr>
<td>Bald eagle <em>Haliaeetus leucocephalus</em></td>
<td>TRPA, FSS, BGEPA</td>
<td>Use ocean shorelines, lake margins, and river courses for both nesting and wintering. Most nests are within 1 mile of water, in large trees with open branches. Roost communally in winter.</td>
</tr>
<tr>
<td>Osprey <em>Pandion haliaetus</em></td>
<td>TRPA</td>
<td>Associated with large fish-bearing waters. Nest usually within 0.25 mile of fish-producing water, but may nest up to 1.5 miles from water. In the Tahoe Basin, osprey nests are distributed primarily along the Lake Tahoe shoreline, at the northern portion of the east shore and southern portion of the west shore. Other osprey nest sites in the Tahoe Basin occur along the shorelines of smaller lakes (e.g., Fallen Leaf Lake) and in forest uplands up to 1.5 miles from lakes.</td>
</tr>
<tr>
<td>Great gray owl <em>Strix nebulosa</em></td>
<td>FSS</td>
<td>Found in Central Sierra mature mixed conifer forests near meadows. Scattered along the west slope of the Sierra, between 4,500 and 7,500 feet elevation, from Plumas County to Yosemite National Park.</td>
</tr>
<tr>
<td>California spotted owl <em>Strix occidentalis occidentalis</em></td>
<td>FSS</td>
<td>Occur in several forest vegetation types, including mixed conifer, ponderosa pine, red fir, and montane hardwood. Nesting habitat is generally characterized by dense canopy closure (i.e., greater than 70 percent) with medium to large trees and multistoried stands (i.e., at least two canopy layers). Foraging habitat can include intermediate to late-successional forest with greater than 40 percent canopy cover.</td>
</tr>
<tr>
<td>Waterfowl species (collectively)</td>
<td>TRPA</td>
<td>Nest and roost in wetlands and around waters such as lakes, creeks, drainages, marshes, and wet meadows.</td>
</tr>
<tr>
<td>Yellow-headed blackbird <em>Xanthocephalus xanthocephalus</em></td>
<td>–</td>
<td>Typically breeds in marshes that have tall emergent vegetation such as cattails or tules, in open areas near and over relatively deep water.</td>
</tr>
</tbody>
</table>

*Breeding season; abundant riparian deciduous shrub cover (particularly willow); and riparian shrub structure with moderate to high foliar density that is uniform from the ground to the shrub canopy. Most breeding occurrences are in meadows larger than 19 acres, but the average size of occupied meadows is approximately 80 acres. Although less common in the Sierra Nevada, riparian habitat along streams also can function as suitable habitat for willow flycatcher. However, those areas must support the hydrologic and vegetation characteristics described for suitable meadows (e.g., standing or slow-moving water and abundant and dense riparian vegetation).*
<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status</th>
<th>Habitat Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pallid bat</td>
<td>FSS</td>
<td>C-SSC, WBWG-H</td>
</tr>
<tr>
<td><em>Antrozous pallidus</em></td>
<td></td>
<td>Locally common at lower elevations in California and occurs in grassland, shrubland, woodland, and mixed conifer forests. Absent from highest elevation locations in the Sierra Nevada. Rocky outcrops, caves, crevices, and occasional tree cavities or buildings provide roosts.</td>
</tr>
<tr>
<td>Sierra Nevada mountain beaver</td>
<td>–</td>
<td>C-SSC, NP-S, NNHP-AR, WBWG-H</td>
</tr>
<tr>
<td><em>Aplodontia rufa californica</em></td>
<td></td>
<td>Use riparian habitats with soft, deep soils for burrowing, lush growth of preferred food sources such as willow and alder, and a variety of herbaceous species for bedding material. Vegetation types preferred include wet meadows and willow-alder-dominated riparian corridors typically near water sources. Suitable riparian habitats are characterized by dense growth of small deciduous trees and shrubs near permanent water. Mountain beaver is generally solitary, except during its short breeding season; beavers spend a high proportion of their time in extensive underground burrow systems with multiple openings, tunnels, and food caches.</td>
</tr>
<tr>
<td>Pale Townsend’s big-eared bat</td>
<td>FSS</td>
<td>C-SSC, NP-S, NNHP-AR, WBWG-H</td>
</tr>
<tr>
<td><em>Corynorhinus townsendi pallescens</em></td>
<td></td>
<td>Range throughout California, mostly in mesic habitats. Limited by available roost sites (i.e., caves, tunnels, mines, and buildings).</td>
</tr>
<tr>
<td>California wolverine</td>
<td>FSS</td>
<td>C-ST, C-FP</td>
</tr>
<tr>
<td><em>Gulo gulo luteus</em></td>
<td></td>
<td>Inhabit upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Need water source and denning sites. Rarely seen. Sensitive to human disturbance.</td>
</tr>
<tr>
<td>Western red bat</td>
<td>FC, FSS</td>
<td>C-SSC, NP-S, NNHP-AR, WBWG-H</td>
</tr>
<tr>
<td><em>Lasiurus blossevillii</em></td>
<td></td>
<td>Day roosting common in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. An association with intact riparian habitat may exist (particularly willows, cottonwoods, and sycamores).</td>
</tr>
<tr>
<td>Sierra Nevada snowshoe hare</td>
<td>–</td>
<td>C-SSC</td>
</tr>
<tr>
<td><em>Lepus americanus tahoensis</em></td>
<td></td>
<td>In the Sierra Nevada, found only in boreal zones, typically inhabiting riparian communities with thickets of deciduous trees and shrubs such as willows and alders.</td>
</tr>
<tr>
<td>Fringed myotis</td>
<td>–</td>
<td>NP, NNHP-AR, WBWG-H</td>
</tr>
<tr>
<td><em>Myotis thysanodes</em></td>
<td></td>
<td>Optimal habitat includes pinyon-juniper, valley foothill hardwood, and hardwood-conifer. Uses open habitats, streams, lakes, and ponds as foraging areas. Roosts in caves, mines, buildings, and crevices.</td>
</tr>
<tr>
<td>Northern flying squirrel</td>
<td>–</td>
<td>NP</td>
</tr>
<tr>
<td><em>Glaucomys sabrinus</em></td>
<td></td>
<td>Coniferous and riparian-deciduous forests at approximately 5,000-8,000 feet.</td>
</tr>
<tr>
<td>Western white-tailed jackrabbit</td>
<td>–</td>
<td>C-SSC</td>
</tr>
<tr>
<td><em>Lepus townsendii</em></td>
<td></td>
<td>Year-round resident in sagebrush, subalpine conifer, juniper, and other habitats along the crest and the eastern slope of the Sierra Nevada. Uncommon to rare.</td>
</tr>
<tr>
<td>American marten</td>
<td>FSS</td>
<td>NNHP-AR</td>
</tr>
<tr>
<td><em>Martes americana</em></td>
<td></td>
<td>Inhabits dense canopy conifer forests with large snags and downed logs. Prefers old growth stands with multiple age classes in vicinity.</td>
</tr>
</tbody>
</table>
### Table 3.10-5. Special-Status Fish and Wildlife Species Known or With Potential to Occur in the Lake Tahoe Basin

<table>
<thead>
<tr>
<th>Common Name and Scientific Name</th>
<th>Regulatory Status1</th>
<th>Habitat Associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific fisher <em>Martes pennanti pacifica</em></td>
<td>TRPA</td>
<td>Inhabits stands of pine, Douglas fir, and true fir in northwestern California and Cascade-Sierra Nevada. Fishers are considered extirpated throughout much of the Central and Northern Sierra Nevada (Zielinski, Kucera, and Ba 1995). No longer considered present in the Tahoe Basin; no current records.</td>
</tr>
<tr>
<td>American badger <em>Taxidea taxus</em></td>
<td>–</td>
<td>Primarily occupy open habitats such as grasslands, but can also be found in mountain meadows, marshes, brushy areas, open forests and deserts at elevations up to 12,000 feet. Habitats contain friable soils and ample rodent prey.</td>
</tr>
<tr>
<td>Mule deer <em>Odocoileus hemionus</em></td>
<td>TRPA</td>
<td>Year-long resident or elevational migrant that prefers a wide distribution of various-aged vegetation for cover, meadow, and forest openings, and free water. In the Sierra Nevada, early to mid-successional forests, woodlands, and riparian brush habitats are preferred because of the greater diversity of shrubby vegetation and woody cover. In addition to forage, vegetative cover is critical for thermoregulation. Suitable habitats include a mosaic of vegetation such as forest or meadow openings, dense woody thickets and brush, edge habitat, and riparian areas. Fawning habitat, used by does during birthing and by newborn fawns, is of critical importance for reproductive success. A diversity of thermal cover, hiding cover, succulent forage, and water are needed during fawning. Optimal deer fawning habitat has been described as having moderate to dense shrub cover near forest cover and water, such as riparian zones. A source of surface water (e.g., creek or river) is especially important to mule deer. Typical fawning habitat varies in size, but an area of 5–26 acres is adequate, with optimal fawn-rearing habitat of around 400 acres.</td>
</tr>
<tr>
<td>Sierra Nevada red fox <em>Vulpes vulpes necator</em></td>
<td>FSS</td>
<td>Inhabits upper montane and alpine habitats of Sierra Nevada, Cascades, Klamath, and north Coast Ranges. Needs water source and denning sites. Rarely seen. Sensitive to human disturbance. No longer considered present in the Tahoe Basin; no current records.</td>
</tr>
</tbody>
</table>

1 Regulatory Status Definitions:

TRPA/Federal:
- TRPA = TRPA sensitive/special interest (threshold) species
- Federal = U.S. Fish and Wildlife Service
- FE = Endangered species under the Federal Endangered Species Act
- FT = Threatened species under the Federal Endangered Species Act
- FC = Candidate for listing under the Federal Endangered Species Act
- FSS = USDA Region 5 Sensitive Species (FSM 2672)
- BGEPA = Protected under the Bald and Golden Eagle Protection Act

State/Other:
- CA = California Department of Fish and Game
- C-SE = Endangered
- C-ST = Threatened
- C-FP = Fully Protected
- C-C = Candidate for listing
- C-SSC = Species of special concern
- NV = Nevada Revised Statutes and Nevada Administrative Code; Nevada Natural Heritage Program
- NP = Nevada state protected under NRS 501 and NAC 503, but only those species with a Nevada Natural Heritage Program state vulnerability/threat rank of 4 or lower.
- NP-E = Nevada state protected, further classified as Endangered, under NRS 501, NAC 503
- NP-S = Nevada state protected, further classified as Sensitive, under NRS 501, NAC 503
- NNHP-AR = Nevada Natural Heritage Program At-Risk Species (http://heritage.nv.gov/lists/track.pdf)

Western Bat Working Group
- WBWG-H = Designated as High Priority by the Western Bat Working Group

Source: TRPA 2002; USFWS 2012; NNHP 2011; CNDDB 2011
SENSITIVE HABITATS AND NATURAL COMMUNITIES

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through the TRPA Goals and Policies and TRPA Code, Section 404 of the CWA, and other applicable regulations. Sensitive natural habitats may be of special concern to these agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status or because they provide important habitat to common and special-status species. For the California side of the Tahoe Basin, many of these communities are tracked in the CNDDB.

Sensitive habitats in the Tahoe Basin include a variety of wetland/riparian communities such as wet meadows, riparian zones along streams, marshes, seasonal wetlands, drainages, springs, fens, bogs, and deep water plant communities of Lake Tahoe. Other sensitive habitats include TRPA-designated prime fish habitat (discussed above in Fisheries and Aquatic Resources) and late seral/old growth forest. Most of the wetland/riparian habitats would likely be considered jurisdictional by USACE and, in California, the Lahontan RWQCB (LRWQCB) under Section 404 of the federal CWA and the Porter-Cologne Act. In addition, on the California side of the Tahoe Basin, CDFG has jurisdiction over activities affecting the bed and bank of drainages. Additionally, habitats consisting of deciduous trees, wetlands, and meadows (i.e., riparian, wetland, and meadow habitats) are designated by TRPA as habitats of special significance. The TRPA threshold standard for habitats of special significance is nondegradation while providing for opportunities to increase the acreage of these habitats.

