

## 10.1 Introduction

This chapter discusses the assurances requested by the Permittees that will accompany the ESA Section 10(a)(1)(B) permits issued by USFWS and the NCCP permit issued by CDFG. This chapter also discusses assurances that will be provided to private landowners bordering Habitat Plan reserves, and outlines the process for changing or amending the Habitat Plan.

## 10.2 Assurances Requested by Permittees

The Permittees are requesting the following assurances from the Wildlife Agencies. Assurances specific to state or federal agencies are requested in Sections 10.2.3 *Federal Section 7 Consultations* (USFWS) and 10.2.7 *Assurances for Private Landowners* (CDFG).

### 10.2.1 Changed and Unforeseen Circumstances

#### Changed Circumstances

Changed circumstances are defined in the federal No Surprises Regulation<sup>1</sup> and for the state of California in the NCCP Act<sup>2</sup>. The federal No Surprises Regulation defines changed circumstances as those circumstances affecting a species or geographic area covered by the HCP that can be reasonably anticipated by the applicant or federal wildlife agencies and that can be planned for. Similarly, state regulation defines changed circumstances as those circumstances that are reasonably foreseeable and could affect a covered species or geographic area covered by the plan. Accordingly, these regulations require that potential changed circumstances be identified in the Plan along with remedial measures that would be taken to address these changes. The changed circumstances that could arise in the study area have been identified and are described below.

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<sup>1</sup> 63 Federal Register 35 (1998) (amending 50 CFR 17.22(b)(5), and 222.307(g)).

<sup>2</sup> California Fish and Game Code § 2805(c).

If a changed circumstance occurs within the study area as defined by these sections, the Implementing Entity will notify the Wildlife Agencies of this changed circumstance within seven days after learning that any changed circumstances defined by these sections has occurred. The Implementing Entity will modify its activities in the manner described below, to the extent necessary to address the effects of the changed circumstances on the Plan's conservation strategy, and will report to the Wildlife Agencies on its actions. The Implementing Entity will make such modifications without awaiting notice from the Wildlife Agencies. Pursuant to the No Surprises Regulation, if such changed circumstances were addressed in the Habitat Plan and they occur during the permit term, implementation of their remedial measures is required. The Wildlife Agencies will not require any additional conservation or mitigation to address changed circumstances that are not identified in the Plan, without the consent of the Permittee, as long as the Plan is found to be properly implemented. *Properly implemented* means that the commitments and the provisions of the Plan, Implementing Agreement, and permits have been or are being fully implemented. In addition, the Wildlife Agencies will not require measures to address changed circumstances that are identified in the Plan beyond the remedial measures identified in the Plan.

## Unforeseen Circumstances

Unforeseen circumstances are defined by federal regulation (50 CFR §17.3) as:

changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that could not reasonably have been anticipated by plan or agreement developers and the Service at the time of the conservation plan's or agreement's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

The NCCP Act (California Fish and Game Code Section 2805[j]) defines unforeseen circumstances as:

changes affecting one or more species, habitat, natural community, or the geographic area covered by a conservation plan that could not reasonably have been anticipated at the time of plan development, and that result in a substantial adverse change in the status of one or more covered species.

In the event of unforeseen circumstances during the permit term, amendments to the Habitat Plan may be proposed by either the Implementing Entity or the Wildlife Agencies to address these circumstances. The Wildlife Agencies and the Implementing Entity would work together to identify opportunities to redirect resources to address unforeseen circumstances. However, the Permittees request assurances consistent with the federal No Surprises Regulation and the NCCP Act that the Wildlife Agencies will not:

- require the commitment of additional land, water, or financial compensation by the Permittees in response to unforeseen circumstances other than those agreed to elsewhere in the Habitat Plan; or
- impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Permittees under the original terms of the Habitat Plan to mitigate the effects of the covered activities or in response to unforeseen circumstances.

As described in the No Surprises Regulation, it is the Wildlife Agencies' responsibility to demonstrate the existence of unforeseen circumstances using the best scientific and commercial data available. For the purpose of this plan, "unforeseen" circumstances are circumstances that are highly unlikely and not reasonably foreseeable to occur and thus will not be funded by this Plan.

The federal No Surprises Regulation does not limit or constrain the USFWS or any federal, state, local, or tribal government agency, or private entity, from taking additional actions at its own expense to protect or conserve covered species. The federal No Surprises Regulation also does not prevent USFWS from asking the Permittees to voluntarily undertake additional mitigation on behalf of the affected species.

## Changed and Unforeseen Circumstances Addressed by this Plan

The changed and unforeseen circumstances listed below are recognized by this Plan (**Table 10-1**). Remedial actions to address changed circumstances are funded by the Plan and are also described below. The Implementing Entity will maintain sufficient financial reserves to fund all remedial actions described below, as they arise. A discussion of each circumstance follows.

- Covered Species Listed.
- Non-Covered Species Listed.
- Global Climate Change.
- Fire.
- Nonnative Species or Disease.
- Flooding.
- Drought.
- Earthquakes.

Other potential changed circumstances were considered but rejected. For example, emergency situations and their corresponding remedial actions are not addressed under the Plan. While we can predict that over the course of a 50-year permit term there will be emergency situations, it is impossible to predict exactly what these emergencies will be. Past emergency situations in the study area that have resulted in the take of covered species include chemical spills, oil

run-off, and spills of garlic processing waste in creeks. Because of the difficulty predicting the size, type, frequency and effect of emergency situations, the Permittees do not consider such events to be changed circumstances under the Plan. If such an event occurs as a result of a Permittee facility or action, the Permittee is responsible for any take that may occur. Each Permittee will assume responsibility for the emergency situation and remedial measures if and when they do occur in the future, just as they would if there were no HCP/NCCP.

## Covered Species Listed

Each covered species in the Habitat Plan has been treated as though it is listed under ESA and CESA. The Permittees propose that all listed and nonlisted covered species be included on the permits. Take of listed plant species by non-federal entities is not prohibited under ESA and therefore the Permittees do not require take authorization. The following plant species are proposed to be included on the federal permits in recognition of the conservation benefits provided for them under the Plan. These species would also receive No Surprises assurances under USFWS's No Surprises Regulation (63 FR 8859-8873; see Section 10.2.3 *Federal Section 7 Consultations* in this chapter).

- Tiburon Indian paintbrush (*Castilleja affinis* subsp. *neglecta*)
- Coyote ceanothus (*Ceanothus ferrisae*)
- Mount Hamilton thistle (*Cirsium fontinale* var. *campylon*)
- Santa Clara Valley dudleya (*Dudleya setchellii*)
- Fragrant fritillary (*Fritillaria liliacea*)
- Loma Prieta hoita (*Hoita strobilina*)
- Smooth lessingia (*Lessingia micradenia* var. *glabrata*)
- Metcalf Canyon jewelflower (*Streptanthus albidus* ssp. *albidus*)
- Most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*)

The Permittees propose that the Section 10(a)(1)(B) permit be effective for all listed covered species immediately after the adoption of all local implementing ordinances (see Chapter 8, Section 8.5 *Local Implementing Ordinances*). Should USFWS list a covered species during the permit term, take coverage will become effective for that species once the Conference Opinion for that species is converted to a Biological Opinion. No changes to the terms and conditions of the Implementing Agreement or modifications to conservation measures are required.

Under Section 2835 of the California Fish and Game Code, CDFG may issue take authorization for covered species (plants or wildlife) regardless of their listing status. As stated in the NCCP Act, "At the time of plan approval, the [California] department [of Fish and Game] may authorize by permit the taking of any covered species whose conservation and management is provided for in a natural community conservation plan approved by the department."

## Non-Covered Species Listed

Over the course of Plan implementation (50 years), the Wildlife Agencies may list as threatened or endangered under ESA or CESA species that are not covered under the Plan. If a non-covered species becomes listed, the following remedial measures will be taken.

- The potential impacts of covered activities on the newly listed species will be evaluated, including an assessment of the presence of suitable habitat in impact areas.
- The Implementing Entity will develop measures to fully avoid impacts on the newly listed species until the Plan is amended to cover the species or will comply with ESA and CESA via other means (i.e., individual Section 7 consultations, consistency determinations, etc.).

Should a species not covered by the Plan be listed, proposed, or petitioned for listing, the Permittees may request that the Wildlife Agencies add the species to the Section 10(a)(1)(B) permit and NCCP permit. In determining whether or not to seek incidental take coverage for the species, the Permittees will consider, among other things, whether the species is present in the study area and if otherwise lawful activities could result in incidental take of the species. If incidental take coverage is desired, the Plan and permits could be modified or amended. Alternatively, the Permittees could apply for new and separate permits. Procedures for modifications and amendments to the Plan are outlined in Section 10.3 *Modifications to the Plan* below.

## Global Climate Change

Global climate change is occurring as a result of high concentrations of greenhouse gases in the Earth's atmosphere (National Research Council 2010; Intergovernmental Panel on Climate Change 2007). Greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and ozone. These gases absorb energy emitted by the Earth's surface, and then re-emit some of this energy back to Earth, warming the Earth's surface, and influencing global and local climates. As more and more greenhouse gases are emitted into the atmosphere from human activities such as the burning of fossil fuels, the Earth's energy balance is disrupted, resulting in a number of changes to the historical climate. Evidence of long-term changes in climate over the twentieth century include the following (Intergovernmental Panel on Climate Change 2007; National Research Council 2010; Global Change Research Program 2009):

- An increase of 0.74 degree Celsius (°C) (1.3 degrees Fahrenheit [°F]) in the Earth's global average surface temperature;
- An increase of 0.17 meter (6.7 inches) in the global average sea level;
- A decrease in arctic sea-ice cover at a rate of approximately 4.1% per decade since 1979, with faster decreases of 7.4% per decade in summer;

- Decreases in the extent and volume of mountain glaciers and snow cover;
- A shift to higher altitudes and latitudes of cold-dependent habitats;
- Longer growing seasons; and
- More frequent weather extremes such as droughts, floods, severe storms, and heat waves.

Current global and regional trends suggest that climate change is likely to have an effect on the study area (see **Appendix F** for a complete discussion). However, current or near-term forecasting technology for modeling changes in climate at the regional or county scale is not effective. By mid-century, the average annual mean temperature in California is projected to rise from 1.1°C (2°F) to more than 2.8°C (5°F), with little to no change in total annual precipitation (Luers et al. 2006). There is significant variability in the precipitation projections by individual model and emissions scenario. Individual simulations suggest that there could be up to a 10 to 20% decrease in total annual precipitation (Luers et al. 2006)<sup>3</sup>. Model predictions for California range from a 6mm (0.24 inches) annual decrease in precipitation to a 70 mm (2.76 inches) annual increase (Hayhoe et al. 2004). Consequently, it is likely that the climate in the study area would shift to be warmer and dryer.