Most of the areas within wetland/riparian habitats in the Tahoe Basin are also designated as SEZ, which is one of two TRPA-adopted threshold standards for soil conservation. SEZ is a term used specifically in the Lake Tahoe Basin to describe perennial, intermittent, and ephemeral streams; wet meadows, marshes, and other wetlands; riparian areas; and other areas expressing the presence of surface water and groundwater through its biological and physical characteristics.

The primary sensitive habitats expected to be affected by Regional Plan Update alternatives are SEZs and riparian/wetland habitats.

CRITICAL HABITAT

Critical habitat is a USFWS-designated geographic area that is considered essential for the conservation of a threatened or endangered species that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species, but that will be needed for its recovery. No designated critical habitat occurs in the Tahoe Basin.

3.10.3 ENVIRONMENTAL CONSEQUENCES AND RECOMMENDED MITIGATION MEASURES

METHODS AND ASSUMPTIONS

This section analyzes the Regional Plan Update alternatives and their potential effects on biological resources at a policy level of detail. Individual projects related to the Regional Plan Update will continue to be subject to project-level environmental analyses in accordance with TRPA policies and other laws and regulations to determine project-specific impacts and required mitigation measures.

This plan-level impact analysis generally assumes that some of the vegetation communities, wildlife habitats, aquatic resources, sensitive natural communities, and special-status species known or with potential to occur in the Tahoe Basin and identified in Section 3.10.2, Affected Environment, could be directly or indirectly affected by any Regional Plan Update alternative, depending on the specific location, type, and timing of the project.
activity. However, at this level of analysis, most of these resources are discussed generally, recognizing that individual development and redevelopment projects will be subject to project-level environmental analyses as described above.

Importantly, the impact analysis for biological resources assume that implementation of Regional Plan Update alternatives and future projects subject to the revised policies will be planned, designed, and confirmed to comply, as required, with all resource protection provisions of the TRPA Code of Ordinances. Therefore, in this analysis, while the TRPA Code and other applicable regulations are discussed and used to frame key resource protection issues and potential impacts in some cases, potential conflicts of specific projects under a Regional Plan Update alternative with the TRPA Code alone are not considered significant impacts that would require mitigation at this policy level; compliance with the Code is a requirement. Therefore, mitigation measures are provided for impacts determined to be significant after compliance with the TRPA Code and other regulations are considered.

**SIGNIFICANCE CRITERIA**

The Regional Plan Update would result in a significant impact related to biological resources if it would:

- result in substantial removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table;
- introduce new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species;
- introduce new species of animals into the Region, or result in a barrier to the migration or movement of wildlife;
- result in a substantial change in the diversity or distribution of species, or number of any species of plants or wildlife;
- substantially reduce the numbers of any unique, rare, or endangered species of plants or wildlife;
- result in a change in the natural functioning of a late seral or old growth ecosystem; or
- result in deterioration of existing fish or wildlife habitat quantity or quality.

**IMPACT ANALYSIS AND MITIGATION MEASURES**

| Impact | Sensitive Habitats. | Sensitive habitats in the Tahoe Basin include a variety of wetland and riparian communities such as wet meadows, riparian zones along streams, marshes, seasonal wetlands, drainages, springs, fens, bogs, and deep water plant communities of Lake Tahoe. Most of these communities are also designated by TRPA as SEZ and/or habitats of special significance. Depending on the specific locations of projects under existing policy, development under all Regional Plan Update alternatives (Alternatives 1, 2, 3, 4, and 5) could result in removal or disturbance of sensitive habitats, including SEZs and potential jurisdictional wetlands. Any new development or redevelopment project under any alternative would be required to comply with existing TRPA, federal, and state regulations, permitting requirements, and environmental review procedures that protect SEZs, wetlands, and other sensitive habitats. These regulations and procedures address potential construction-related impacts to SEZs and other sensitive habitats through site-specific environmental review; require development and implementation of project-specific measures to minimize or avoid impacts through the design and permitting process; and require compensatory or other mitigation for any significant effects as a condition of project approval and permitting. Specifically, existing regulations and permitting requirements would minimize the loss of sensitive habitats during |
construction and provide habitat compensation for the loss of riparian, wetland, and other sensitive habitats through CWA Section 404, TRPA, and other permitting/review processes. Therefore, construction of approved development under Alternative 1, 2, 3, 4, or 5 would have a less-than-significant impact to SEZs and other sensitive habitats in the Basin.

Under each of the alternatives, projects would continue to be implemented that provide substantial benefit to SEZ, habitats of special significance, and other sensitive habitats (e.g., stream restoration and erosion control projects). In addition, under Alternatives 2, 3, and 4, policy and regulatory changes would consider the land capability of sending parcels in the transfer of coverage and development rights, and would require and/or incentivize coverage transfer from sensitive lands, including SEZs and wetland habitats. These changes are expected to benefit SEZs and sensitive habitats to varying degrees, depending on how they translate into on-the-ground projects. Impacts to SEZ, habitats of special significance, and other sensitive habitats would be less than significant for Alternatives 1 and 5 and beneficial for Alternatives 2, 3, and 4.

Sensitive habitats in the Tahoe Basin include a variety of wetland and riparian communities such as wet meadows, riparian zones along streams, marshes, seasonal wetlands, drainages, springs, fens, bogs, and deep water plant communities of Lake Tahoe. Most of these communities are also designated by TRPA as SEZ and/or habitats of special significance. Other sensitive habitats include late seral/old growth forest. Sensitive natural communities or habitats are those of special concern to resource agencies or those that are afforded specific consideration based on CWA Section 404, the TRPA Code of Ordinances, Sections 1600 et seq. of the California Fish and Game Code, and other applicable regulations. SEZs, including riparian areas and wetlands, are the primary sensitive habitats that would likely be affected by implementation of any Regional Plan Update alternative.

**ALTERNATIVE 1: NO PROJECT**

Alternative 1 would continue the existing goals, policies, and implementation measures related to development impacts, protection, and management of SEZs and other sensitive habitats. Because Alternative 1 would authorize only the allocations remaining from the 1987 Regional Plan, it would result in very low levels of development over the planning period. Depending on the specific locations of projects under existing policies, development under Alternative 1 could result in removal or disturbance of sensitive habitats, including SEZs and potentially jurisdictional wetlands. Most of the SEZ/wetland/riparian habitats affected by implementation of Alternative 1 would likely be considered jurisdictional by USACE and, in California, LRWQCB under CWA Section 404 and the Porter-Cologne Act. Fill or reconfiguration of jurisdictional waters of the United States requires a permit from USACE under CWA Section 404. In addition, the deciduous riparian vegetation within most or all SEZs would likely be considered jurisdictional habitat by USACE and would require a permit and mitigation. On the California side of the Tahoe Region, CDFG has jurisdiction over activities affecting the bed and bank of drainages. Additionally, habitats consisting of deciduous trees, wetlands, and meadows (i.e., riparian, wetland, and meadow habitats) are designated by TRPA as habitats of special significance. The TRPA threshold standard for habitats of special significance is nondegradation while providing for opportunities to increase the acreage of these habitats.

In addition to commercial and residential development and redevelopment, SEZ restoration and other resource-improvement projects under existing programs of Alternative 1 could result in short-term impacts that are unavoidable to achieve long-term improvements or enhancements (discussed below), including minor vegetation removal or trampling, hydrologic changes, deposition of dust or debris, soil compaction, or other disturbances that could temporarily affect the condition and function of these habitats of special significance. For example, projects designed to achieve long-term improvements to trails, natural resources, and hydrologic conditions could involve the installation of improved stream crossings and bridges across wetlands and riparian...
areas, or decommissioning of facilities and habitat restoration in sensitive areas. Additionally, any project-related construction adjacent to wetlands or other sensitive habitat could similarly affect those resources, indirectly or directly, unless effective best management practices (BMPs) and other appropriate resource protection measures are implemented.

Any new commercial or residential development, redevelopment, or construction of restoration projects under Alternative 1 would be required to comply with existing TRPA, federal, and state regulations and permitting requirements that protect SEZs, wetlands, and other sensitive habitats. TRPA’s existing policies and Code provisions address potential construction-related impacts to SEZs and other sensitive habitats Basin-wide through site-specific environmental review; they require development and implementation of project-specific measures to minimize or avoid impacts through the design, siting, and permitting process; and they require compensatory or other mitigation for any significant effects as a condition of project approval. Specifically, the TRPA Goals and Policies and the Code require protection of riparian habitats and SEZs through establishment of setbacks, BMPs, or other measures and protection of late seral/old growth forests and other sensitive habitats. The TRPA Rules of Procedure require mitigation for any significant impact on these resources as a condition of project approval. Additionally, the disturbance or loss of jurisdictional wetlands during construction would be minimized or avoided, and habitat compensation would be provided, through the CWA Section 404 permitting process. For projects in California, impacts to riparian, wetland, and other sensitive habitats would also be minimized, avoided, or mitigated, as needed, through the permitting processes required by CWA Section 401, California Fish and Game Code Section 1600 et seq., and CEQA. Depending on the type and magnitude of a potential impact to SEZ or other sensitive habitat, mitigation measures can include BMPs or setbacks specifically designed to protect those resources, compensatory enhancement or restoration on- or off-site, and requirements to provide funding for or otherwise contribute to restoration projects. Project-level planning, environmental analysis, and compliance with existing regulations would identify potentially significant effects, minimize or avoid those impacts through the design, siting and permitting process, and require mitigation for any significant effects as a condition of project approval and permitting. Therefore, construction under Alternative 1 would have less-than-significant impact to SEZs and other sensitive habitats in the Region.

Under the existing goals, policies, and implementation measures of Alternative 1, ongoing and future SEZ and other restoration projects would result in long-term benefits to sensitive habitats. For example, numerous projects for erosion control, water quality and total maximum daily load (TMDL), stream and SEZ restoration, aspen enhancement, and other sensitive habitat improvements have been implemented successfully over the last several years under the existing planning and regulatory structure in the Region. The planning and implementation of similar projects are expected to continue and would benefit sensitive habitats under Alternative 1 in proportion to available funding and agency priorities. Because of the low numbers of authorized allocations and lack of substantial incentives for transferring existing development and development rights into the community centers and retiring and restoring currently developed lands in sensitive habitats, improvement of sensitive habitats may occur at a slower pace than it would under other alternatives. Although the degree of impact would vary depending on the specific locations, types, and objectives of TMDL, water quality, and SEZ improvement projects that would be implemented under Alternative 1, impacts to SEZs, wetlands, and habitats of special significance as a result of these projects would not change and would therefore be less than significant.

**ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

Alternative 2 would authorize some new residential and commercial allocations but would substantially reduce the amount of development compared to the 1987 Regional Plan and would take a regulatory and enforcement approach (rather than an approach that emphasizes incentives) to attain and maintain threshold standards. Under Alternative 2, construction-related impacts to sensitive habitats as a result of development and restoration projects, and long-term benefits as a result of ongoing and future habitat improvement projects,
would generally be similar to those described under Alternative 1 because implementation of Alternative 2 would result in a land use pattern very similar to existing conditions.

Any new commercial or residential development, redevelopment, or construction of restoration projects would be required to comply with existing TRPA, federal, and state regulations and permitting requirements that protect SEZs, wetlands, and other sensitive habitats during construction, as described for Alternative 1 above. Existing regulations, project review procedures, and permitting requirements would minimize the loss of sensitive habitats during construction and require habitat compensation for the loss of riparian, wetland, and other sensitive habitats through CWA Section 404, CWA Section 401 (in California), California Fish and Game Code Section 1600 et seq. (in California), TRPA permitting processes, and CEQA review (in California). Project-level planning, environmental analysis, and compliance with existing regulations would identify potentially significant effects; minimize or avoid those impacts through the design, siting, and permitting process; and require mitigation for any significant effects as a condition of project approval and permitting. Therefore, construction under Alternative 2 would have a less-than-significant impact to SEZs and other sensitive habitats in the Region.

Additionally, under Alternative 2, policy and regulatory changes would modify coverage transfer ratios such that lower ratios would be required for transfer from SEZ and other sensitive lands. These changes would benefit SEZ relative to other land capability classes but would increase transfer ratios for all other land capability classes as compared to existing conditions. The increase in the amount and quality of sensitive habitats would depend on how these proposed policies are implemented through individual projects. It is likely that, with regulations more stringent than under existing conditions, improvement would occur at a slower pace than has occurred in the past. The following list summarizes the key features of Alternative 2 that could result in benefits to sensitive habitats:

- Transfers of coverage into Development Transfer Zones (DTZs) and Community Plan areas would adhere to a transfer ratio based on the sensitivity of the sending parcel. This policy would allow for transfer from sensitive lands and focus on overall reduction in coverage.
- A 1:1 match for CFA transferred out of sensitive land would incentivize such transfer, and sending sites would be restored.
- Limits on allowable coverage within Community Plan areas and DTZs would limit coverage overall and encourage transfer of coverage from low- to high-capability land.
- Disturbed public lands within the Region would be identified and a goal established to restore at least 90 percent of the disturbed acreage. Alternative 2 increases the current goal to restore disturbed acreage (80 percent) by 10 percent.
- All roads and trails that allow off-road vehicle use would be required to install BMPs or be decommissioned by 2015.
- The use of fees for removal of structures in SEZs would be prioritized.

These policy and regulatory changes under Alternative 2 would require and modestly incentivize coverage transfer from SEZ relative to other lands. These changes would benefit SEZs and sensitive habitats to varying degrees, although the amount of benefit would be project- and site-specific. Therefore, impacts to SEZ, habitats of special significance, and other sensitive habitats under Alternative 2 would be beneficial.

**ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

Alternative 3 focuses on environmental redevelopment of the existing built environment with streamlined regulatory processes that concentrate TRPA’s resources at the regional level and delegate additional responsibility to local jurisdictions (through approval of Area Plans) for activities that are not regionally significant. Alternative 3 would result in a modest amount of new development (greater than under Alternatives
1 and 2 but less than Alternatives 4 and 5); this would result in a concentration of new development in community centers (Town Centers, the Regional Center, and the High Density Tourist District) and encourage environmentally beneficial redevelopment. Alternative 3 would include considerable incentives to promote redevelopment and transfer existing development, development rights, and coverage into community centers. With transfer of development from sensitive lands and lands distant from community centers, more open space would be created in appropriate areas; restoration of sensitive habitats, including SEZ, would result in increased permeability, reduced urban runoff, and commensurate improvements in water quality, soil conditions, and habitat for vegetation and wildlife.

Any commercial or residential development, redevelopment, or construction of restoration projects under Alternative 3 would be required to comply with existing TRPA, federal, and state regulations, permitting requirements, and site-specific environmental review procedures that protect SEZs, wetlands, and other sensitive habitats during construction. (These regulations and review procedures are discussed in detail for Alternative 1.) Existing regulations, project review procedures, and permitting requirements would minimize the loss of sensitive habitats during construction and provide habitat compensation for the loss of riparian, wetland, and other sensitive habitats through CWA Section 404, CWA Section 401 (in California), California Fish and Game Code Section 1600 et seq. (in California), TRPA permitting processes, and CEQA review (in California). Under Alternative 3, short-term construction-related impacts to sensitive habitats as a result of development and redevelopment projects would generally be similar to those described under Alternative 1, but redevelopment incentives of Alternative 3 would be expected to generate a higher level of construction activity. Therefore, with compliance with these regulations, development under Alternative 3 would have a less-than-significant impact to SEZs and other sensitive habitats in the Region.

Additionally, under Alternative 3, policy and regulatory changes would highly incentivize coverage transfer from sensitive lands, including SEZs and wetland habitats, and several other programs and measures would be implemented to improve sensitive resources. These changes would benefit SEZs and sensitive habitats to varying degrees, although the amount of benefit would be project- and site-specific. The following list summarizes some of the key features or changes of Alternative 3 that could result in benefits to sensitive habitats.

- Areas within SEZs, along major waterways that have been substantially degraded by development, would be designated as Stream Restoration Priority Areas. These areas would be subject to individual restoration plans, which would be developed in coordination with the applicable local jurisdiction and property owners. Individual restoration plans would identify feasible opportunities for environmental restoration projects that would be promoted in future planning efforts.
- Transfer ratios would be amended and bonus allocations granted for transfer of existing development and development rights from sensitive lands and areas farther from non-residential support services into designated Town Centers, the Regional Center, and the High Density Tourist District. The proposed policy would provide strong incentives to remove development and development rights from SEZ and other sensitive lands.
- Allowing coverage to be transferred across HRA boundaries, and allowing use of excess coverage mitigation fees to remove coverage from sensitive lands across HRA boundaries, would remove a major impediment to environmentally beneficial coverage removal. Often, opportunities for coverage removal are not available within the same HRA or highest priority coverage removal projects are located in another HRA.
- Redevelopment would be incentivized by allowing up to 70 percent coverage on developed parcels in Community Plan areas, Town Centers, the Regional Center, and the High Density Tourist District (the same as for undeveloped parcels). The proposed policy could increase coverage these areas but would result in a commensurate removal of coverage from sensitive lands (including SEZ) and restoration of sending sites.
- The removal of coverage on sensitive land would be incentivized by reducing the coverage transfer ratio to 1:1 (sending to receiving) when coverage is transferred from sensitive lands to Town Centers, the Regional
Alternative 3 proposes to exempt non-motorized public trails from the calculation of land coverage, subject to several siting and design requirements that would minimize disturbances to SEZs and sensitive wildlife habitats. Based on initial calculations to facilitate comparison among alternatives, new disturbance or loss of SEZ (Land Capability District [LCD] 1b) as a result of public trails under Alternative 3 would be approximately 7 acres (see Appendix H). Under Alternative 3, this disturbance or loss would be exempt from land coverage calculations, restrictions, and mitigation requirements established in Chapter 30 of the Code. However, SEZ is also protected by TRPA as a sensitive wildlife resource, as described in Chapter 62 of the Code (Wildlife Resources); and SEZ and riparian habitats are considered habitats of special significance, which is a TRPA threshold resource for which a nondegradation standard applies. Additionally, most of the SEZ and riparian habitats affected by implementation of Alternative 3 would likely be considered jurisdictional by USACE and, in California, by LRWQCB under CWA Section 404 and the Porter-Cologne Act. Existing federal and state regulations would continue to require compensation and/or mitigation for the loss of riparian, wetland, and other SEZ habitats. Therefore, although non-motorized public trail impacts would be exempt from TRPA mitigation requirements specific to land coverage, mitigation would still be required for any significant impact to the biological functions and values of SEZs to achieve TRPA’s nondegradation standard for habitats of special significance and comply with other applicable federal and state permitting requirements. Despite exemptions of public trails from TRPA land coverage calculations and requirements under Alternative 3, the beneficial effects on SEZs and other sensitive habitats described above would still be realized.

Thus, under Alternative 3, several policy and regulatory changes would incentivize coverage transfer from sensitive lands, including SEZs and wetland habitats, and implement other programs and measures to improve sensitive resources. These changes are expected to benefit SEZs and sensitive habitats. By virtue of its strong incentives for transfer of development out of sensitive lands and lands distant from the community centers (which would accompany transfers of coverage) and onto high-capability lands in the community centers, Alternative 3 would result in a greater reduction of coverage and restoration of sensitive lands, including SEZ, than any of the other alternatives. Impacts to SEZ, habitats of special significance, and other sensitive habitats under Alternative 3 would be beneficial.

**ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

Alternative 4 combines higher development with modest incentives for environmentally beneficial development. Overall, Alternative 4 would increase the amount of development compared to Alternatives 1, 2, and 3 and would provide incentives for redevelopment, but to a lesser degree than Alternative 3. Alternative 4 introduces a transect-based zoning system, where a transect defines a series of districts that transition from wilderness and open space to the denser urban core. Transect districts would allow for a mix of land uses and housing types and result in an appropriate distribution of uses across the landscape. Each transect district would include specific measures that regulate the physical form of the built environment to produce desired relationships between buildings and outdoor public areas, including streets.

Alternative 4 would result in a development pattern based on building form rather than use, concentrate new development in pedestrian- and transit-oriented development (PTOD) districts, and encourage environmentally beneficial redevelopment. Revised transfer ratios would provide incentives to transfer development from sensitive lands to lands designated for commercial, tourist accommodation, and/or mixed use. Alternative 4 would authorize more new development than Alternatives 1, 2, and 3 and less than Alternative 5; it would authorize less new development than the amount authorized under the 1987 Regional Plan.
Under Alternative 4, construction-related impacts to sensitive habitats as a result of development, redevelopment, and restoration projects would generally be similar to those described under Alternative 1. Any commercial or residential development, redevelopment, or construction of restoration projects under Alternative 4 would be required to comply with existing TRPA, federal, and state regulations, permitting requirements, and site-specific environmental review procedures that protect SEZs, wetlands, and other sensitive habitats. (These regulations and review procedures are discussed in detail for Alternative 1.) Existing regulations, project review procedures, and permitting requirements would minimize the loss of sensitive habitats during construction, and provide habitat compensation for the loss of riparian, wetland, and other sensitive habitats through the CWA Section 404, CWA Section 401 (in California), California Fish and Game Code Section 1600 et seq. (in California), TRPA permitting processes, and CEQA review (in California). Therefore, with compliance with these regulations, development under Alternative 4 would have a less-than-significant impact to SEZs and other sensitive habitats in the Region.

Additionally, under Alternative 4, policy and regulatory changes would incentivize coverage transfer from sensitive lands, but to a lesser degree than Alternative 3. Alternative 4 would also implement other programs and measures to improve sensitive habitat resources. These changes would benefit SEZs and sensitive habitats to varying degrees, although the amount of benefit would be project- and site-specific. The following list summarizes some of the key features or changes of Alternative 4 that could result in benefits to sensitive habitats.

- Coverage transfer would be allowed across HRA boundaries if transfer is from an impaired watershed (an HRA that exceeds, in aggregate, its allowable coverage) to an HRA that is not impaired. The proposed policy would facilitate coverage transfers from adversely affected watersheds, likely resulting in increased removal of coverage compared to existing conditions.

- Use of in-lieu fees across HRA boundaries would be allowed when targeted for coverage removal in sensitive lands. The proposed policy would eliminate a major impediment to environmentally beneficial removal of coverage. Often, opportunities for coverage removal are not available within the same HRA or highest priority coverage removal projects are located in another HRA.

- Redevelopment would be incentivized by allowing up to 70 percent coverage on developed parcels in Community Plan areas and PTOD areas (the same as for undeveloped parcels) and additional height allowed in PTOD areas. The proposed policy would increase coverage by up to 116 acres in target areas but would remove an impediment to coverage transfer from sensitive areas and areas distant from community centers.