A number of ecological responses to climate change could occur in the study area. First, the timing of seasonal events, such as migration, flowering, and egg laying, may shift earlier or later (Walther et al. 2002; Forister and Shapiro 2003; Root et al. 2003; Root et al. 2005). Such shifts may affect the timing and synchrony of events that must occur together, such as butterfly emergence and nectar availability. Second, range and distribution of species and natural communities may shift (Parmesan 1999; Pimm 2001; Walther et al. 2002; Easterling et al. 2000). Range is the area over which a species occurs or potentially occurs, whereas distribution refers to where a species is located within its range. This is of particular concern for narrowly distributed species that already have restricted ranges due to urban growth or altitudinal gradients. Historically, some species could shift their ranges across the landscape. Today, urban and rural development prevents the movement of many species across the landscape. Species or natural communities that occur only at high elevation (e.g., ponderosa pine woodland in the study area) or within narrow environmental gradients (e.g., Bay checkerspot butterfly, Mount Hamilton thistle) are particularly vulnerable to changing climate because they likely have nowhere to move if their habitat becomes less suitable (Shainsky and Radosevich 1986; Murphy and Weiss 1992; Thorne 2006, PIER Conference; J. Hillman pers. comm.).

Second, increases in disturbance events, such as fire or flooding, could increase the distribution of disturbance-dependent land cover types, such as redwood

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<sup>3</sup> The California Climate Change Center report summarizes projections using the National Center for Atmospheric Research Parallel Climate Model (PCM1), Geophysical fluids Dynamic Laboratory (GFDL) CM2.1, and the United Kingdom Met Office Hadley Centre Climate Model, version 3 (HadCM3) under the Intergovernmental Panel on Climate Change (IPCC) Special Report on Emission Scenarios (SRES) B1 (low emissions), A2 (moderately-high emissions), and A1Fi (high emissions).

forest and annual grassland, within the study area (Brown and Hebda 1998; Lenihan et al. 2003; Fried et al. 2004; California Climate Change Center 2006; Rogers and Westfall 2007). An increase in the frequency and intensity of disturbance could increase the likelihood that these events will harm or kill individual covered species, many of which are already quite rare. Events that occur with unpredictable or random frequency (called stochastic events) such as those describe above can have an inordinately negative effect on rare species.

Third, the number or density of individuals found in a particular location may change. This may be triggered in large part by changes in resource availability associated with an increase or decrease in precipitation (Martin 1998; Dukes and Mooney 1999; Walther et al. 2002; Lenihan et al. 2003; Millar et al. 2006; Pounds et al. 2006). Changes such as these may benefit one species at the expense of another.

Fourth, over a longer time period, species may change in outward appearance and behavior. Changes in climate may favor different adaptive strategies or appearances that may lead to genetic shifts (Davis and Shaw 2001). An example of this would be a shift to smaller average body size of certain mammals to use limited food sources for maintenance rather than growth.

The conservation strategy, reserve design, and monitoring and adaptive management program anticipate possible effects of climate change using a multi-scale approach that views conservation through landscape, natural-community, and species level. This approach focuses on protecting and enhancing a range of natural communities, habitat types, and environmental gradients (e.g., altitude, aspect, slope), as well as other features that are important as global warming changes the availability of resources and habitat types in the study area.

Implementing conservation actions that protect a variety of landscapes over a large scale provides flexibility for shifts in range and distribution of species and natural communities due to climate change. Land-acquisition actions target properties that provide connectivity to allow for northward and upslope movement, maintenance and restoration of habitat linkages, and reduced habitat fragmentation. In addition, habitat types across environmental gradients would be targeted for acquisition in the Reserve System to provide topographic diversity, thereby reducing the chance of population extinction (Murphy and Weiss 1992). As a result, some species and natural communities in the study area would continue to be able to “move” in response to climate change, allowing for shifts in range and distribution.

At the natural-community level, conservation and monitoring actions were developed to address natural communities primarily through the enhancement, restoration, and management of vegetation types (i.e., land cover types) and monitoring those changes. Habitats will be managed to ensure natural community and species persistence in the face of abundance shifts driven by climate change. Enhancement, restoration, and management actions will likely increase the resilience of natural communities by improving habitat quality overall and controlling invasive plants and nonnative predators.

At the species level, conservation and monitoring actions were developed to supplement and focus actions developed at broader scales and to ensure that all the needs of particular species are addressed. These species-specific actions will help ensure that shifts of range, distribution, and abundance driven by climate change are buffered by protection and enhancement of individuals, populations, and groups of populations. Status and trends monitoring will serve as an early warning for the possible effects of climate change and will allow the conservation strategy to adapt to ensure species persistence in the study area.

In addition to the conservation actions, monitoring actions will allow for the early detection of trends driven by climate change over multiple scales. Landscape-level monitoring is designed to detect large-scale changes, such as changes in ecosystem processes, shifts in natural-community distribution, and the integrity of landscape linkages. Community-level monitoring would, in turn, detect changes in the composition and function of natural communities, populations of key predator or prey populations, invasive species, and other important habitat factors for covered species. Finally, species-level monitoring would measure the effects of management actions on covered species and the status and trends of covered species in the Reserve System. Collectively, these monitoring actions will allow the Implementing Entity to detect and respond to the effects of climate change. Taken together, conservation and monitoring actions described above will help buffer against the effects of climate change in the study area.

Climate change is considered a foreseeable event and is therefore a changed circumstance. For the purposes of the Plan, limits on the changed circumstance must be identified.

The Implementing Entity will use a method consistent with the California Climate Action Team<sup>4</sup> for measuring temperature change within the study area. The baseline index, as measured from the Gilroy, Morgan Hill, and San José weather stations, will be historic temperatures from 1961 to 1990. For the purposes of the Plan, three baseline measurement periods will be set using 1961 to 1990 historic temperatures: average annual temperature, average summer temperature (June, July, and August), and average winter temperature (December, January, and February). If modeled California climate-change trends are applied to the study area, one may anticipate that the temperature could increase up to 2.8°C during the permit term. Under the Plan, the following is considered changed circumstances for which remedial measures will be funded.

- An increase in temperature of up to 2.8°C for any of the three baseline periods measured as a 10-year running average.

The Implementing Entity's response to the changed circumstance of global climate change will vary by the character and magnitude of the physical and biological changes observed. Responses may include those listed below. All responses will occur within one year of identifying changed circumstances, unless the Wildlife Agencies concur on a case-by-case basis that specific remedial actions would require more time to initiate.

<sup>4</sup> [http://www.climatechange.ca.gov/climate\\_action\\_team/index.html](http://www.climatechange.ca.gov/climate_action_team/index.html)

- Enhanced monitoring to detect ecological responses to climate change (see Chapter 7).
- Identification of target species most vulnerable to climate change and increased status-and-trend monitoring for those species.
- Alterations to the conceptual ecological models for natural communities and covered species as a tool to devise improved management actions (see Chapter 7).
- Altered or more intensive management actions on target/vulnerable species to facilitate shifts in species distribution (e.g., more active population management of covered species).
- More aggressive control of invasive species that respond positively to climate change.
- Implement other measures through the Adaptive Management Program (see Chapter 7) in ways consistent with permit obligations and with the consent of the Implementing Entity.

Thresholds for events that are not reasonably foreseeable have been established for determining unforeseen circumstances. Unforeseen circumstances not funded by the Plan include the following.

- A temperature increase greater than 2.8°C will be considered an unforeseen circumstance. Temperature increases will be measured for the three baseline periods measured as a 10-year running average.

Limits on the variation in other parameters (e.g., rainfall) are much more difficult to determine. Given the seasonality of rainfall in the study area, an increase in winter precipitation may be offset by increased evapotranspiration during the summer months (Intergovernmental Panel on Climate Change 2007). A decrease in winter precipitation would be exacerbated by increased summer temperatures, leading to increased drought. Therefore, it is not possible at this time to define limits of rainfall patterns that would qualify as unforeseen circumstances. Regardless of increases or decreases in precipitation, it is anticipated that the number of strong storm events would increase during the winter season (Kim 2005). These events are more likely to result in flooding than in increased soil percolation or water storage recharge (California Natural Resources Agency 2009). Increased frequencies of flooding and drought are taken into account in the sections below addressing these changed circumstances.

## Fire

Fire is a natural component of many ecosystems and natural community types, including grasslands, chaparral/northern coastal scrub, oak woodlands, and conifer woodlands. For each of these natural communities, fire frequency and intensity influence community regeneration, composition, and extent. To ensure that fire-dependent natural community processes occur, minimum suppression techniques and prescribed burning will be implemented as part of the Conservation Strategy (e.g., see Conservation Action LM-8 in Chapter 5).

However, it is possible that large, intense, and frequent fires could have a negative impact on natural communities and restoration projects. For example, more frequent, intense fires caused by high fuel loads and increased encroachment by woody species into grasslands could negatively affect community composition by favoring early successional species. Additionally, frequent, intense fires could cause *type conversion*, increasing the extent of certain natural communities, such as grassland, at the expense of others, such as chaparral or oak woodlands.

To determine the limits of changed circumstances, the size of catastrophic fires (e.g., fires over 10,000 acres) and their frequency (i.e., return interval) was assessed for the study area. This assessment was based on both historic fire occurrence and the influence of climate change. These conservative estimates for the study area were then scaled down to fit the Reserve System.

Using a conservative estimate, the total amount of land cover within the study area that is prone to wildfires is approximately 298,016 acres. Land cover types that are not prone to wildfire (i.e., low fuel loads, high moisture content) are riparian, wetland, agriculture, and developed land cover types and were subtracted from this total. Livestock foraging and grazing land is classified as grassland under the Plan; therefore, it is included as a land cover prone to wildfires.

Within the study area, regardless of size, wildfires occur at the average rate of once every 2 years (**Figure 10-1**). CAL FIRE has rated the fire probability in undeveloped portions of the study area as moderate to high. Recent fire history<sup>5</sup> for large fires (>100 acres) indicates that there have been 35 large fires since 1951 years. Large fires ranged from 134 acres to 5,813 acres. Of these, none were over 10,000 acres (i.e., catastrophic fires)<sup>6</sup>. There were four fires that occurred either partly within the study area or immediately adjacent to the study area (e.g., in State Parks lands) that were over 10,000 acres. These fires burned a total of 112,242 acres, or 38% of the land cover types prone to wildfire (also referred to as “burnable land cover”).