- The removal of coverage from sensitive land would be incentivized by reducing the coverage transfer ratio to 1:1 (sending to receiving) when coverage is transferred from sensitive lands to PTOD or Community Plan areas, and the transfer ratio would increase to 2:1 when coverage is transferred from non-sensitive lands. The proposed policy would increase coverage in target areas and reduce coverage from sensitive lands.

- Transfer of soft coverage would be allowed from sensitive lands into Community Plan areas and PTOD areas. The proposed policy would result in additional coverage in the target development areas but would encourage coverage removal in sensitive lands, including SEZs.

Alternative 4 proposes to exempt non-motorized public trails and coverage necessary for implementation of facilities for Americans with Disabilities Act (ADA) compliance (e.g., ramps and other access facilities) from the calculation of land coverage, subject to several siting and design requirements that would minimize disturbances to SEZs and sensitive wildlife habitats. Based on reasonable assumptions developed to facilitate comparisons among alternatives, new disturbance or loss of SEZ (LCD 1b) as a result of public trails under Alternative 4 would be approximately 7 acres, and as a result of new ADA facilities would be 1.2 acres in sensitive lands (LCDs 1–3), approximately 0.9 acre of which would be pervious coverage and 0.3 acre of which would be impervious coverage (see Appendix H). Under Alternative 4, this disturbance or loss would be exempt from land coverage calculations, restrictions, and mitigation requirements established in Chapter 30 of the Code. However, as
described for Alternative 3 above, although non-motorized public trail impacts would be exempt from TRPA mitigation requirements specific to land coverage, mitigation would still be required for any significant impact to the biological functions and values of SEZs, to achieve TRPA’s nondegradation standard for habitats of special significance and comply with other applicable federal and state permitting requirements. Despite exemptions of public trails from TRPA land coverage calculations and requirements under Alternative 4, the beneficial effects on SEZs and other sensitive habitats described above would still be realized.

Thus, under Alternative 4, policy and regulatory changes would incentivize coverage transfer from sensitive lands, including SEZs, relative to that from higher capability lands. This would benefit SEZs and sensitive habitats to varying degrees, although the amount of benefit would be project- and site-specific. Therefore, impacts to SEZ, habitats of special significance, and other sensitive habitats under Alternative 4 would be beneficial.

**ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN**

Alternative 5 was developed to evaluate an option that would continue the rate of development that occurred with implementation of the 1987 Regional Plan. To achieve this, Alternative 5 would include more new allocations than any other alternative and would result in more growth over the planning horizon than the other alternatives. The approach to attaining threshold standards under Alternative 5 would be the same as under Alternative 1; the regulations of the existing Plan would remain largely unchanged from the existing Regional Plan and the same balance between regulation and incentives (e.g., bonus units) would be retained. The alternative would include some modifications to specific provisions that would incorporate new information or respond to statutory requirements. Under Alternative 5, the land use planning approach and existing goals, policies, and implementation measures of the 1987 Regional Plan would remain in place.

Under Alternative 5, construction-related impacts to sensitive habitats as a result of development and redevelopment projects, and long-term benefits resulting from ongoing and future habitat improvement projects, would generally be similar to those described under Alternative 1. Any commercial or residential development, redevelopment, or restoration projects under Alternative 5 would be required to comply with existing TRPA, federal, and state regulations, permitting requirements, and site-specific environmental review procedures that protect SEZs, wetlands, and other sensitive habitats. (These regulations and review procedures are discussed in detail for Alternative 1.) Existing regulations, project review procedures, and permitting requirements would minimize the loss of sensitive habitats during construction, and provide habitat compensation for the loss of riparian, wetland, and other sensitive habitats through the CWA Section 404, CWA Section 401 (in California), California Fish and Game Code Section 1600 et seq. (in California), TRPA permitting processes, and CEQA review (in California). Therefore, with compliance with these regulations, development under Alternative 5 would have a less-than-significant impact to SEZs and other sensitive habitats in the Region.

Under the goals, policies, and implementation measures of Alternative 5, ongoing and future SEZ and other restoration projects would result in long-term benefits to sensitive habitats. Although the degree of impact would vary depending on the specific locations, types, and objectives of TMDL, water quality, and SEZ improvement projects that would be implemented under Alternative 5 (as described above for Alternative 1), impacts to SEZs, wetlands, and habitats of special significance as a result of these projects would be less than significant.

**MITIGATION MEASURES**

No mitigation is required for any of the alternatives.
Tree Removal. Under all alternatives (Alternatives 1, 2, 3, 4, and 5), construction of development and redevelopment projects would likely require the removal of native trees. Although the details of individual development projects cannot be known at this time, Alternative 1 would require the least amount of tree removal by virtue of its very low levels of authorized allocations, and Alternative 5 would require the most over the planning period. Development of tourist and commercial uses would be primarily concentrated in existing community centers (Community Plan areas, DTZs, Town Centers, the Regional Center, the High Density Tourist District, and PTODs) and, because these areas are largely developed or previously disturbed, would likely require less tree removal than new residential uses outside of urban areas. Alternatives 2, 3, and 4 include proposed policies to allow the removal or pruning of large trees for projects that would promote the establishment of defensible space and reduction of hazardous fuels or projects that would benefit other threshold standards. In cases where old growth trees would be affected by defensible space projects, the proposed policy and implementation measures under Alternatives 2, 3, and 4 would allow limb removal as an alternative to tree removal. Alternative 3 also includes development of an Urban Forestry Program.

For specific projects under all alternatives (Alternatives 1, 2, 3, 4, and 5), project-level planning, environmental analysis, and compliance with existing TRPA regulations and policies would identify potentially significant tree removal; minimize or avoid those impacts through the design, siting, and permitting process; and provide mitigation for any significant effects as a condition of project approval and permitting. TRPA’s Goals and Policies, Code of Ordinances, and Rules of Procedure require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; and other protection measures. Therefore, approved tree removal as a result of specific projects under all alternatives would be a less-than-significant impact.

**ALTERNATIVE 1: NO PROJECT**

Alternative 1 would authorize only those allocations remaining from the 1987 Regional Plan, the fewest of any alternative, and would result in the least amount of new development and redevelopment over the plan period. Depending on their specific locations, however, construction of some individual projects may require the removal of native trees. For most development under Alternative 1 (commercial and residential bonus units), construction-related ground disturbance would be concentrated within urban areas, existing transportation corridors, and other already-disturbed areas. Because ground disturbance would be focused mostly in these already-disturbed areas, the potential removal of native trees would have a relatively minor effect on the surrounding environment. Also, locations where most development projects would be constructed support common tree species such as Jeffrey pine, white fir, and lodgepole pine. Stands that consist of these species and their biological functions, particularly those that are disturbed and within developed landscapes, are not considered threatened or vulnerable to decline in the Region. These trees or stands are not considered critical or limiting to the presence or viability of common or sensitive biological resources in the region. Tree removal under Alternative 1 would not substantially affect breeding productivity or population viability of any species or cause a change in species diversity locally or regionally.

Although development under Alternative 1 is expected to remove relatively few trees, projects that would occur in more remote areas (e.g., residential development, fuels management) and some development in urban areas could result in substantial tree removal. Additionally, regardless of the magnitude or biological effects of tree removal, native trees are protected in the Tahoe Region. TRPA’s existing policies and Code provisions address tree removal through site-specific environmental review; require development and implementation of
Specific measures to minimize or avoid impacts through the design, siting, and permitting process; and require compensatory or other mitigation for any significant effects as a condition of project approval. Specifically, the TRPA Goals and Policies and Code of Ordinances include provisions limiting tree removal and protecting late seral/old growth forests, and TRPA’s Rules of Procedure require mitigation for any significant impact as a condition of project approval. Additionally, TRPA cannot approve projects that would cause a significant adverse effect on the late seral/old growth ecosystem threshold standard without appropriate mitigation.

Specific provisions for tree removal in the Region are provided in the TRPA Code (Chapter 61, and Chapters 36, 33, 62), and all tree removal for trees greater than 14 inches dbh requires review and approval by TRPA. A harvest or tree removal plan is required by TRPA where implementation of a project would cause “substantial” tree removal. “Substantial” tree removal is defined in Chapter 61 of the TRPA Code as: (1) removal of more than 100 live trees 10 inches dbh or larger on project areas of 20 acres or more; or (2) removal of more than 100 live trees 10 inches dbh or larger within LCDs 1a, 1b, 1c, 2, or 3, regardless of the project area; or (3) tree removal that, as determined by TRPA after a joint inspection with appropriate state or federal forestry staff, does not meet the minimum acceptable stocking standards set forth in Chapter 61. For the purpose of late seral/old growth ecosystem protection, the Code specifies that no tree greater than or equal to 24 and 30 inches dbh in eastside and westside forest types, respectively, shall be cut. However, the Code provides an exception for private landowners by allowing for a limited forest plan to be prepared if 10 percent or less of the trees greater than or equal to 24 inches dbh in eastside forest types within a project area are proposed to be cut within the life of the plan. In addition, trees and vegetation not scheduled to be removed must be protected during construction in accordance with Code Chapter 33, Grading and Construction, Section 33.6, Vegetation Protection During Construction.

TRPA’s Goals and Policies, Code of Ordinances, and Rules of Procedure require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; and other protection measures. Because project-level planning, environmental analysis, and compliance with existing TRPA regulations and policies would identify potentially significant tree removal; minimize or avoid those impacts through the design, siting, and permitting process; and provide mitigation for any significant effects as a condition of project approval and permitting, approved tree removal as a result of specific projects would be a less-than-significant impact.

**ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 2 would authorize 2,600 residential allocations and 200,000 square feet of additional CFA. Impacts associated with Alternative 2 would be similar in nature, but somewhat greater in degree, than those described under Alternative 1 because tree removal would result from commercial and tourist projects primarily within community centers (Community Plan areas and DTZs), and residential development both within and outside community centers.

Proposed policies under Alternative 2 would allow the removal or pruning of large trees for projects that would promote the establishment of defensible space and reduction of hazardous fuels, and/or for projects that would benefit other threshold standards. In cases where old growth trees would be threatened by defensible space projects, the proposed policy and implementation measures would allow limb removal as an alternative to tree removal. Such removal or pruning would be limited to areas surrounding structures (a relatively small portion of the Region) and would serve to prevent spread of wildfire that could, in turn, cause substantial tree loss.

TRPA’s Goals and Policies, Code of Ordinances, and Rules of Procedure require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal...
plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; and other protection measures. For specific projects under Alternative 2, project-level planning, environmental analysis, and compliance with existing TRPA regulations and policies would identify potentially significant tree removal; minimize or avoid those impacts through the design, siting, and permitting process; and provide mitigation for any significant effects as a condition of project approval and permitting. Therefore, approved tree removal as a result of specific projects would be a less-than-significant impact.

**Alternative 3: Low Development, Highly Incentivized Redevelopment**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 3 would authorize 2,600 residential allocations, 600 residential bonus units, and 200,000 square feet of additional CFA. Impacts associated with Alternative 3 would be similar in nature, but somewhat greater in degree, than to those described under Alternative 1 because tree removal would result from commercial and tourist projects primarily within community centers (Town Centers, the Regional Center, and the High Density Tourist District) and residential development both within and outside community centers. Alternative 3 would also allow the removal or pruning of large trees for projects that would promote the establishment of defensible space and reduction of hazardous fuels, and/or benefit other threshold standards. Finally, Alternative 3 removes the current requirement that tree removal for EIP projects be identified in an adopted master plan. This would not result in a considerable loss of trees because EIP projects are required to undergo environmental analysis, during which the potential impacts of tree loss would be evaluated and, if determined to be significant, required to be mitigated, and tree removal is already permitted for EIP projects.

TRPA’s Goals and Policies and Code of Ordinances require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; development of an urban forestry program and other protection measures. For the same reasons described above in Alternative 2, this impact would be less than significant.