Climate change must also be taken into account when predicting fire frequency in the study area. Throughout California, fire occurrence can be correlated with drought, moisture availability, and biomass (fuel) accumulation (Lenihan et al. 2003). Both “wetter and warmer” and “drier and warmer” climate change scenarios are predicted for the study area (Hayhoe et al. 2004). The warmer, drier scenario would increase the occurrence of drought, while increased biomass production would result from the warmer, wetter scenario. Both of these scenarios have the potential to increase fire frequency due to either increase drought frequency or increase in biomass accumulation. For the purposes of the calculation of changed and unforeseen circumstance, it is assumed that fire frequency will increase in the study area due to climate change.

<sup>5</sup> Calculations were based on data from 1956–2011.

<sup>6</sup> Catastrophic fires occurred as follows: 32,866 acres in 1961 (Bollinger Ridge), 13,128 acres in 1985 (Lexington), 18,500 acres in 2003 (Annie), and 47,748 acres in 2007 (Lick).

With climate change, it is assumed that fire occurrence frequency and area burned will increase by 25%. Recent literature analyzing the relationship between climate change and fire frequency in California identified a median fire occurrence and burned area increase of 30% by 2050 (Westerling et al 2009). This is a statewide estimate with fire occurrence increases ranging from 11% to 55% and burned area increases ranging from 11% to 70%. The largest increases for both fire occurrence and burned area are expected to occur in the Sierra Nevada, Northern California Coast and south Cascade Ranges. These increases are expected to occur by 2050.

The potential effects of climate change on fire frequency are anticipated to increase over the course of the permit term. At the beginning of the permit term, limited change from historic fire occurrences and burned area may be acceptable as a changed circumstance; however, the potential effects of climate change will grow over the permit term. In addition, at the beginning of the permit term, fire risks in Reserve System will be low because it will be smaller. As such, it is felt that a 25% increase due to climate change represents a conservative estimate for the increase in fire frequency and burned area in the Plan area for the duration of the permit term.

Based on historic fires in the study area, it is foreseeable that four catastrophic fires could occur during the permit term, each burning 4 to 14% of the land cover types prone to wildfire within the study area. Increasing these values by 25% ( $0.04 * 1.25$  and  $0.14 * 1.25$ ) to take climate change into account, the Plan anticipates up to five catastrophic fires within the study area over the course of the permit term each burning approximately 5 to 17% of the land cover types in the study area prone to wildfires (14,901 to 50,663 acres, respectively).

It is assumed that 46,141 acres within the Reserve System is burnable land cover. This includes all of the burnable land cover within lands newly acquired for the Reserve System (32,850 acres; see **Table 5-11**) plus all existing open space lands incorporated into the Reserve System (up to 13,291 acres; see **Table 5-5**). To be conservative, it is assumed that all of the land cover in existing open space is prone to wildfires, even though a portion is expected to be developed, aquatic, and riparian land cover types that are not prone to wildfires. The Reserve System represents 15% of the burnable land cover in the study area. The Reserve System will be composed of large blocks of habitat that will build off existing open space within the study area. Based on the expected reserve design, it is assumed that any one Reserve System unit will not exceed 20,000 acres. (Reserve units will be composed of Reserve System lands with similar management and monitoring needs.) Although managed similarly, these lands will not necessarily be contiguous (e.g., Coyote Ridge and Tulare Hill are anticipated to be located within the same Reserve unit, even though they are not contiguous). The largest block of contiguous parcels within any reserve unit will not exceed approximately 10,000 acres. Because the reserve system is distributed over a large geographic portion of the county, it is extremely unlikely that a single fire, even if very large, could burn a significant portion of the entire reserve unit.

For the purpose of assessing changed circumstances, this 15% is applied to anticipate fire occurrence within the Reserve System and enhanced lands.

Fifteen percent was chosen because the Reserve System represents 15% of the flammable land cover in the study area. It is assumed that only 15% of the catastrophic fires (one fire) will burn a portion of the Reserve System and enhanced lands. This one catastrophic fire would affect the same proportion of the burnable acreage of the study area as each of the five catastrophic fires projected to occur in the study area (i.e., approximately 5 to 17% or 14,901 to 50,663 acres). This suggests that 2,235 to 7,599 acres are likely to burn<sup>7</sup> in the Reserve System as a result of catastrophic fire during the permit term. As such, it is foreseeable, as a changed circumstance, that up to one fire burning 2,235 to 7,599 acres of the Reserve System could occur over the course of the permit term. A total acreage burned from a catastrophic fire exceeding 7,599 acres (16% of the Reserve System burnable land cover) within the Reserve System is highly unlikely and is not reasonably foreseeable, therefore would be considered an unforeseen event. Any number of fires, regardless of burned acreage in the Reserve System, will be remediated as a changed circumstance if enhancement, restoration or creation projects described in the conservation strategy are affected. However, remedial actions triggered by a single fire event that burns more than 7,599 acres of the Reserve System would be limited to enhancement, restoration and creation sites. The Implementing Entity would not be responsible for remediating all burned areas as a result of a fire or fires that exceed the thresholds described above.

The threshold of burned acreage in the Reserve System for the changed circumstance (7,599 acres) is a reasonable upper limit when compared to the largest fire in the County (Lick Fire, 47,748 acres) because of the differences between the expected configuration and location of the Reserve System and the location of this extreme fire event. First, the Lick Fire occurred at a higher elevation than the expected Reserve System where terrain is more rugged, drier, and supports greater fuel loads than the expected Reserve System. The elevation also contributed to the remoteness of the Lick Fire, which made it difficult to contain quickly. The Reserve System will occur in middle to lower elevations in the County that support relatively low fuel loads (e.g., a much greater proportion of annual grassland than chaparral) and with good access for fire crews. The fire size threshold also corresponds to the approximate upper limit of contiguous parcels in the Reserve System.

Fires that occur too frequently in the same area may result in type conversion of natural communities (e.g., from chaparral to grassland). The historic fire frequency for any given site in the study area, varies substantially among land cover types, location, and topography (**Table 10-2**) (Davis and Borchert 2006; Stuart and Stephens 2006; Willis 2006). Due to the varying fire return intervals, return intervals are broadly defined for the fire-prone natural community types within the study area. Pre-historic, historic, and current fire return intervals for each natural community did not provide significant support for defining changed

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<sup>7</sup> Large catastrophic fires in the study area each burn 4 to 14% of the wildfire-prone land-cover types. These percentages were increased by 25% to take climate change into account. The increased percentages, 5% and 17%, were applied to the wildfire-prone land-cover types in the study area (298,016 acres) to determine the lower and upper limits of changed circumstances and the threshold at which circumstances would be considered unforeseen. 15% \* 14,901 acres = 2,235 acres. 15% \* 50,663 acres = 7,599 acres.

circumstances; rather the conceptual fire-return pattern classifications and expert opinion were used. For each natural community, remedial actions for changed circumstances will be applied up to the unforeseen threshold identified in **Table 10-2**. Remedial actions will be funded and carried out by the Implementing Entity when any number of fires, regardless of size, recur in the same area at intervals at or above the unforeseen circumstance thresholds identified in **Table 10-2**. Fire return intervals below the thresholds identified are considered unforeseen.

Fire potential in the study area is typically greatest in the months of June–September when dry vegetation co-occurs with low humidity. Generally, the vegetative communities within the Reserve System are adapted to a more frequent historic fire regime and would naturally recover from fire. Reserve unit management plans will include fire management and protection measures that will minimize the risk of damage to habitats and natural communities from abnormally frequent fire (normal fire frequency is described above). Preventative actions include those listed below.

- Create or redesign fuel breaks to limit fire spread.
- Consider the reintroduction of low-intensity prescribed fires to encourage fire-adapted plants and discourage non-fire-adapted invasive plants.
- Work with local fire agencies to improve fire-suppression preparedness and develop strategies to protect habitat during fire response.
- Incorporate public-awareness programs into reserve unit management plans. This includes public outreach to neighboring lands to minimize fire risk.

Should a wildfire take place, the Implementing Entity will follow protocols established in the reserve unit management plans and will work closely with local fire response crews to ensure that impacts on sensitive communities and covered species are minimized. This includes the identification and completion of appropriate post-fire restoration and rehabilitation responsibilities (see Chapter 5, Section 5.3.2 *Landscape Conservation and Management*). In addition, landscape-level monitoring will assess changes to land cover type, and natural community-level monitoring will assess the response of invasive plants as part of status and trends monitoring (see Chapter 7, Section 7.3.1 *Landscape-Level Actions*). In accordance with these conservation and monitoring actions, in the event of habitat loss, remedial measures shall take place to re-establish natural communities and covered plant populations lost to fire either to pre-fire conditions or as otherwise determined on a case-by-case basis.

Remedial measures apply to each of the episodes identified above. For example, if there was a grassland fire that burned 7,000 acres (meets the single event burned area criteria for changed circumstance) and a portion of the same area burned again in 15 years, remedial actions for both episodes would be funded. Remedial actions are listed below.

- Initiate a post-fire damage assessment within six months following the end of a fire in order to identify the appropriate post-fire restoration and rehabilitation actions.

- Initiate the appropriate actions, such as habitat restoration, invasive-species control and/or erosion control, in affected reserves to ensure the reestablishment of covered plants and other native vegetation through active or passive means, as appropriate, within one year post-fire.
- Implement measures through the Adaptive Management Program (see Chapter 7) in ways consistent with permit obligations and with the consent of the Implementing Entity.
- Ensure appropriate erosion control structures and applications (e.g., seeding) are in place prior to the next rainy season.

## Nonnative Species or Disease

Nonnative species and diseases currently occur in the study area and will be present in the Reserve System (e.g., bullfrogs, hybrid tiger salamanders). Additionally, there are nonnative species and diseases that exist in areas outside the study area that have the potential to spread into the study area and adversely affect the covered species and natural communities within the Reserve System. Due to the nature of invasive species and diseases, there is no unforeseen circumstance, only an upper limit to which changed circumstances will be funded. In other words, a new disease or invasive species spreading throughout the study area within the permit term is a foreseeable event. However, if a disease or nonnative species spread beyond the thresholds identified below, it would be considered a catastrophic event beyond the Plan scope and remedial actions to address it would not be required to be funded by the Implementing Entity.

The conservation strategy includes measures to reduce existing and prevent future infestations of nonnative invasive species and diseases (see Chapter 5, Section 5.3.2 *Landscape Conservation and Management*). The monitoring program will identify and map existing diseases and nonnative species in the Reserve System so that new ones can be identified quickly and a control or eradication plan can be put into place. However, it is possible that the following events could occur despite implementation of the conservation strategy and monitoring program.

- New and aggressive nonnative species could invade the Reserve System.
- Infestations of a new disease that affects covered or predominant species in the study area (e.g., Sudden Oak Death) could have dramatic effects on the Reserve System.
- Existing nonnative species or diseases could expand to unprecedented levels in the Reserve System, perhaps due to changing climate.