**Alternative 4: Reduced Development, Incentivized Redevelopment**

In addition to allocations remaining from the 1987 Regional Plan, Alternative 4 would authorize 4,000 residential allocations, 200 TAUs, and 400,000 square feet of additional CFA. Impacts associated with Alternative 4 would be similar in nature to those described under Alternative 1; because overall development would be greater over the plan period, tree removal under Alternative 4 would be greater than under Alternatives 1, 2, or 3, particularly from new residential development that would occur outside of community centers.

Alternative 4 would also allow the removal or pruning of large trees for projects that would promote the establishment of defensible space and reduction of hazardous fuels, and/or benefit other threshold standards.

TRPA’s Goals and Policies, Code of Ordinances, and Rules of Procedure require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; and other protection measures. For the same reasons described above in Alternative 2, this impact would be less than significant.

**Alternative 5: Similar Rate of Development and Regulatory Structure to the 1987 Regional Plan**

Alternative 5 would result in the greatest amount of new development over the plan period. In addition to allocations remaining from the 1987 Regional Plan, Alternative 5 would authorize 5,200 residential allocations,
400 TAU, and 600,000 square feet of additional CFA. Impacts associated with Alternative 5 would be similar in nature to those described under Alternative 1; because Alternative 5 would result in the greatest amount of new development over the plan period, it is also expected to result in removal of the greatest number of trees, particularly from new residential development outside of community centers.

Alternative 5 would not allow the removal or pruning of large trees for purposes of promoting the establishment of defensible space and reduction of hazardous fuels; while tree impacts from this activity would not occur, neither would the additional safety to life, property, and forested areas be realized.

TRPA’s Goals and Policies, Code of Ordinances, and Rules of Procedure require protection of large trees, with limited exceptions; protection of late seral/old growth ecosystems; preparation and approval of tree removal plans; compensatory tree replacement or other project-level mitigation to avoid significant impacts if appropriate and needed; and other protection measures. For specific projects under Alternative 5, project-level planning, environmental analysis, and compliance with existing TRPA regulations and policies would identify potentially significant tree removal; minimize or avoid those impacts through the design, siting, and permitting process; and provide mitigation for any significant effects as a condition of project approval and permitting. Therefore, approved tree removal as a result of specific projects would be a less-than-significant impact.

**MITIGATION MEASURES**

No mitigation is required for any of the alternatives.

| Impact | Fish and Aquatic Habitat. None of the Regional Plan Update alternatives propose new or revised goals, policies, or implementation measures that would affect the Shorezone or Shorezone structures, alter the manner in which fish or aquatic habitats are managed, or alter the way in which projects that affect such habitats are reviewed. (Aquatic invasive species are discussed separately in Impact 3.10-5, below.) Because all Regional Plan Update alternatives would allow some level of new development, aquatic habitats could be affected by individual project construction activities associated with development and redevelopment adjacent to or near aquatic habitats. Construction could result in temporary increases in turbidity and downstream sedimentation, small amounts of fill placed in aquatic habitats, and the release and exposure of construction-related contaminants. However, aquatic habitats would be protected during construction, and construction of any facilities within prime fish habitat would not be allowed without compensatory mitigation to ensure a net improvement of prime fish habitat. TRPA’s existing policies and Code provisions address potential impacts to fisheries and aquatic habitats through site-specific environmental review, require development and implementation of project-specific measures to minimize or avoid those impacts through the design process, and require compensatory or other mitigation for any significant effects on fish habitat as a condition of project approval. Specifically, provisions of the TRPA Code of Ordinances require protecting prime and other fish habitat and require mitigation to avoid significant impacts to fisheries if needed; TRPA’s Rules of Procedure require mitigation for any significant impact as a condition of project approval. Because no new goals or policies and no policy revisions related to fish or aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) would be less than significant. |

Lakes and streams are the two primary aquatic habitats that support fish in the Lake Tahoe Basin. TRPA has designated different types and qualities of fish habitat in Lake Tahoe. “Prime” fish habitat includes spawning...
habitat and feed and cover habitat and is one of TRPA’s threshold indicators for fisheries. Spawning habitats are composed of relatively small-diameter rocky substrates used by native minnows for spawning and rearing fry. Feed and cover habitats are composed of larger diameter cobbles, rocks, and boulders used by a variety of native and non-native species as foraging habitat and to provide refuge from predation. TRPA-designated fish habitat in Lake Tahoe is shown in Exhibit 3.10-3. Areas mapped as feeding/escape cover and spawning habitat in Exhibit 3.10-3 are considered prime fish habitat by TRPA. TRPA maintains a nondegradation standard for prime fish habitat in Lake Tahoe.

Stream and lake fish habitats are protected by the TRPA Code of Ordinances and state regulations. Additionally, the Shorezone Subelement of the Conservation Element of the Goals and Policies requires TRPA to regulate the placement of new piers, buoys, and other structures in the nearshore and foreshore of Lake Tahoe to avoid degradation of fish habitats and other types of impacts. The Goals and Policies also require TRPA to conduct studies, as necessary, to determine potential impacts to fish habitats and apply the results of such studies, as well as previous studies on shoreline erosion and Shorezone scenic quality, when determining the number of, location of, and standards of construction for facilities in the nearshore and foreshore. Section 80.4 of the Code states that TRPA shall not approve a project in the Shorezone or lakezone unless TRPA finds that the project will not adversely affect fish spawning, onshore wildlife habitat, littoral processes, or backshore stability.

Specific TRPA Code provisions for the protection of lake and Shorezone habitat (Sections 63.3.1 and 84.5) that relate to the Regional Plan Update alternatives include the following:

- Projects and activities in the Shorezone of lakes may be prohibited, limited, or otherwise regulated in prime habitat areas, or in areas or at times found by TRPA to be vulnerable or critical to the needs of fish.
- The placement of piers shall be prohibited in areas identified as “Feeding and/or Escape Cover Habitat,” “Spawning Habitat” or “Areas Targeted For Habitat Restoration” on TRPA’s Prime Fish Habitat map, adopted on April 26, 1984, or as amended, except when a boat ramp is removed in conjunction with a new pier application within the same project area and there is a net reduction in habitat disturbance to the areas identified above. When an existing boat ramp is removed to construct a pier, the Shorezone use should be considered existing; however, the proposed pier shall be considered a new structure.
- The placement of piers shall be prohibited within 200 feet of the stream inlets of 24 streams identified in Section 84.5.1.B of the Code.
- Special conditions of project approval, such as restoration of physically altered substrate, construction limited to designated periods, or shoreline protective measures, may be required for development in the Shorezone to mitigate or avoid significant adverse impacts to habitat or normal fish activities.
- Habitat restoration projects may be permitted in the nearshore or foreshore.
- Certain activities, such as construction, swimming, or boating, may be restricted temporarily in areas where spawning activity is occurring.
- The physical alteration of the substrate in areas of prime fish habitat is prohibited unless approved by TRPA.
- Projects and activities affecting lake fish habitat shall be referred to state and federal fisheries agencies for review and comment.

Section 63.3.2 of the Code includes several provisions for the protection of stream habitats that relate to Regional Plan Update implementation, including the following:

- Artificial modifications to stream channels, or other projects, activities, or uses in stream environment zones that may physically alter the natural characteristics of the stream shall not be permitted unless TRPA finds that such actions avoid significant adverse impacts to the fishery or are otherwise allowed under the Code.
- All stream crossings shall be constructed so as to allow unrestricted upstream and downstream movement of fishes.
Existing structures within SEZs that are barriers to fish migration may be removed or modified to permit fish passage.

Development adjacent to tributaries shall be required to fully mitigate significant adverse impacts to the fishery.

Wildlife habitat improvement projects or activities, or other projects or activities requiring the diversion of stream water, shall mitigate significant adverse impacts to the tributary.

Fish and wildlife stream habitat projects or activities shall be developed in coordination with the appropriate fish and wildlife agencies.

Lahontan cutthroat trout is listed as threatened under the federal ESA. USFWS has authority over projects that may result in take of a federally listed species. As discussed in Section 3.10.2, Affected Environment, the headwaters of the Upper Truckee River support the only known self-sustaining population of Lahontan cutthroat trout in the Tahoe Basin; however, stocking efforts to reintroduce the species to other locations have been made over the last several years. Recent efforts toward reintroducing Lahontan cutthroat into Lake Tahoe itself, for recreational purposes, began during the summer of 2011. NDOW stocked approximately 22,000 Lahontan cutthroat trout in Lake Tahoe (near Cave Rock) as part of its efforts to begin stocking native aquatic species for the benefit of anglers. Presently, how these stocked Lahontan cutthroat trout in Lake Tahoe will be regulated by USFWS, and whether USFWS will require ESA consultation and/or a biological assessment for all projects that could affect Lake Tahoe, are being determined by the regulatory agencies. USFWS and USACE may require informal or formal ESA consultation for Lahontan cutthroat trout during review of any project that could affect Lake Tahoe.

Residential, tourist, and commercial development and redevelopment, and other activities such as environmental improvement and restoration projects, under any Regional Plan Update alternative could affect fisheries and aquatic habitat and would require compliance with stream and lake habitat protection provisions in the TRPA Code and compliance with the ESA for any potential effects on Lahontan cutthroat trout. With the exception of aquatic invasive species control and management, none of the alternatives propose substantial changes related directly to aquatic habitats and fisheries. A separate discussion of effects related to aquatic invasive species is provided in Impact 3.10-5 below.

**ALTERNATIVE 1: NO PROJECT**

Alternative 1 would continue the existing goals, policies, and implementation measures related to development impacts, protection, and management of fisheries and aquatic habitats. Although details of future projects cannot be known and the amount of development under Alternative 1 would be very low, aquatic habitats could be affected by individual project construction activities associated with development and redevelopment projects. Construction could result in temporary increases in turbidity and downstream sedimentation, small amounts of fill placed in aquatic habitats, and the release and exposure of construction-related contaminants. During project-level planning and evaluation, impacts on aquatic species and habitats with potential to be affected would typically be determined based on their distribution and known occurrences relative to the project area, the types and suitability of aquatic habitats in or near the project area, and project surveys.

Aquatic habitats would be protected during construction, and construction of any facilities within prime fish habitat would not be allowed without compensatory mitigation to ensure a net improvement of prime fish habitat. TRPA’s existing policies and Code provisions address potential impacts to fisheries and aquatic habitats through site-specific environmental review, require development and implementation of project-specific measures to minimize or avoid impacts to fisheries through the design process, and require compensatory or other mitigation for any significant effects on fish habitat as a condition of project approval. Specifically, the TRPA Code of Ordinances requires protecting prime and other fish habitat, implementing the fish habitat provisions in Sections 63.3.1 and 63.3.2 of the Code, and mitigation to avoid significant impacts to fisheries if
needed; TRPA’s Rules of Procedure require mitigation for any significant impact as a condition of project approval. Depending on the type and magnitude of a significant impact to aquatic habitat, mitigation measures can include fish rescue and/or relocation, BMPs specifically designed to protect aquatic habitats and species, habitat enhancement, invasive species control and management, and providing funding or otherwise contributing to aquatic habitat restoration projects.

Because no new goals or policies and no policy revisions related to fish or aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) as a result of implementing Alternative 1 would be less than significant.

**ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

Impacts associated with Alternative 2 would be similar in nature to those described for Alternative 1 but could be greater because of the higher level of authorized development. Under Alternative 2, policy and regulatory changes would modestly incentivize coverage transfer from SEZ relative to other LCDs, could benefit SEZs to varying degrees, although the amount of benefit would be site- and project-specific, and could indirectly improve aquatic habitat conditions at some locations. The key policy changes and features under Alternative 2 that could benefit SEZs and aquatic resources are described in Impact 3.10-1 for Alternative 2.

Alternative 2 would include new policy and threshold standards that explicitly prohibit and prevent the release of invasive, exotic or undesirable non-native aquatic species into the Region and control existing populations of those species. Under Alternative 2, unlike Alternatives 1, 3, 4, and 5, the TRPA Code of Ordinances would be amended to require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports. Effects related to aquatic invasive species are discussed separately in Impact 3.10-5 below.

Aquatic habitats would be protected during construction and prime fish habitat would not be affected, as described above for Alternative 1. Because no new goals or policies and no policy revisions related to fish or aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) as a result of implementing Alternative 2 would be less than significant.

**ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

Impacts associated with Alternative 3 would be similar in nature to those described under Alternative 1 but could be greater because of the higher level of authorized development. Policy and regulatory changes under Alternative 3 would highly incentivize transfers of coverage, existing development, and development rights from sensitive lands, including SEZs and wetland habitats, and require restoration and retirement of sending sites. These changes would benefit SEZs to varying degrees, although the amount of benefit would be site- and project-specific, and could indirectly improve aquatic habitat conditions at some locations. SEZ benefits are expected to be greater than with Alternatives 1 or 2 by virtue of the substantial incentives proposed under Alternative 3. The key policy changes and features for Alternative 3 that could benefit SEZs and aquatic resources are described in Impact 3.10-1 for Alternative 3.

Alternative 3 would also include new policy and threshold standards that explicitly prohibit and prevent the release of invasive, exotic or undesirable non-native aquatic species into the Region and control existing populations of those species. Unlike Alternative 2, the TRPA Code of Ordinances would not be amended to
specifically require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports under Alternative 3. Effects related to aquatic invasive species are discussed separately in Impact 3.10-5 below.

Aquatic habitats would be protected during construction and prime fish habitat would not be affected, as described above for Alternative 1. Because no new goals or policies and no policy revisions related to fish and aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) as a result of implementing Alternative 3 would be less than significant.

**ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

Impacts associated with Alternative 4 would be similar in nature to those described under Alternative 1 but, because overall development would be greater over the plan period, potential effects to fish and aquatic habitat under Alternative 4 would be greater than under Alternatives 1, 2, or 3. Additionally, under Alternative 4, policy and regulatory changes would incentivize coverage transfer from sensitive lands, including SEZs and wetland habitats, but to a lesser degree than Alternative 3. These changes are expected to benefit SEZs to varying degrees, although the amount of benefit would be site- and project-specific, and could indirectly improve aquatic habitat conditions at some locations. The key policy changes and features under Alternative 4 that could benefit SEZs and aquatic resources are described in Impact 3.10-1 for Alternative 4.

Alternative 4 would also include new policy and threshold standards that explicitly prohibit and prevent the release of invasive, exotic or undesirable non-native aquatic species into the Region and control existing populations of those species. Unlike Alternative 2, the TRPA Code of Ordinances would not be amended to specifically require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports under Alternative 4. Effects related to aquatic invasive species are discussed separately in Impact 3.10-5 below.

Aquatic habitats would be protected during construction and prime fish habitat would not be affected, as described above for Alternative 1. Because no new goals or policies and no policy revisions related to fish and aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) as a result of implementing Alternative 4 would be less than significant.

**ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN**

Impacts associated with Alternative 5 would be similar in nature to those described under Alternative 1 but, because Alternative 5 would result in the greatest amount of new development over the plan period, it could—depending on the nature and locations of future projects—have the greatest potential effects to fish and aquatic habitat.

Alternative 5 would also include new policy and threshold standards to explicitly prohibit and prevent the release of invasive, exotic or undesirable non-native aquatic species into the Region and control existing populations of those species would be adopted. Unlike Alternative 2, the TRPA Code of Ordinances would not be amended to specifically require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports under Alternative 5. Effects related to aquatic invasive species are discussed separately for Impact 3.10-5 below.
Aquatic habitats would be protected during construction and prime fish habitat would not be affected, as described above for Alternative 1. Because no new goals or policies and no policy revisions related to fish and aquatic habitat are proposed, and because project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and provide mitigation for any significant effects as a condition of project approval, construction-related impacts to stream and lake habitats (including prime fish habitat) as a result of implementing Alternative 2 would be less than significant.

**MITIGATION MEASURES**

*No mitigation is required for any of the alternatives.*

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**Impact** 3.10-4  
**Special-Status and Common Plant and Wildlife Species.** Under all alternatives (Alternatives 1, 2, 3, 4, and 5), construction of some development and other projects could affect special-status plant or animal species, depending on the specific locations, presence of suitable habitat, and the type, timing, and specific nature of the project actions. During project-level planning and evaluation, impacts on species with potential to be affected would be determined based on the species' distribution and known occurrences relative to the project area, the presence of suitable habitat for the species in or near the project area, and preconstruction surveys. TRPA’s existing policies and Code provisions address potential impacts to special-status species through site-specific environmental review, require development and implementation of project-specific measures to minimize or avoid impacts through the design process, and require compensatory or other mitigation for any significant effects on special-status species as a condition of project approval. For any TRPA special-interest wildlife species that could be affected, compliance with the TRPA Code of Ordinances requires that projects or land uses within TRPA nondegradation zones will not significantly affect the habitat or cause the displacement or extirpation of the population; and TRPA will not permit a project that would degrade habitat without compensatory mitigation to avoid a significant effect. For other special-status species, project-level planning and environmental analysis would identify potentially significant effects, minimize or avoid those impacts through the design process, and require mitigation for any significant effects as a condition of project approval. Therefore, impacts to special-status species as a result of implementing Alternative 1, 2, 3, 4, or 5 would be less than significant.

The proposed amendment to the threshold standards for northern goshawk under Alternatives 2, 3, 4, and 5 would protect the best available habitat surrounding known nest sites, rather than protecting a buffer zone of uniform width that may include unsuitable or low-value habitat as under existing policy. By protecting more of the highest quality habitat within and adjacent to goshawk territories, this threshold amendment would have a beneficial impact to northern goshawk in the Region.

Common plant and wildlife species are relatively abundant locally and regionally and are not considered limited by the availability of habitat in the Region. New development under Alternatives 1, 2, 3, 4, and 5 is not expected to substantially affect breeding productivity or population viability of any common species, or cause a change in species diversity locally or regionally. Additionally, the overall land use pattern and amount of new development would not create new barriers to wildlife movement locally or regionally. Therefore, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 1, 2, 3, 4, or 5 would be less than significant.

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This analysis identified 41 and 40 special-status plant and animal species, respectively, known or with potential to occur in the Tahoe Region (Tables 3.10-4 and 3.10-5). Special-status species include plants and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies.
and organizations. Most of the special-status species known or with potential to occur in the Tahoe Basin (Tables 3.10-4 and 3.10-5) are not expected to occur in most project areas or be affected by Regional Plan Update implementation, due to existing levels of disturbance, habitat modifications, marginal habitat conditions for those species, or lack of recent occurrence records in existing or likely future development areas. However, development projects outside of community centers (e.g., residential development, fuels treatment, bike trails) could affect special-status wildlife and plant species. Additionally, for TRPA special-interest bird species, TRPA maintains a nondegradation standard within buffer zones around nest sites of these species outside of urban areas. Depending on the species, these buffer zones extend 0.25–0.50 mile from nest sites. Also, USFS designates and specifically manages Protected Activity Centers (PACs) for northern goshawk, and PACs and home range core areas for spotted owl. Elements of some projects under any Regional Plan Update alternative could overlap with these TRPA-designated buffer zones and USFS management designations.

**ALTERNATIVE 1: NO PROJECT**

Alternative 1 would continue the existing goals, policies, and implementation measures related to development impacts, protection, and management of special-status species. Although new development under Alternative 1 would be very low, construction of some projects could affect special-status plant or animal species, depending on the specific locations, presence of suitable habitat and the type, timing, and specific nature of the project actions. During project-level planning and evaluation, project-specific review and sources would be used to determine special-status plant and animal species with potential to occur in a specific project area, including reconnaissance or protocol-level surveys. Most ground disturbances resulting from development would occur within community centers (e.g., Community Plan areas), which are already largely developed and disturbed. However, projects in more remote areas could result in construction-related disturbances and loss of habitat for special-status plant or animal species. For example, cross-country bike trails, fuels management, habitat restoration, infrastructure development, and other projects in more remote areas could encroach into buffer zones around TRPA special interest species (e.g., northern goshawk, osprey) and adversely affect other special-status plant and animal species. At the project-review level, special-status plant and wildlife species with potential to be affected would be determined based on the species’ distribution and known occurrences relative to the project area, the presence of suitable habitat for the species in or near the project area, and preconstruction surveys.

If special-status plants are present in affected areas, construction activities could result in vegetation removal or trampling, deposition of dust or debris, soil compaction, or disturbance to root systems that could affect their survival. Construction actions could temporarily disturb foraging, movement, and reproductive activities of special-status wildlife species that may occur in project areas, as a result of vegetation removal, noise, dust generation, or other project-related factors. Construction could also result in noise, dust, and other disturbances to special-status animals in the vicinity of project sites, resulting in potential site abandonment and mortality to young. Also, long-term operation and use of some facilities (e.g., trails) could disturb or displace special-status wildlife species.

Similar to current policies and regulations, under Alternative 1, each project that could affect biological resources would require project-specific environmental review. TRPA’s existing policies and Code provisions address potential impacts to special-status species through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid impacts through the design process, and providing compensatory or other mitigation for any significant effects on special-status species as a condition of project approval. For any TRPA special interest wildlife species that could be affected, compliance with the TRPA Code of Ordinances requires that projects or land uses within TRPA nondegradation zones will not, directly or indirectly, significantly affect the habitat or cause the displacement or extirpation of the population; and TRPA will not permit a project that would degrade habitat without compensatory mitigation to avoid a significant effect. For other special-status species, project-level planning and environmental analysis will identify potentially
significant effects, based on the type and location of the project; minimize or avoid those impacts through the design process (e.g., conducting surveys and modifying projects to avoid special-status species, if feasible); and provide mitigation for any significant effects as a condition of project approval (e.g., implementing limited operating periods for construction and/or operations, compensatory habitat enhancement/restoration). Therefore, impacts to special-status plant and animal species as a result of implementing Alternative 1 would be less than significant.

Common resident and migratory wildlife species use habitats in the Tahoe Basin for foraging, shelter, breeding, and movement; and the Region supports a high diversity of common plant species. Similar to the discussion for special-status species, although new development under Alternative 1 would be very low and concentrated mostly in community centers, construction of some projects could affect common plant or animal species, depending on the specific locations, presence of suitable habitat and the type, timing, and specific nature of the project actions. Common species could be subject to the loss of habitat, which could result in the reduction of population sizes and diminished occupancy or use of project areas by some local populations. However, common species, particularly those associated with community centers where most development would occur under Alternative 1, are relatively abundant locally and regionally, and not considered limited by the availability of habitat in the region. New development under Alternative 1 is not expected to substantially affect breeding productivity or population viability of any common species, or cause a change in species diversity locally or regionally. Also, because the overall land use pattern and amount of new development would not change substantially relative to critical movement requirements of native wildlife, implementation of Alternative 1 would not create new barriers to wildlife movement or substantially affect any known important wildlife corridors locally or regionally. Therefore, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 1 would be less than significant.

ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION

Impacts associated with Alternative 2 would be similar in nature to those described under Alternative 1, but could be greater because of the higher level of authorized development.