Under the Plan, the following are considered changed circumstances for which remedial measures will be funded.

- Infestations of new diseases or new nonnative invasive species affecting up to 25% of the extent (i.e., acres) of a predominant natural community (i.e.,

oak woodland) or occupied covered species habitat within the Reserve System in any given year<sup>8</sup>.

- Spread of nonnative species or diseases existing on up to 25% above current conditions within the Reserve System in any given year.

The Reserve System builds off of existing open space in the study area, targeting specific natural communities and species habitat across a range of environmental gradients in geographically distinct areas (i.e., Santa Cruz Mountains, valley floor, Diablo Range). Diseases and nonnative species could spread into the study area from lands adjacent to the study area. It is foreseeable that a single disease or invasive species would spread across the entire Reserve System even if the Habitat Plan and remedial measures are properly implemented. Such an event would be catastrophic and likely no effort by the Implementing Entity alone would be able to stop its spread. Therefore, if remedial measure implementation does not prevent the spread of the nonnative species or disease beyond the established thresholds, it would be considered a catastrophic event.

To ensure that remedial actions are implemented aggressively before the thresholds are reached, the Implementing Entity must demonstrate in writing to the Wildlife Agencies the following in order to justify cessation or reduction of remedial actions once the thresholds are crossed:

- The changed circumstance was detected as soon as feasible and the Wildlife Agencies were notified.
- The Implementing Entity coordinated and worked actively with the Wildlife Agencies and other land managers to assess the changed circumstance and determine the best course of action.
- The Implementing Entity implemented remedial measures for the changed circumstance according to the Plan but these measures failed to stop the spread of the disease or invasive species.
- The disease or invasive species is a serious problem outside the Reserve System in the study area and similar control measures implemented by others also failed to control their spread.

Based on current knowledge of likely diseases and nonnative species, disease spread at catastrophic levels is only reasonably likely in the study area for Sudden Oak Death. For other known diseases or nonnative species, the remedial measure thresholds are assumed to be sufficient.

Sudden Oak Death is not currently found in the study area; however it is found in adjacent Santa Cruz County<sup>9</sup>. This disease spreads rapidly and could spread into the Reserve System and affect more than 25% of the oak woodlands despite

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<sup>8</sup> The Reserve System will be assembled for the majority of the permit term. All creation and restoration activities must be completed by Year 40 and all preservation must occur by Year 45. The Implementing Entity will monitor current levels of disease and nonnatives relative to the current composition of the Reserve System each monitoring year.

<sup>9</sup> In addition, Santa Clara County is a quarantine county for Sudden Oak Death under U.S. Department of Agriculture and California Department of Food Agriculture regulations.

implementation of the conservation strategy, adaptive management, and remedial measures. If this occurred, the spread of the disease would not be limited to the Reserve System and would affect the natural community at the landscape scale. If Sudden Oak Death spread beyond 25% it would be considered a catastrophic event. In contrast, in the case of bullfrogs, an existing nonnative species, it is not reasonably foreseeable that the species would spread to an additional 25% of aquatic communities (from baseline levels) in the Reserve System. Bullfrogs are expected to be controlled in the Reserve System through proper implementation of the conservation strategy and adaptive management program (which includes a major component of bullfrog eradication and control) and proper implementation of remedial measures, if needed. The spread of diseases or invasive species in excess of 25% above baseline conditions is foreseeable for Sudden Oak Death and may be foreseeable for other diseases not currently known. However, because these events are considered catastrophic, the Implementing Entity would only fund remedial actions for these circumstances up to the 25% thresholds identified above (for Sudden Oak Death or other diseases or invasive species).

There are a number of diseases and nonnative species that may harm covered species and the natural communities on which they depend. Diseases that may threaten covered species in the study area include chytrid fungus, which could affect foothill yellow-legged frog, California red-legged frog, and California tiger salamander (U.S. Fish and Wildlife Service 2002; 69 Federal Register 48570–48649), and possibly rana viruses, which could affect California tiger salamander (69 Federal Register 48570–48649). It is unknown whether these diseases are a problem for populations in the study area due to a lack of surveys. In general, the effects of diseases on the survival and reproduction of covered species is poorly known. The method of measurement of the extent of new diseases will be different for each disease (e.g., number of trees affected, proportion of species' range, number of populations).

Diseases that may affect or threaten natural communities include Sudden Oak Death. Although not currently in the study area, Sudden Oak Death has been confirmed in San Mateo, Santa Cruz, Alameda, and Contra Costa Counties, and portions of Santa Clara County outside the study area; consequently, there is a high likelihood for it to spread into the study area during the permit term. Spread of this disease in the study area could lead to change in species composition, type conversion, and an increased risk of fire due to standing dead trees.

The list of nonnative plants and animals is much more extensive. They include but are not limited to invasive mussels, bullfrogs, nonnative pigs, and introduced predatory fish. These species currently occur in the study area, and conservation and monitoring actions to reduce or contain their occurrence within the study area have been developed.

When a new disease or nonnative species is detected or an existing disease or nonnative species begins to spread aggressively, the Implementing Entity will contact the Wildlife Agencies to collaboratively determine the best method of measuring, monitoring, and eradicating or controlling the disease before it

spreads<sup>10</sup>. Remedial measures that address the invasion of nonnative species or disease follow the steps listed below.

- Determine the best method for measurement and tracking extent within 3 months of detection.
- Prepare a damage-assessment report within 6 months of detection.
- Recommend and plan actions to address the threat within 6 months of detection.
- Respond through adaptive management in ways consistent with permit obligations and with the consent of the Wildlife Agencies within one year of detection.

## Flooding

Flooding is a natural event in stream systems, having both beneficial and detrimental effects on natural communities. Beneficial effects include limited scouring and thinning of homogeneous stands of riparian vegetation. However, detrimental effects of floods along stream channels with new riparian plantings could include destruction of enhanced or restored sites and created covered plant populations. This would require substantial remediation.

Major floods are defined as flood events that exceed the stream's capacity (i.e., 10-year flood event). Several major floods have been documented since European settlement in Santa Clara County, most recently in 1967, 1978, 1980, 1982, 1983, 1986, 1995, 1996–1997, and 1998. Flooding probability is specific to each stream's capacity, the runoff potential of the stream's upper catchment, and rainfall patterns across the county. Given that urbanization has increased across the county (increasing flood potential) and that local agencies have completed and continue to develop flood control projects to accommodate increased peak runoff (decreasing flood potential), past flood events do not reliably predict future flood probability.

In most cases several major floods occur within a given year in multiple watersheds. For example, a particularly wet year allows for increase rainfall throughout the County. Extended periods of high rainfall cause soil saturation. Factors such as stream capacity and runoff potential also increase the likelihood of flooding throughout the study area increases. This allows for multiple events to occur in a given year.

Taking into account climate change, we must rely on predictive models in addition to historic trends. Climate change models typically focus on the occurrence of 100-year flood events. While there is a discrepancy over whether precipitation will increase or decrease in the study area, it is expected that storms

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<sup>10</sup> A recent example of such a situation was the discovery in 2000 of barbed goat grass on Coyote Ridge, a highly invasive plant not previously known in that area. Local biologists and land managers coordinated with the Wildlife Agencies on appropriate rapid responses to the threat. After trying several techniques and applying the most effective techniques over multiple years, by 2008 the infestations were nearly eradicated (S. Weiss pers. comm.).

at or below the 100-year event are reasonably likely within the permit term and could potentially increase in frequency in the county due to climate change (Hayhoe et al. 2004; Kim 2005; California Natural Resources Agency 2009). The 100-year flood (i.e., one-percent flood) is defined as the flood event that has a 1% probability of occurrence in any given year. Over a very long period of time, it is the flood event that would, on average, occur once per hundred years; however, over a short time span, it can occur more than once in a single year or not at all for several hundred years. For example, a one-year storm event has a 100%, approximately, probability of recurring each year. This does not mean that a 1-year event will happen every year; however it is highly likely to happen each year. A 100-year storm event has a 1% probability of recurring each year.

The 100-year flood event for an individual creek or reach of creek is expressed as a “Q” or flow rate. The “Q” can be modeled, and/or estimated by using a variety of data sets. The estimated “Q” or flow rate for a given storm event (i.e., 1-year, 10-year, 50-year, 100-year) will be as accurate as the data set you are using to estimate it. While the 100-year flow rates are available for the streams in the Plan Area, they are not a good indicator of flood event intensity and frequency for assessing changed circumstances.

Climate change models also demonstrate clear trends towards earlier snowmelt accompanied by increased frequency of winter flooding (Dettinger et al. 2004). These climate-change predictions are most likely to impact the study area later in the permit term, if at all, as the models predict more drastic hydrologic changes for the end of the century compared to mid-century. The flood-control standard for local agencies is the 100-year event. As such, these climate change driven hydrologic changes, along with changes from increased urbanization, are being taken into account by the SCWVD in flood control project design. Consequentially, climate change is not anticipated to have an effect on flood event intensity and frequency.

Major flood events could occur in the study area during the permit term and are therefore considered changed circumstances. Historically, most major flood damage occurred on the valley floor, away from almost all of the areas anticipated to be incorporated into the Reserve System, which will be located mostly in the lower to middle elevations. Portions of the Reserve System most susceptible to flooding would occur in lower elevations. The dams in these watersheds do not play a significant role in flood control (i.e., Pacheco Dam). Flooding may also be possible in the Reserve System in lower reaches of Uvas or Llagas Creek. Regardless of location, remedial measures will be implemented for all flood events that damage or destroy enhancement projects, restoration projects, creation projects, or in-stream conservation structures, so that success criteria can be met and compliance credit maintained. Thresholds for flood events that are not reasonably foreseeable have not been established for determining unforeseen circumstances.

Following a flood event, the site will be evaluated to determine appropriate corrective actions necessary to restore the habitat through active management or natural processes. Remedial actions (i.e., grading, new riparian plantings, debris

removal, covered plant restoration, etc.) will be implemented within a time period to maintain permit compliance with the Stay-Ahead provision for restoration, creation, and enhancement (see Chapter 8). Measures shall be implemented through the adaptive management program (see Chapter 7). The Implementing Entity will have the option of implementing remedial actions on site or in-kind. For example, if the cost to rebuild an enhancement, restoration or creation project exceeds the cost of constructing a new project, the Implementing Entity will have the option of constructing a new project elsewhere within the Reserve System of equivalent or greater biological value.

## Drought

Drought is a natural part of a Mediterranean climate system to which species and natural communities have adapted. However, a prolonged drought could cause serious damage to the Reserve System, especially to new restoration plantings and enhanced or created populations of covered plants that have yet to become established. The following analysis was conducted to define droughts and estimate their expected frequency of occurrence in the study area. Droughts that occur within this expected frequency are considered a changed circumstance and are expected and funded over the course of Plan implementation; droughts outside this frequency are considered unforeseen.

To estimate how many drought years might be expected during the permit term, annual natural reservoir inflow (i.e., inflow from local precipitation, not imported water) within the study area was reviewed from 2010 back to 1925 by water year (July 1 to June 30). A drought is defined as two or more successive water years with 75% or less of the median inflow. These data show that droughts lasting 2 to 6 years occurred 4.2 times over any 50-year period. Of these droughts, only a single event lasted 6 years. A predictive study determined that droughts of 6 years are expected to occur two to three times in 100 years based on historic information (Dean et al. 1994). It is assumed that a drought of three or more years in length has an approximately 60% chance of occurring. While climate change is anticipated to result in increased drought potential, the extent of such change is not fully understood. Thus, the predicted drought potential during the permit term is conservative.

Based on historic data and conservative application of climate change predictions, remedial actions will be funded by the Plan for up to seven droughts, each one to eight years in duration, occurring during the permit term. Of the seven droughts, only one is anticipated to be eight years in duration. More than seven droughts during the permit term, more than a single drought of eight years, and any number of droughts exceeding eight years in duration each are considered unforeseen circumstances and not funded by the Plan.

The monitoring and adaptive management program includes monitoring of enhancement, restoration and creation sites. This will minimize the risk of losing mitigation plantings and restored habitats due to drought. Preventative measures will be included in the monitoring program (Chapter 7, Section 7.3.2 *Natural Community-Level Actions*) and are listed below.

- Monitor SCVWD natural reservoir inflow data in the study area to determine if the seasonal inflow at the end of April indicates a dry year (near 75% of inflow).
- Monitor mitigation sites that are beyond their establishment periods (i.e., no longer sustained by irrigation) but that have not achieved their success criteria for stress due to low soil moisture or high evapotranspiration rates.
- Extend preventative measures (e.g., longer-term supplemental irrigation) as necessary for enhancement, restoration, or creation projects that have not achieved their success criteria to prevent damage or losses due to drought and to assure success rates of the projects.

Should damage or losses due to drought occur, the Implementing Entity will assess the drought damage and initiate the following remedial measures within one year of damage or loss.

- Prepare damage assessment report.
- Identify actions to improve effects on covered species (e.g., provision of temporary artificial water sources).
- Identify actions to improve effects on enhanced, restored, or created habitats that have not achieved their success criteria (e.g., supplemental irrigation).
- Implement measures through the Adaptive Management Program (see Chapter 7) in ways consistent with permit obligations and with the consent of the Implementing Entity.

## Earthquakes

Earthquakes of less than 4.0 on the Richter scale (defined as “micro” or “minor” earthquakes by the USGS) occur frequently in the study area and their effects on natural communities and covered species are expected to be very small or undetectable. While less common, earthquakes defined as “light” (magnitude 4.0 to 4.9) or “moderate” (5.0 to 5.9) are expected to have little to no effect on covered species or natural communities<sup>11</sup>. However, these earthquakes may be large enough to cause moderate ground shaking which may trigger small to moderate-sized landslides. These landslides are a natural part of the ecosystems in the study area. Damage to Reserve System facilities from such light to moderate earthquakes is expected to be low to none.

A large, catastrophic earthquake is typically defined in planning documents and engineering projects as having a magnitude equal to or greater than 6.7<sup>12</sup>. This magnitude earthquake has the potential to occur during the permit term in or near the study area. The USGS predicts that an earthquake of magnitude 6.7 or greater has a 7% chance of occurring by 2036 on the Calaveras Fault, which extends down the eastern side of the study area in the foothills of the Diablo

<sup>11</sup> Earthquakes of magnitude 6.0 to 6.6 are not specifically defined by the USGS.

<sup>12</sup> Source: <<http://earthquake.usgs.gov/regional/nca/wg02/index.php>>. For reference, the Northridge earthquake of 1994 was a magnitude 6.7.

Range<sup>13</sup>. The Hayward Fault to the north of the study area has a 31% chance of an earthquake of this magnitude by 2036. The San Andreas Fault, which runs down the western side of the study area through the Santa Cruz Mountains, has a 21% chance of a similar event. Earthquakes of every magnitude described above could occur in or near the study area during the permit term and are therefore considered changed circumstances.

The negative effects of a catastrophic earthquake are likely to manifest mostly as damage to infrastructure (i.e., fencing, bridges, buildings, temporary irrigation) rather than to natural communities or species. Should any earthquake occur, the Implementing Entity will rebuild Reserve System infrastructure and conduct *post hoc* monitoring of species or populations that are identified as being potentially negatively affected by the incident. Reserve System infrastructure will be repaired or rebuilt within two years. Remediation of enhancement, creation, and restoration sites within the Reserve System affected by earthquakes during the permit term (i.e., as a result of landslides) would be remediated within two years of the earthquake. Site-specific covered species and natural community monitoring will be conducted for three years after the event if covered species or their habitats are adversely affected.

Damage to Reserve System infrastructure, natural communities, and covered species from any earthquake will be remediated by the Implementing Entity.

## 10.2.2 Federal No Surprises

The federal *No Surprises Regulation* was established by the Secretary of the Interior on March 25, 1998. It provides assurances to Section 10 permit holders that no additional money, commitments, or restrictions of land or water will be required should unforeseen circumstances requiring additional mitigation arise once the permit is in place. The No Surprises Regulation states that if a Permittee is properly implementing an HCP that has been approved by USFWS and/or NMFS, no additional commitment of resources, beyond that already specified in the plan, will be required.

The Permittees request regulatory assurances (No Surprises) for all covered species in the Plan. In accordance with No Surprises, the Permittees will be responsible for implementing and funding remedial measures in response to any changed circumstances as described in this chapter. The Permittees will not be obligated to address unforeseen circumstances but will work with the Wildlife Agencies to address them within the funding and other constraints of the Plan should they occur.

The Permittees understand that No Surprises assurances are contingent on the proper implementation of the permits, Implementation Agreement, and Habitat Plan. The Permittees also understand that USFWS may suspend or revoke the federal permit, in whole or in part, in accordance with federal regulations

<sup>13</sup> Source: <<http://earthquake.usgs.gov/regional/nca/ucerf/>>. The Calaveras Fault runs immediately east of Coyote Ridge in a line traced by the locations of Anderson, Coyote, and Calaveras Reservoirs.

(50 CFR Section 13.27 and 13.28 and other applicable laws and regulations) in force at the time of such suspension.

### 10.2.3 Federal Section 7 Consultations

An important goal of the Plan is to provide a framework for ESA compliance for covered species for all covered activities in the study area. Whether a covered activity occurs under Section 7 or 10 of the ESA, the Habitat Plan will provide the framework for future Section 7 consultations. For some future projects, ESA consultation (through Section 7) will still be required even after the Plan is complete (e.g., SCVWD flood control projects or private development projects that require a Corps wetlands permit). As such, the consultation process must be taken into account when developing a project timeline.

Projects that are subject to Section 7 of the ESA are evaluated under different standards than projects subject to Section 10. Non-federal projects must obtain a permit for take of listed species, while federal agencies must consult with USFWS or NMFS whenever their actions have the potential to affect a listed species. For example, the definition of “affect” differs slightly from that of “take” and may be applied differently, depending on the species and the project.

The Habitat Plan is not intended to alter the obligation of another federal agency to consult USFWS or NMFS pursuant to Section 7 of the ESA. Unless otherwise required by law or regulation, USFWS will ensure that biological opinions issued for projects that are defined as covered activities under the Habitat Plan are consistent with the biological opinion issued for the Habitat Plan and the federal permit. Section 7 consultations only apply to federally listed species, so only those covered species that are federally listed at the time of the consultation need be included in the consultation. Unless otherwise required by law or regulation, USFWS will not impose measures on applicants for coverage under the Habitat Plan in excess of those that have been or will be required by the Implementing Agreement, the Habitat Plan, and the permits. Before completing a Section 7 consultation for a covered activity in which USFWS proposes to require a measure in excess of the requirements of the Implementing Agreement, the Habitat Plan, or the permits, USFWS will meet and confer with the Permittee with jurisdiction over the affected project to discuss alternatives to the imposition of the measures that would meet the applicable legal or regulatory requirements. No Surprises assurances cannot be provided to federal agencies through the Section 7 process (50 CFR Section 17.22(b)(5)). USFWS will process subsequent ESA consultations for covered activities in accordance with the established regulatory process and deadlines (50 CFR Section 402.14).

### 10.2.4 State NCCP Assurances

The NCCP Act (Section 2820[f]) includes provisions ensuring that “if there are unforeseen circumstances, additional land, water, or financial compensation or restrictions on the use of land, water, or other natural resources shall not be

required without the consent of the plan participants...” The NCCPA specifies that assurances for plan participants may be provided commensurate with long-term conservation assurances and associated implementation measures provided in the Habitat Plan. CDFG’s determination of the level of assurances and the time limits specified in the Implementing Agreement will be based on the overall knowledge of the species and natural communities, the strength of the conservation strategy, and the size and duration of the Habitat Plan (Sections 2820[f][1][A–H]).

The Permittees understand that No Surprises assurances are contingent on full implementation of the Habitat Plan. The Permittees also understand that CDFG may suspend the state permit, in whole or in part, in the event of any material violation of the state permit or material breach of the Implementing Agreement by the Permittees. See the Implementing Agreement Section 16 for additional information on permit suspension including steps that must be followed prior to permit suspension.

## **10.2.5 Conservation Contributions by State and Federal Agencies**

It is anticipated that state and federal agencies, including the Wildlife Agencies, will contribute to the conservation portion of the Plan. The Permittees recognize that state and federal funds cannot be guaranteed in advance of the approval of yearly budgets, nor can they be guaranteed by agency staff who do not have the authority to commit these funds. However, the Permittees seek assurance that the Wildlife Agencies will make every effort to assist the Implementing Entity in securing the funding outlined in Chapter 9 to contribute to species recovery and to help implement the conservation portion of the Habitat Plan.

## **10.2.6 Staff Contributions by State and Federal Agencies**

Successful implementation of the Habitat Plan relies on the continued participation and feedback of representatives of the Wildlife Agencies. As described in Chapter 8, Wildlife Agency staff are expected to participate in Implementing Entity meetings and subcommittees as needed to evaluate and provide advice and applicable consent on Plan implementation. In particular, Wildlife Agency staff participation is critical to the success of the adaptive management and monitoring program. The Permittees request that the Wildlife Agencies make every effort, given budget and workload constraints, to provide staff to serve on all appropriate committees and participate in discussions and meetings to ensure that the implementation of the Habitat Plan is consistent with any findings upon which the permits are based.