Like Alternatives 3, 4, and 5, Alternative 2 includes proposed amendments to the threshold standards for northern goshawk. This amendment would replace the existing management standard for northern goshawk disturbance (free) zones with a management standard that protects best available habitat surrounding known nest sites. The existing threshold standard for northern goshawk requires TRPA to maintain a minimum of 12 population sites (defined as reproductively active nests) and establish a disturbance (free) zone in a 0.5-mile radius surrounding each population site. Activities that could adversely affect goshawks or degrade their habitat are prohibited within this zone. The establishment of a disturbance (free) zone in a 0.5-mile radius around a nest results in a circular area covering approximately 500 acres of protected land surrounding the nest. However, disturbance zones delineated in this way may protect land that is not suitable habitat for goshawk just by virtue of its proximity to the nest. Conversely, habitat that is important to goshawk may not be protected even if it is just outside the 0.5-mile radius from the nest. The proposed threshold amendment would establish a 500-acre disturbance (free) zone surrounding a population site—approximately the same area as a 0.5-mile radius. The zone would be based on a 0.25-mile radius around the site to protect the goshawk from direct disturbance, and the remainder of the 500 acres would include the most suitable habitat adjacent to the site. This approach would provide for protection of the habitat that is most important to the species, and would remove restrictions from lands that offer no protection to the species.

Also, under Alternative 2, policy and regulatory changes would modestly incentivize coverage transfer from SEZ relative to other LCDs, and could benefit SEZs to varying degrees, depending on how they translate into on-the-ground projects, and could enhance SEZ, riparian, and wetland habitat conditions for plant and wildlife species
at some locations. The key policy changes and features under Alternative 2 that could benefit SEZs and habitat for special-status species are described under Impact 3.10-1 (Effects on Sensitive Habitats), Alternative 2.

Under Alternative 2, similar to existing policies and regulations, each project that could affect biological resources would require project-specific environmental review. At the project-review level, special-status plant and wildlife species with potential to be affected would be determined based on the species’ distribution and known occurrences relative to the project area, the presence of suitable habitat for the species in or near the project area, and preconstruction surveys. TRPA’s existing policies and Code provisions address potential impacts to special-status species through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid impacts through the design process, and providing compensatory or other mitigation for any significant effects on special-status species as a condition of project approval. For any TRPA special interest wildlife species that could be affected, compliance with the TRPA Code of Ordinances requires that projects or land uses within TRPA nondegradation zones will not, directly or indirectly, significantly affect the habitat or cause the displacement or extirpation of the population; and TRPA will not permit a project that would degrade habitat without compensatory mitigation to avoid a significant effect. For other special-status species, project-level planning and environmental analysis will identify potentially significant effects, based on the type and location of the project; minimize or avoid those impacts through the design process (e.g., conducting surveys and modifying projects to avoid special-status species, if feasible); and provide mitigation for any significant effects as a condition of project approval (e.g., implementing limited operating periods for construction and/or operations, compensatory habitat enhancement/restoration). Therefore, impacts to special-status plant and animal species as a result of implementing Alternative 2 would be less than significant.

Additionally, the proposed amendment to the threshold standards for northern goshawk under Alternative 2 would protect the best available habitat surrounding known nest sites, rather than protecting a buffer zone of uniform width that may include unsuitable or low-value habitat as under existing policy. By protecting more of the highest quality habitat within and adjacent to goshawk territories, this threshold amendment would be a beneficial impact to northern goshawk in the Region.

Common resident and migratory wildlife species use habitats in the Tahoe Basin for foraging, shelter, breeding, and movement; and the Region supports a high diversity of common plant species. Similar to the discussion for special-status species, although new development under Alternative 2 would be relatively low and concentrated mostly in community centers, construction of some projects could affect common plant or animal species, depending on the specific locations, presence of suitable habitat and the type, timing, and specific nature of the project actions. Common species could be subject to the loss of habitat, which could result in the reduction of population sizes and diminished occupancy or use of project areas by some local populations. However, common species, particularly those associated with community centers where most development would occur under Alternative 2, are relatively abundant locally and regionally, and not considered limited by the availability of habitat in the region. New development under Alternative 2 is not expected to substantially affect breeding productivity or population viability of any common species, or cause a change in species diversity locally or regionally. Also, because the overall land use pattern and amount of new development would not change substantially relative to critical movement requirements of native wildlife, implementation of Alternative 2 would not create new barriers to wildlife movement or substantially affect any known important wildlife corridors locally or regionally. Therefore, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 2 would be less than significant.

**ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT**

Impacts associated with Alternative 3 would be similar in nature to those described under Alternative 1, but could be greater because of the higher level of authorized development.
Also, under Alternative 3, policy and regulatory changes would highly incentivize transfers of coverage, existing development, and development rights from sensitive lands, including SEZs and wetland habitats, and require restoration and retirement of sending sites. These changes would benefit SEZs to varying degrees, depending on how they translate into on-the-ground projects, and could indirectly improve SEZ, riparian, and wetland habitat conditions at some locations. SEZ benefits are expected to be greater than Alternatives 1 or 2 by virtue of the substantial incentives proposed under Alternative 3. To the extent that these improvements would enhance habitat for special-status plants and wildlife associated with riparian and wetland habitats, these policy changes could benefit special-status species. The key policy changes and features under Alternative 3 that could benefit SEZs and habitat for special-status species are described under Impact 3.10-1 (Effects on Sensitive Habitats), Alternative 3.

Under Alternative 3, similar to existing policies and regulations, each project that could affect biological resources would require project-specific environmental review, impact assessment, and implementation of mitigation measures for any significant effects as a condition of project approval. For the same reasons described above in Alternative 2, impacts to special-status plant and animal species as a result of project development under Alternative 3 would be less than significant.

Alternative 3 would include the proposed amendment to the threshold standards for northern goshawk. For the same reasons described above in Alternative 2, this threshold amendment would be a beneficial impact to northern goshawk in the Region.

For the same reasons discussed for Alternative 2, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 3 would be less than significant.

**ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT**

Impacts associated with Alternative 4 would be similar in nature to those described under Alternative 1, but because overall development would be greater over the plan period, potential effects to special status plant and wildlife species under Alternative 4 would be greater than under Alternatives 1, 2, or 3.

Also, under Alternative 4, policy and regulatory changes would incentivize coverage transfer from sensitive lands, including SEZs and wetland habitats, but to a lesser degree than Alternative 3. These changes are expected to benefit SEZs to varying degrees, depending on how they translate into on-the-ground projects, and could enhance SEZ, riparian, and wetland habitat conditions for plant and wildlife species at some locations. To the extent that these improvements would enhance habitat for special-status plants and wildlife associated with riparian and wetland habitats, these policy changes could benefit special-status species. The key policy changes and features under Alternative 4 that could benefit SEZs and habitat for special-status species are described under Impact 3.10-1 (Effects on Sensitive Habitats), Alternative 4.

Under Alternative 4, similar to existing policies and regulations, each project that could affect biological resources would require project-specific environmental review, impact assessment, and implementation of mitigation measures for any significant effects as a condition of project approval. For the same reasons described above in Alternative 2, impacts to special-status plant and animal species as a result of project development under Alternative 3 would be less than significant.

Alternative 4 would include the proposed amendment to the threshold standards for northern goshawk. For the same reasons described above in Alternative 2, this threshold amendment would be a beneficial impact to northern goshawk in the Region.

For the same reasons discussed for Alternative 2, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 4 would be less than significant.
ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGULATORY STRUCTURE TO THE 1987 REGIONAL PLAN

Impacts associated with Alternative 5 would be similar in nature to those described under Alternative 1, but because Alternative 5 would result in the greatest amount of new development over the plan period, it could—depending on the nature and locations of future projects—have the greatest potential effects to special-status plant and wildlife species.

Also, Alternative 5 would implement some programs and measures to improve SEZs, including a mitigation and protection program that ensures no net loss in acreage or function of SEZ (rather than acreage only), and a SEZ program consistent with EPA protocols that would include measures to enhance and protect SEZ. These SEZ provisions are not included in Alternative 1. These changes are expected to benefit SEZs to varying degrees, depending on how they translate into on-the-ground projects, and could enhance SEZ, riparian, and wetland habitat conditions for plant and wildlife species at some locations. To the extent that these improvements would enhance habitat for special-status plants and wildlife associated with riparian and wetland habitats, these policy changes could benefit special-status species. However, the long-term certainty and magnitude of some of the potential benefits are difficult to predict at the policy level.

Under Alternative 5, similar to existing policies and regulations, each project that could affect biological resources would require project-specific environmental review, impact assessment, and implementation of mitigation measures for any significant effects as a condition of project approval. For the same reasons described above in Alternative 2, impacts to special-status plant and animal species as a result of project development under Alternative 3 would be less than significant.

Alternative 5 would include the proposed amendment to the threshold standards for northern goshawk. For the same reasons described above in Alternative 2, this threshold amendment would be a beneficial impact to northern goshawk in the Region.

For the same reasons discussed for Alternative 1, impacts to common plant and animal species, and effects on wildlife movement, as a result of implementing Alternative 5 would be less than significant.

MITIGATION MEASURES

No mitigation is required for any of the alternatives.

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**Impact 3.10-5**

Invasive Weeds and Aquatic Invasive Species. Construction resulting from development and redevelopment projects under all alternatives (Alternatives 1, 2, 3, 4, and 5) would involve temporary ground-disturbing activities in disturbed and native vegetation types. These activities would temporarily create areas of open ground that could be colonized by non-native, invasive weed species from inside or outside of the Tahoe Region. Invasive weeds and other species could inadvertently be introduced or spread during grading and construction activities, if nearby source populations passively colonize disturbed ground, or if construction equipment is transported to the site from an infested area. Project-specific BMPs would reduce the potential for introducing or spreading weed populations in the project area by reducing the amount of open ground during construction; however, the potential for this effect would still exist. Watercraft use of Lake Tahoe could facilitate the spread of aquatic invasive species into Lake Tahoe, if boats were exposed to those species in another water body and are not sufficiently cleaned and sanitized before entering the Lake. However, none of the Regional Plan Update alternatives propose new or revised goals, policies, or implementation measures that would affect the Shorezone, Shorezone structures, or boating activities. Also, any construction within a lake or stream (e.g., for stream restoration,
dredging, bridge construction) could facilitate the spread of aquatic invasive species into water bodies.

Implementation of any new development or redevelopment project under all Regional Plan Update alternatives would be required to comply with the TRPA Code of Ordinances (e.g., Section 61.4, Revegetation, Section 63.4, Aquatic Invasive Species) and Goals and Policies that prohibit the release of non-native species in the Tahoe Region. For each development or other project, project-level planning and environmental analysis would analyze the risk of terrestrial invasive weeds or aquatic invasive species introductions and spread, based on the type and location of the project; minimize or avoid those impacts through the design process (e.g., including BMPs and other measures to minimize or avoid invasive species introductions); and provide mitigation for any significant effects as a condition of project approval and to demonstrate compliance with existing Code (e.g., implementing weed and aquatic invasive species management practices during construction). This impact would be less than significant for Alternatives 1, 3, 4, and 5. Alternative 2 would amend the TRPA Code of Ordinances to specifically require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports. Therefore, implementing these additional policies regarding the potential introduction and spread of terrestrial or aquatic invasive species for Alternative 2 would be beneficial.

Alternatives 2, 3, 4, and 5 include the proposed adoption of a new threshold management standard that supports the control and reduction of existing populations of invasive species and efforts to prevent new introductions of aquatic invasive species into the waters of the Region. Specifically, the proposal would create a new management standard that would direct TRPA to prevent the introduction of new aquatic invasive species, control the abundance and distribution of known aquatic invasive species, and abate the adverse impacts of them. This management standard would guide management actions, policy, and project review to prevent the establishment of new aquatic invasive species, and control the abundance, distribution, and adverse effects of aquatic invasive species. Adoption of this threshold management standard under Alternative 2, 3, 4, or 5 would have a beneficial impact with regard to control of invasive species.