## 10.2.7 Assurances for Private Landowners

### Take Authorization Assurances

Project proponents will receive take authorization for covered activities according to the procedures and requirements described in the Plan (see Chapter 6, Section 6.3 *Conditions on All Covered Activities* and Chapter 8, Section 8.7 *Roles and Responsibilities in Reviewing Applications for Take Authorization*). Take authorization is granted under a single non-severable permit. If the USFWS or CDFG suspend or revoke their permit, take authorization provided to those under the jurisdiction of the Permittees would also be suspended or revoked. As such, for projects conducted by private developers under the jurisdiction of one of the Permittees, take authorization will remain in effect for that covered activity unless one or more of the permits issued by the Wildlife Agencies to the Permittees are suspended or revoked. In addition, if a local jurisdiction determines that one of its project proponents is in violation of their permit (i.e., in violation of the conditions in Chapter 6), the local jurisdiction will suspend or revoke take coverage extended to the project proponent and report the violation to the Implementing Entity. The Implementing Entity will report the violation to the Wildlife Agencies immediately.

### Neighboring Landowner Assurances

This Habitat Plan calls for the acquisition of land and coordinated management of a Reserve System for the benefit of covered species. As a result of the conservation strategy (Chapter 5), some populations of listed species are expected to increase in the reserves and elsewhere. Landowners adjacent to or near reserves may be concerned that populations of state- or federally listed species in the reserves may expand and colonize or use their lands, potentially restricting their land use activities. The Neighboring Landowner assurances included in this Plan are designed to address these concerns.

Active private ranches, cropland, pasture, orchards, and vineyards are the most abundant land uses in Santa Clara County outside of the urban centers. These are the land uses that are also most likely to occur adjacent to reserve lands. Land uses outside urban areas that are most likely to be affected by the presence or increased abundance of covered species are limited to actively farmed lands such as crops, pasture, orchards, or vineyards in which heavy equipment is used regularly and the soil is regularly disturbed. Routine ranching activities (e.g., livestock grazing on annual grassland) are not expected to be affected by the maintenance or increase of populations of covered species on nearby reserve lands. Most routine ranching activities have little or no adverse impact on the terrestrial covered species and in some cases may benefit them<sup>14</sup>. Other land uses (e.g., urban development) are excluded from Neighboring Landowner protections

<sup>14</sup> Special federal rules (called “4(d) rules”) exempt defined routine ranching activities from take prohibitions of California red-legged frog and California tiger salamander.

because ongoing take of covered species is not expected to occur within these areas.

Neighboring Landowner Assurances are extended to certain “farmlands” as defined below. For purposes of the Neighboring Landowner Agreement program, *farmlands* means lands on which normal agricultural practices including but not limited to crop planting and production, irrigation and fertilization, soil tilling, crop harvesting, grazing including intensive livestock grazing, forage production, animal production and husbandry, and other associated activities such as fence construction and maintenance, vehicle or horse use, and construction and maintenance of typical farm outbuildings.

Take coverage for this program is limited to three covered species: California red-legged frog, California tiger salamander, and western pond turtle. By providing Neighboring Landowner Assurances, the Habitat Plan acknowledges that successful implementation of the conservation strategy (e.g., specific management actions that benefit species) may cause the three species listed above to become established on or use nearby private lands. Take coverage afforded by Neighboring Landowner Assurances could result in a diminution of the benefits of the conservation strategy for these three species in instances where species expand or increase their populations within the study area. Neighboring Landowner Assurances do not provide for take of existing populations at the time baseline conditions are documented. Accordingly, this program would not reduce these populations or habitat from baseline conditions. In addition, these assurances end when the permit term expires.

Neighboring Landowner Assurances provide incidental take coverage for California red-legged frog, California tiger salamander, and western pond turtle on all private farmlands, within 1.0 mile of the boundary of any land or property acquired or placed under easement by the Implementing Entity or by another organization in partnership with the Implementing Entity for the Reserve System. A one mile buffer was determined to account for the most likely dispersal distances of California tiger salamander and California red-legged frog (e.g., dispersal distance of from breeding habitat into upland habitat). Covered species are expected to disperse or move more than 1.0 mile but this radius accounts for the most likely area of effect into neighboring lands.

Once land acquisition is complete (by Year 45 of the Plan), the lands eligible for these assurances are estimated at 20,395 acres (4% of the study area) if all lands currently in agricultural use remain in agricultural use. The impact analysis assumes that total of 8,018 acres of cultivated agricultural land in the study area will be removed by covered activities (**Table 4-2**). Applying this assumption reduces the estimated eligible land to 12,377 acres (2% of the study area) by the end of the permit term. Because the actual pattern of agricultural land conversion is difficult to predict, these two values represent a likely range of eligible land (rounded to 12,400 acres to 20,400 acres). Modeled habitat for the three species is found on these sites, but mostly for secondary or dispersal habitat, not breeding habitat (**Table 10-3**). Modeled habitat for the three species also overlap with each other.

Privately held lands will be included in this Neighboring Landowner Assurances program through a voluntary application process. The neighboring landowner would apply to the Implementing Entity for coverage and the Implementing Entity would determine whether the lands in question qualified and, if they did, issue a *Certificate of Inclusion* for the property that will be signed by the landowner. The approach is required by the Wildlife Agencies to allow an affirmative statement be made by willing landowners to participate in the Habitat Plan. Those landowners that do not seek to participate will not be required to do so but will also not receive coverage for incidental take for their ongoing activities as a result of Habitat Plan conservation actions. Neighboring land agreements can only extend take coverage to eligible parcels or portions of parcels<sup>15</sup> within the permit area (i.e., not adjacent counties or portions of Santa Clara County that are outside of the permit area). Based on the landowner participation in other counties with approved HCPs that have similar programs (e.g., San Joaquin County), it is assumed that up to 10% of eligible lands will enter into neighboring land agreements, or no more than 1,240 to 2,040 acres.

The neighboring landowner protections listed below will be offered under the Plan according to the definitions and process defined below.

- Farmlands (as defined above) within 1.0 mile of reserve boundaries may be covered for incidental take of California red-legged frog, California tiger salamander, and western pond turtle authorized for take under the Habitat Plan's associated Section 10(a)(1)(B) and NCCP permits, should any such lands support increased use or become inhabited by these three covered species *after* establishment of a reserve parcel within 1.0 mile. Take coverage will not be provided for individuals or populations of these three covered species that inhabit the neighboring lands prior to the establishment of a reserve parcel, as identified in a baseline survey (see below).
- Coverage under the take permits will be offered to neighboring lands actively being used for farming purposes at the time that the reserve is established within 1.0 mile.
- *Actively being used for* means lands on which usual and customary agricultural practices are occurring, including normal crop rotation practices, at the time the neighboring reserve is established. For example, if agricultural lands that are used for crop production lie fallow in accordance with normal crop-rotation practices at the time the neighboring reserve is established, those lands would be considered to be actively used for farming purposes. Such coverage shall continue, subject to the terms and conditions of the Habitat Plan, the Implementing Agreement, and the take permits, for as long as the neighboring lands are actively being used for farming purposes and the permits remain in effect.
- Coverage will not be offered to neighboring lands devoted to non-farmland purposes at the time the nearby reserve is established. Take coverage does not include conversion of agriculture to other uses.

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<sup>15</sup> Landowners with parcels that lie partly within the permit area or partly within the 1.0 mile eligible radius may enroll only that eligible portion of their parcel in the Neighboring Landowner Assurances program.

- A change in agricultural land cover as defined by the land cover types in this Habitat Plan (e.g., pasture to vineyard) would require landowners reapplying to the Implementing Entity for Neighboring Landowner Assurances in order to determine the new baseline condition of covered species on the affected property.
- Prior to receiving coverage under the permits, the environmental baseline must be determined. The baseline conditions on a site will be documented to define the type, number, location, and condition of California red-legged frog, California tiger salamander, and western pond turtle or their habitat present on the site prior to the acquisition or management of reserve lands within 1.0 mile of the site. The final baseline report will document the areas and resources of the neighboring parcel eligible for take authorization under this program. Landowners will have the option of either allowing biologists with the Implementing Entity to survey their property and reimbursing these costs, or hiring a biologist on their own that is approved by the Implementing Entity to do so. Survey costs associated with participation in this program are the responsibility of the landowner. Reports prepared by landowner consultants will be reviewed by the Implementing Entity for adequacy. Neighboring Landowner Assurances do not provide for take of existing populations and already occupied habitat of listed species (i.e., the baseline conditions). Accordingly, this program would not provide coverage for a decline in baseline conditions.
- The survey report will address the areas proposed for Neighboring Landowner protections and will include, at a minimum, a description of habitat for covered species (extent and quality), existing records of covered species within 1 mile of the parcel proposed for coverage, and the results of surveys for covered species on the parcel proposed for coverage. Upon receipt of a biological report approved by the Implementing Entity and a *Certificate of Inclusion* signed by the landowner, the Implementing Entity will grant take coverage to the landowner under this program.
- A change in ownership of land enrolled in the Neighboring Landowner Assurances program requires the new landowner to notify the Implementing Entity in order to continue coverage. This notification allows the Implementing Entity to verify that the new landowner wishes to continue to be enrolled in the program. No new surveys are required to continue coverage under the program, if agricultural land cover documented in the original Neighboring Landowner Agreement is maintained by the new owner. However, the new land owner would have to sign a Certificate of Inclusion for the property.

The Implementing Entity will maintain a record of all correspondence and certificates of inclusion sent to neighboring landowners subject to these protections, as well as signed certificates of inclusion returned by landowners. The Implementing Entity will notify the Wildlife Agencies of the number, location, and size of neighboring lands entered into the program in its annual report. Copies of the certificates will be provided to the Wildlife Agencies upon request. The location of all neighboring lands enrolled in the program will be mapped in the Implementing Entity's GIS database.

As the Reserve System grows, the Implementing Entity will include an outreach component to educate neighbors on how to continue their agricultural practices to minimize effects to species (and to benefit species) and inform land owners about the Neighboring Landowner Assurances program and provide ongoing education for those enrolled in the program.

## Public Access to Conservation Easements Held by Private Landowners

It is not the intent of the Implementing Entity to allow general public access on conservation easements that are part of the Habitat Plan Reserve System. Public access to private lands managed under the Habitat Plan could conflict with ongoing agricultural or other operations and could pose a safety risk to the public. Public access to lands under conservation easements could also pose a risk of unwanted trespass onto adjacent privately held lands. Generally, the Implementing Entity will leave decisions regarding public access up to the landowner but will restrict access through the conservation easement where that access may conflict with the conservation goals of the site (see Chapter 8, Section 8.6.3 *Conservation Easements*). All conservation easements will provide access for the Wildlife Agencies' and Implementing Entity's biologists to conduct management and biological monitoring necessary for compliance with the Habitat Plan's adaptive management and biological monitoring program.

## 10.3 Modifications to the Plan

The Habitat Plan or incidental take permits can be modified in accordance with USFWS and CDFG regulations and the terms of the Implementing Agreement. Habitat Plan modifications are not anticipated on a regular basis. Modifications can be requested by a Permittee or by the permitting agencies. The categories of modification that are recognized, in order of significance, are administrative changes, minor modifications, and amendments, each of which is described below.

### 10.3.1 Administrative Changes

Administrative changes are internal changes or corrections to the Plan that do not require preauthorization from the Wildlife Agencies. Administrative changes do not result in any changes to the impacts analysis, conservation strategy, or decision documents. Administrative changes will be made in writing and documented by the Implementing Entity. The Wildlife Agencies will be provided a summary of administrative changes in each annual report. Examples of administrative changes are listed below.

- Corrections of errors in the Plan that do not change the intended meaning or obligations.

- Day-to-day implementation decisions, such as modifying irrigation schedules for created/restored habitats on the basis of observed water needs of planted vegetation.
- Conducting additional monitoring surveys.
- Modifying Habitat Plan monitoring protocols to align with Wildlife Agency monitoring protocols as they may be modified in the future.
- Adopting new monitoring protocols that may be promulgated by the Wildlife Agencies in the future.
- Annual adjustments to the Habitat Plan development fee and wetland fees to keep pace with the inflation of land values.
- Changes to the membership of the Governing Board, Implementation Board, the Science Advisors, or any advisory committees to the Board without changing the representation of the Permittees, agencies, or organizations.

### 10.3.2 Minor Modification

Minor modifications to the Plan are changes that do not adversely affect the impact assessment or conservation strategy described in the Habitat Plan and do not adversely affect the ability of the Implementing Entity to achieve the conservation strategy commitments of the Habitat Plan. Minor modifications do not require an amendment to the permits or the Implementing Agreement, but they do require pre-approval by the Wildlife Agencies before being implemented. In addition, minor modifications do not change the scope or nature of the covered activities and do not trigger a new NEPA analysis. Examples of minor modifications are listed below.

- Updates to the land cover map or to species occurrence data that are consistent with the predictions and expectations of the Habitat Plan.
- Modifying the design of directed studies or implementing new studies.
- Minor changes to the biological goals or objectives in response to adaptive management.
- Minor changes to survey or monitoring protocols that are not proposed in response to adaptive management<sup>16</sup>.
- Modification of monitoring protocols for Habitat Plan effectiveness not in response to changes in standardized monitoring protocols from the Wildlife Agencies.
- Modification of existing or adoption of additional conservation measures that improve the likelihood of achieving covered species objectives.

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<sup>16</sup> Such changes are subject to federal No Surprises regulations, state assurances, and local assurance provisions found in the Implementing Agreement.

- Discontinuation of ineffective conservation measures and adoption of new conservation measures that improve the likelihood of achieving the conservation strategy.
- Modification of existing or adoption of new performance indicators or standards if results of monitoring and research or new information, indicate that the initial performance indicators or standards need revision.
- Modification of existing or adoption of additional covered species or natural community objectives where such changes more effectively achieve covered species, natural community, and overall Habitat Plan goals.
- Modification of the conditions on covered activities in response to adaptive management.
- A minor change to the conservation strategy restoration/creation interim deadlines (**Table 5-14**) (e.g., extend a deadline by up to 2 years, if compliance has almost been accomplished and can be documented by the Implementing Entity).
- Minor changes to the reporting protocol.
- Other changes that do not result in adverse effects on covered species beyond those analyzed in the Habitat Plan and the associated biological opinion, and do not limit the ability of the Implementing Entity to achieve the biological goals and objectives of the Plan.

Changes in the land acquisition configuration of the Plan (see Chapter 5, Section 5.3.1 *Land Acquisition and Restoration Actions*) may be necessary to address changing land use patterns, such as rural development, in the study area or a lack of willing sellers in key Conservation Analysis Zones (Zone). Changes in land acquisition requirements within a Zone that amount to less than 5% of the original acreage are considered minor modifications as long as all three of the conditions listed below are met.

- The overall target acquisition acreage of land cover type or habitat for covered species does not change within the study area (i.e., a decrease in land acquisition on one Zone is balanced by an increase in land acquisition in another Zone).
- The changes between Zones are biologically equivalent or biologically superior to the original Plan.
- The changes do not affect the ability of the Implementing Entity to mitigate the impacts on covered species, contribute to the recovery of covered species, and meet the Plan's biological goals and objectives.

These are considered minor adjustments to account for willing sellers whose parcels span more than one Zone and may shift land cover between Zones while still meeting overall land cover requirements. A minor change in land acquisition configuration may be needed, for example, to account for small differences in acreages of land cover type across Zones due to parcel boundary changes or spanning across multiple Zones. In addition, this allowance is also important to account for limitations in the land cover mapping where a parcel

may contain important biological resources that were missed in the mapping but identified in the field. Finally, rural development occurring in one Zone may limit the acquisition opportunities of land cover types with limited occurrences within the Zone. This may make the same land cover type in an adjacent Zone a more attractive acquisition option. Any change in land acquisition requirements that exceeds 5% of the original acreage requirement or that is inconsistent with the criteria above is considered an amendment.

A change in the Habitat Plan study area (either a decrease or an increase) in response to a change in the planning limit of urban growth or city limit is also considered a minor modification, as long as the change meets the five conditions listed below.

- There is no change in the permit area.
- It is compatible with the conservation goals and Reserve System configuration of the Plan.
- It is consistent with the urban development covered activities in the Plan as defined in Chapter 2.
- It is consistent with the impact analysis of the Plan (Chapter 4).
- It addresses activities that are already covered by the Plan.

## **Minor Modification Process for Section 10(a)(1)(B) Permit**

Minor modifications to the federal permit may be proposed by one or more Permittees, the Implementing Entity, or the USFWS. While the USFWS does not have the right to amend its own permit unilaterally, they may propose minor modifications to the Permittees for consideration. Minor modifications shall take the form of a proposal that includes the following elements:

- Description of proposed minor modification.
- Rationale for proposed minor modification.
- Analysis of the environmental effects of the proposed minor modification, including impacts to covered species and implications for the conservation strategy.
- Description and declaration of how the proposed minor modification conforms to the conditions disclosed above (i.e., compatible with conservation goals) and the terms of the Plan as it was originally adopted.

All minor modifications must first be approved by the Implementing Entity Governing Board in a public meeting, and are subject to final approval by the Wildlife Agencies. To modify the Plan without amending the permits, the Implementing Entity Governing Board will submit to the Wildlife Agencies a written description of the proposed change and an explanation of why its effects are not believed to be significantly different from those described in the original Plan.

Upon receiving the proposal for a minor modification, the Wildlife Agencies may authorize the modification, request additional information, or deny the modification. If the Wildlife Agencies concur with the proposal, they will authorize the modification in writing, and the modification shall be considered effective on the date of the Wildlife Agencies' written authorization. If the Wildlife Agencies feel that the proposal lacks specific information, the Wildlife agencies may request additional information in order to authorize or deny the modification. If the Wildlife Agencies deny the modification, they will provide explanation for the denial.

The Wildlife Agencies will not approve minor modifications to the Plan if they determine that the modifications would result in adverse effects on covered species or natural communities that are significantly different from those analyzed in the Plan. If any Wildlife Agency denies a proposed modification, it may be proposed as an amendment as described below.

## Minor Modification Process for NCCP Act Permit

There is no established procedure to amend an NCCP Act permit through a minor modification. However, the minor modification process described above for the federal permit is proposed to also apply to the NCCP Act permit. The Implementing Entity will submit the same proposal to CDFG as to USFWS. CDFG will review the proposal and choose to accept the proposal, request additional information, deny the proposal, or require that the modification be processed as an amendment, as described below.

### 10.3.3 Amendments

An amendment is a change in the Plan that may affect the impact analysis or conservation strategy in the Plan. Amendments to the Habitat Plan and the incidental take permits follow the same formal review process as the original Plan and permits, including NEPA/CEQA review, Federal Register notices, an internal Section 7 consultation with USFWS, and formal NCCP findings by CDFG. An internal Section 7 consultation with NMFS would be required if anadromous fish are added to the Plan. The Implementing Entity's Implementing Board will submit a proposed amendment to the Wildlife Agencies in a report that includes a description of the need for the amendment, an assessment of its impacts, and any alternatives by which the objectives of the proposal might be achieved.

Examples of changes that would require an amendment include but are not limited to those listed below.

- Revisions of the permit area boundary.
- Addition of species to the covered species list.

- Increasing the allowable take limit of existing covered activities or adding new covered activities to the Plan.
- Modifications of any important action or component of the conservation strategy under the Habitat Plan, including funding, that may substantially affect levels of authorized take, effects of the covered activities, or the nature or scope of the conservation program. This includes a reduction in the conservation strategy in the event that covered activities and fee funding do not occur as expected (see below for additional explanation).
- A major change to a conservation strategy milestone (e.g., extend a deadline beyond one or two years).
- A major change in biological goals and objectives or conservation measures if monitoring or research indicates that they are not attainable because technologies to attain them are either unavailable or infeasible.
- Extending the permit term beyond 50 years.
- Increasing the land acquisition requirements in excess of 5% of the original acreage requirement.

As described in Chapter 9, it is possible that, even over the full 50-year term of the permits, covered activities and authorized take might not occur to the extent projected in the Plan. If this occurs, fee revenues would likely fall short of projections. A shortfall of fee revenues could make it difficult or impossible for the Implementing Entity to complete the Reserve System, habitat restoration and creation requirements, and other components of the conservation strategy within the milestones described in Chapter 5 and Chapter 8, Section 8.12 *Schedule and Milestones* and within term of the permits. If this situation appears likely, the Permittees and the Wildlife Agencies will meet and confer to develop mutually agreeable terms, which could include, but are not limited to, the following:

- extend the term of the permits to allow completion of the conservation strategy, or
- reduce the amount of take authorized and reduce the conservation obligations of the Permittees.