Non-native terrestrial and aquatic invasive species compete with native plant and animal species; their introduction and proliferation in ecosystems can substantially alter the dynamics of native aquatic and terrestrial communities. This conversion can indirectly affect wildlife and fish species by changing and often reducing food sources and habitat structure and can lead to competition between native plant species and the weeds, often resulting in loss of native vegetation. In particular, non-native aquatic invasive species have become a priority for education, prevention, and control in the Tahoe Region. The draft Lake Tahoe Region Aquatic Invasive Species Management Plan (USACE 2009) was released in 2009; this document details past introductions of aquatic non-native and invasive species, their current status, priority threats, and future management strategies to avoid additional introductions and spread of current nonnative invasive populations (USACE 2009). Two invasive aquatic mussels—quagga mussel and zebra mussel—and one invasive aquatic snail—New Zealand mudsnail—are of particular concern due to their expanding range, highly invasive nature, and potential to disrupt ecosystem function. Non-native invasive terrestrial weeds in the Tahoe Basin include bull thistle (Cirsium vulgare), moth mullein (Verbascum blattaria), oxeye daisy (Leucanthemum vulgare), cheatgrass (Bromus tectorum), Canada thistle (Cirsium arvense), and spotted knapweed (Centaurea maculosa). Aquatic invasive plant and animal species in the Tahoe Basin include Eurasian watermilfoil, curly leaf pondweed, Asian clam, bluegill, largemouth bass, smallmouth bass, and brown bullhead catfish.

The TRPA goals and policies specifically prohibit the release of non-native wildlife and exotic species in the Tahoe Basin because they can invade important wildlife habitats and compete for resources. Section 63.4 of the TRPA Code, Aquatic Invasive Species, states that “Aquatic Invasive Species (AIS) pose a serious threat to the
waters of the Lake Tahoe region and can have a disastrous impact to the ecology and economy of the Tahoe Region.” Section 63.4 includes several provisions that explicitly prohibit the introduction or transport of aquatic invasive species into the Tahoe Region.

A discussion of potential impacts related to the introduction or spread of invasive species among the alternatives is provided below.

**ALTERNATIVE 1: NO PROJECT**

Alternative 1 would continue the existing goals, policies, and implementation measures related to development impacts and terrestrial and aquatic invasive species prevention, control, and management. Section 63.4 of the TRPA Code of Ordinances includes provisions to prevent the introduction and spread of aquatic invasive species, including specific prohibitions and requirements for watercraft inspections and decontamination. TRPA, the Tahoe Resource Conservation District (Tahoe RCD), and partner agencies have been conducting watercraft inspections and decontamination since 2008.

Although new development under Alternative 1 would be very low, construction of projects under Alternative 1 would involve temporary ground-disturbing activities in disturbed and native vegetation types. These activities would temporarily create areas of open ground that could be colonized by non-native, invasive weed species from inside or outside of the project area. Invasive weeds and other species could inadvertently be introduced or spread in the project area during grading and construction activities, if nearby source populations passively colonize disturbed ground, or if construction and personnel equipment is transported to the site from an infested area. Project BMPs would reduce the potential for introducing or spreading weed populations in the project area, by reducing the amount of open ground during construction; however, the potential for this effect would still exist.

While no new or revised goals, policies, or implementation measures are proposed that would affect the shorezone, shorezone structures, or boating activities, watercraft use of Lake Tahoe could facilitate the spread of aquatic invasive species into Lake Tahoe, if boats were exposed to those species in another water body and are not sufficiently cleaned and sanitized before entering the Lake. Also, any construction within a lake or stream (e.g., for stream restoration, dredging, bridge construction) could facilitate the spread of aquatic invasive species into water bodies. For example, species such as Eurasian watermilfoil can be spread if propagules are transported on construction equipment or flushed into downstream areas as a result of construction disturbance within infested areas. Additionally, waders or boots worn by construction personnel could harbor aquatic invasive species (e.g., New Zealand mudsnail) that could invade project areas, if the equipment was exposed to those species in another water body and is not sufficiently cleaned and sanitized.

Implementation of any project under Alternative 1 would be required to comply with the TRPA Code of Ordinances and Goals and Policies that prohibit the release of non-native species in the Tahoe Region. TRPA’s existing policies, Code provisions, and project review procedures address the potential introduction and spread of invasive species in the Tahoe Region through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid this impact through the design process, and provide compensatory or other mitigation for any significant effects as a condition of project approval. Specifically, the TRPA Code requires conducting watercraft inspections and decontamination to prevent the introduction and spread of aquatic invasive species in Lake Tahoe from boats entering the region; and TRPA’s Rules of Procedure require project review and mitigation for any significant impact as a condition of project approval. For each development or other project under Alternative 1, project-level planning and environmental analysis would analyze the risk of terrestrial or aquatic invasive species introductions and spread, based on the type and location of the project; minimize or avoid those impacts through the design process (e.g., including BMPs and other measures to minimize or avoid invasive species introductions); and provide mitigation for any significant
effects as a condition of project approval (e.g., implementing weed and aquatic invasive species management practices during construction, implementing longer-term invasive species management plans). Therefore, the potential introduction and spread of invasive species as a result of implementing Alternative 1 would be less than significant.

**ALTERNATIVE 2: LOW DEVELOPMENT, INCREASED REGULATION**

Impacts associated with Alternative 2 would be similar in nature to those described under Alternative 1, but could be greater because of the higher level of authorized development. All alternatives would require compliance with Section 63.4 of the TRPA Code of Ordinances, which includes provisions to prevent the introduction and spread of aquatic invasive species, including requirements for watercraft inspections and decontamination and specific prohibitions; and TRPA, Tahoe RCD, and partner agencies would continue to conduct watercraft inspections and decontamination.

Implementation of any project under Alternative 2 would be required to comply with the TRPA Code of Ordinances and Goals and Policies that prohibit the release of non-native species in the Tahoe Region. TRPA’s existing policies, Code provisions, and project review procedures address the potential introduction and spread of invasive species in the Tahoe Region through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid this impact through the design process, and provide compensatory or other mitigation for any significant effects as a condition of project approval. As previously described, the TRPA Code requires conducting watercraft inspections and decontamination to prevent the introduction and spread of aquatic invasive species in Lake Tahoe from boats entering the region.

Additionally, for each development or other project, project-level planning and environmental analysis would analyze the risk of terrestrial invasive weeds or aquatic invasive species introductions and spread, based on the type and location of the project; minimize or avoid those impacts through the design process (e.g., including BMPs and other measures to minimize or avoid invasive species introductions); and provide mitigation for any significant effects as a condition of project approval (e.g., implementing weed and aquatic invasive species management practices during construction, implementing longer-term invasive species management plans).

Under Alternative 2, unlike all other alternatives, the TRPA Code of Ordinances would be amended to require that projects in areas with infestations of aquatic invasive species reduce and remove aquatic invasive species and prepare annual monitoring reports. Depending on the feasibility and effectiveness of such eradication efforts implemented under the proposed Code amendment, and to the extent that such efforts would not otherwise occur without this Code amendment (some aquatic invasive species removal presently occurs under the existing Regional Plan; control efforts would also occur in response to the proposed new threshold standard for aquatic invasive species, discussed above), control and elimination of aquatic invasive species could proceed more rapidly under Alternative 2 relative to the other alternatives. Alternative 2 is the only alternative that proposes this Code amendment specifically. Therefore, the potential introduction and spread of terrestrial or aquatic invasive species as a result of implementing Alternative 2 would be beneficial.

Additionally, unlike Alternative 1 but similar to all other alternatives, Alternative 2 includes the proposed adoption of a new threshold management standard that supports the control and reduction of existing populations of invasive species and efforts to prevent new introductions of aquatic invasive species into the waters of the Region. Specifically, the proposal would create a new management standard that would direct TRPA to prevent the introduction of new aquatic invasive species, control the abundance and distribution of known aquatic invasive species, and abate the adverse impacts of them. This management standard would guide management actions, policy, and project review to prevent the establishment of new aquatic invasive species, and control the abundance, distribution, and adverse effects of aquatic invasive species. Adoption of this threshold management standard would have a beneficial effect with regard to control of invasive species.
ALTERNATIVE 3: LOW DEVELOPMENT, HIGHLY INCENTIVIZED REDEVELOPMENT

Impacts associated with Alternative 3 would be similar in nature to those described under Alternative 1, but could be greater because of the higher level of authorized development. Implementation of any project under Alternative 3 would be required to comply with the TRPA Code of Ordinances and Goals and Policies that prohibit the release of non-native species in the Tahoe Region (described above). TRPA’s existing policies, Code provisions, and project review procedures address the potential introduction and spread of invasive species in the Tahoe Region through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid this impact through the design process, and provide compensatory or other mitigation for any significant effects as a condition of project approval. For these reasons, as described for Alternative 1, the potential for introduction and spread of terrestrial or aquatic invasive species as a result of new development would be less than significant.

Alternative 3 also includes the proposed adoption of a new threshold management standard that supports the control and reduction of existing populations of invasive species and efforts to prevent new introductions of aquatic invasive species into the waters of the Region. For the same reasons described above under Alternative 2, adoption of this threshold management standard would have a beneficial effect with regard to control of invasive species.

ALTERNATIVE 4: REDUCED DEVELOPMENT, INCENTIVIZED REDEVELOPMENT

Impacts associated with Alternative 4 would be similar in nature to those described under Alternative 1, but because overall development would be greater over the plan period, potential effects with regard to invasive species under Alternative 4 could be greater than under Alternatives 1, 2, or 3. Implementation of any project under Alternative 4 would be required to comply with the TRPA Code of Ordinances and Goals and Policies that prohibit the release of non-native species in the Tahoe Region (described above). TRPA’s existing policies, Code provisions, and project review procedures address the potential introduction and spread of invasive species in the Tahoe Region through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid this impact through the design process, and provide compensatory or other mitigation for any significant effects as a condition of project approval. For these reasons, as described for Alternative 1, the potential for introduction and spread of terrestrial or aquatic invasive species as a result of new development would be less than significant.

Alternative 4 also includes the proposed adoption of a new threshold management standard that supports the control and reduction of existing populations of invasive species and efforts to prevent new introductions of aquatic invasive species into the waters of the Region. For the same reasons described above under Alternative 2, adoption of this threshold management standard would have a beneficial effect with regard to control of invasive species.

ALTERNATIVE 5: SIMILAR RATE OF DEVELOPMENT AND REGulatory STRUCTURE TO THE 1987 REGIONAL PLAN

Impacts associated with Alternative 5 would be similar in nature to those described under Alternative 1, but because Alternative 5 would result in the greatest amount of new development over the plan period, it could result in greater impacts with respect to invasive species. Implementation of any project under Alternative 5 would be required to comply with the TRPA Code of Ordinances and Goals and Policies that prohibit the release of non-native species in the Tahoe Region (described above). TRPA’s existing policies, Code provisions, and project review procedures address the potential introduction and spread of invasive species in the Tahoe Region through site specific environmental review and requiring development and implementation of project-specific measures to minimize or avoid this impact through the design process, and provide compensatory or other
mitigation for any significant effects as a condition of project approval. For these reasons, as described for Alternative 1, the potential for introduction and spread of terrestrial or aquatic invasive species as a result of new development would be **less than significant**.

Alternative 5 also includes the proposed adoption of a new threshold management standard that supports the control and reduction of existing populations of invasive species and efforts to prevent new introductions of aquatic invasive species into the waters of the Region. For the same reasons described above under Alternative 2, adoption of this threshold management standard would have a **beneficial** effect with regard to control of invasive species.

**MITIGATION MEASURES**

*No mitigation is required for any of the alternatives.*