## Amendment Process for the Section 10(a)(1)(B) Permits

To amend the Section 10(a)(1)(B) permits, the Implementing Entity Governing Board will submit a formal application to USFWS (or to NMFS if anadromous fish are proposed to be added to the Plan). This application must include a revised Habitat Plan, a permit application form, any required fees, a revised Implementing Agreement, and the required compliance document under NEPA. The appropriate NEPA compliance process and document will depend on the nature of the amendment being proposed. A new scoping process may be required, dependent upon the nature of the amendment. If additional scoping is deemed appropriate and necessary, USFWS and/or NMFS will publish a Notice of Intent in the Federal Register to initiate the scoping process. Upon submission of a completed application package, USFWS and/or NMFS will publish a notice

of the proposed application in the Federal Register, initiating the NEPA and HCP amendment review process. After public comment, USFWS or NMFS may approve or deny the permit amendment application.

## **Amending the NCCP Permit**

Procedures for applying for an amendment to the NCCP permit are included in the Implementing Agreement and will be processed in accordance with applicable NCCP Act requirements. The NCCP permit amendment will be subject to the requirements of CEQA, including a public review period. At the conclusion of the public review period, CDFG will either approve or deny the permit amendment. To approve the permit amendment, CDFG must make appropriate NCCP Act and CEQA findings.

## **Amendment Guidelines for Pacheco Dam Reconstruction and Reservoir Enlargement Project**

This section provides guidance for an amendment of the Habitat Plan to add the Pacheco Dam Reconstruction and Reservoir Enlargement project as a covered activity. This project is currently not a covered activity in the Plan (see Chapter 2) because it will take water from the Central Valley Project operated by the Bureau of Reclamation. A project description of the Pacheco Dam Reconstruction and Reservoir Enlargement Project adequate to complete an impacts analysis was also not available at the time of permit issuance for this Plan. Therefore, the permits for this Plan do not authorize take associated with this project. However, if SCVWD proceeds with this project, incidental take authorization could be obtained through an amendment of this Plan. Whether this Plan is amended to cover this project or not, the conservation strategy for the Pacheco Dam Reconstruction and Reservoir Enlargement Project will be consistent with the conservation strategy in this Plan.

If take authorization for this project is obtained through an amendment of the Habitat Plan the Permittees must follow all of the general requirements described above for amendments. To compensate for the additional impacts, the amendment must supplement the operating conservation strategy of this Plan.

The SCVWD will provide adequate funding to implement the modified conservation strategy and is expected to own and operate the expanded reservoir. Preserved lands will be enhanced, managed, and monitored consistent with the conservation strategy and monitoring and adaptive management program of this Plan. Land management and monitoring may be conducted by the Implementing Entity, SCVWD, or another Permittee.

The Wildlife Agencies have not provided assurances to accepting the specific terms of this amendment and will base their determination of whether or not to approve an amendment based on the conditions and analysis available at the time of application.

**Table 10-1.** Thresholds and Remedial Actions for Changed and Unforeseen Circumstances Addressed by the Plan

<b>Thresholds</b>				
<b>Circumstance</b>	<b>Changed (Funded)</b>	<b>Changed (Unfunded)</b>	<b>Unforeseen (Unfunded)</b>	<b>Remedial Actions</b>
Covered Species Listed	<ul style="list-style-type: none"> <li>Covered species listed</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>No changes to the terms and conditions of the Implementing Agreement or modifications to conservation measures are required.</li> </ul>
Non-covered species listed	<ul style="list-style-type: none"> <li>Non-covered species listed</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate potential impacts of covered activities on the newly listed species, including an assessment of the presence of suitable habitat in impact areas.</li> <li>Develop measures to fully avoid impacts on the newly listed species until the Plan is amended to cover the species or comply with ESA and CESA via other means (i.e., individual Section 7 consultations, consistency determinations).</li> </ul>
Global Climate Change	<ul style="list-style-type: none"> <li>Increase in temperature of up to 2.8°C for any of the three baseline periods measured as a 10-year running average</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>increase in temperature greater than 2.8°C for any of the three baseline periods measured as a 10-year running average</li> </ul>	<ul style="list-style-type: none"> <li>Enhance monitoring to detect ecological responses to climate change (see Chapter 7).</li> <li>Identify target species most vulnerable to climate change and increase status-and-trend monitoring for those species.</li> <li>Alter conceptual ecological models for natural communities and covered species as a tool to devise improved management actions (see Chapter 7).</li> <li>Alter or conduct more intensive management actions on target/vulnerable species to facilitate shifts in species distribution (e.g., more active population management of covered species).</li> <li>Conduct more aggressive control of invasive species that respond positively to climate change.</li> <li>Implement other measures through the Adaptive Management Program (see Chapter 7) in ways consistent with permit obligations and with the consent of the Implementing Entity.</li> </ul>
Fire	<ul style="list-style-type: none"> <li>A single fire burning 2,235-7,599 acres in the Reserve System</li> <li>Any number of fires of any size that impact enhancement, restoration or creation projects<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>A single fire exceeding 7,599 acres in the Reserve System</li> <li>More than one fire in the Reserve System burning an excess of 7,599 acres</li> <li>Burned areas not containing enhancement,</li> </ul>	<ul style="list-style-type: none"> <li>Initiate a post-fire damage assessment within six months following the end of a fire in order to identify the appropriate post-fire restoration and rehabilitation actions.</li> <li>Initiate the appropriate actions, such as habitat restoration, invasive-species control and/or erosion control, in affected reserves to ensure the reestablishment of covered plants and other native vegetation through active or passive means, as appropriate, within one year post-fire.</li> </ul>

<sup>1</sup> For any individual fire exceeding 7,599 acres, remedial actions would be limited to enhancement, restoration and/or creation project sites (i.e., the entire burned area would not be subject to remedial actions).

Thresholds				
Circumstance	Changed (Funded)	Changed (Unfunded)	Unforeseen (Unfunded)	Remedial Actions
	<ul style="list-style-type: none"> <li>Any number of fires, regardless of size, in the same area of the Reserve System at the following frequencies (see <b>Table 10-2</b>)                             <ul style="list-style-type: none"> <li>Grasslands: <math>\geq 5</math> years</li> <li>Chaparral/coastal scrub: <math>\geq 5</math> years</li> <li>Oak woodland: <math>\geq 10</math> years</li> <li>Riparian: <math>\geq 25</math> years</li> <li>Conifer woodland: <math>\geq 5</math> years</li> <li>Wetland: <math>\geq 5</math> years</li> </ul> </li> <li>Any number non-catastrophic fires of any size that impacts restoration or creation projects</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<p>restoration or creation projects</p> <ul style="list-style-type: none"> <li>Wildfires that reoccur in the same location below the threshold identified in <b>Table 10-2</b></li> </ul>	<ul style="list-style-type: none"> <li>Implement measures through the Adaptive Management Program (see Chapter 7) in ways consistent with permit obligations and with the consent of the Implementing Entity.</li> <li>Ensure erosion control measures are in place prior to the next rainy season.</li> </ul>
Nonnative Species or Disease	<ul style="list-style-type: none"> <li>Infestations of new diseases or new nonnative invasive species affecting up to 25% of a predominant natural community (i.e., oak woodland) or covered species within the Reserve System at any given time</li> <li>Spread of existing nonnative species or diseases up to 25% above current conditions within the Reserve System at any given time</li> </ul>	<ul style="list-style-type: none"> <li>Infestations of new diseases or new nonnative invasive species affecting more than 25% of a predominant natural community (i.e., oak woodland) or covered species within the Reserve System</li> <li>Spread of existing nonnative species or diseases more than 25% above current conditions within the Reserve System</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Determine the best method for measurement and tracking extent within 3 months of detection.</li> <li>Prepare a damage-assessment report within 6 months of detection.</li> <li>Recommend and plan actions to address the threat within 6 months of detection.</li> <li>Respond through adaptive management in ways consistent with permit obligations and with the consent of the Wildlife Agencies within one year of detection.</li> </ul>

<b>Thresholds</b>				
<b>Circumstance</b>	<b>Changed (Funded)</b>	<b>Changed (Unfunded)</b>	<b>Unforeseen (Unfunded)</b>	<b>Remedial Actions</b>
Flooding	<ul style="list-style-type: none"> <li>All flood events that damage or destroy enhancement projects, restoration projects, creation projects, or in-stream conservation structures</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate site to determine appropriate corrective actions necessary to restore the habitat through active management or natural processes.</li> <li>Implement appropriate corrective actions (i.e., grading, new riparian plantings, debris removal, covered plant restoration, etc.) within a time period to maintain permit compliance with the Stay-Ahead provision for restoration, creation, and enhancement.</li> </ul>
Drought	<ul style="list-style-type: none"> <li>Up to 7 droughts of one to eight years each, of which, only a single drought is expected to last up to 8 successive years</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>More than 7 droughts during permit term</li> <li>More than a single drought of 8 successive years</li> <li>Any number of droughts lasting more than 8 successive years each</li> </ul>	<ul style="list-style-type: none"> <li>Prepare damage assessment report within one year of damage or loss.</li> <li>Identify actions to improve effects on covered species (e.g., provision of temporary artificial water sources) within one year of damage or loss.</li> <li>Identify actions to improve effects on enhanced and restored habitat (e.g., supplemental irrigation) within one year of damage or loss.</li> <li>Implement measures through the Adaptive Management Program (see Chapter 7) in ways consistent with the permit obligations and with the consent of the Implementing Entity within one year of damage or loss.</li> </ul>
Earthquake	<ul style="list-style-type: none"> <li>Damage to Reserve System infrastructure, natural communities, and covered species from any number of earthquakes of any magnitude</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>	<ul style="list-style-type: none"> <li>Repair or rebuild Reserve System infrastructure within 2 years of earthquake.</li> <li>Remediate enhancement, restoration, and creation sites in the Reserve System that may have been affected (i.e., as a result of landslides) within 2 years of earthquake.</li> <li>Conduct post hoc monitoring of species or populations that are identified as being potentially negatively affected by the incident for 3 years following the earthquake.</li> </ul>

**Table 10-2.** Natural Community-Specific Fire Return Intervals

Natural Community	Fire to Return Interval <sup>1</sup> (Average Years)				Return Intervals (years) Defining Unforeseen Circumstance
	Classification <sup>2</sup>	Pre-Historic <sup>3</sup>	Historic <sup>3</sup>	Current <sup>4</sup>	
Grassland	Truncated short-short	1 to 2	10 to 30	25 to 35	< 5
Chaparral/coastal scrub	Truncated short-medium	1 to 2	10 to 30	25 to 35	< 5
		1 to 15	20 to 30	125 to 250	
		10 to 35	7 to 29		
Oak woodland	Truncated short-medium	1 to 2	50 to 75	150 to 250	< 10
		10 to 35	10 to 30	25 to 35	
		30 to 135			
Riparian forest and scrub	Long	–	–	Over 100 years	< 25
Conifer woodland	Short-long	135	20 to 50	50,	< 5
			4 to 12	9 to 16	
				100 to 150	
Wetland <sup>5</sup>	Short	1 to 2	10 to 30	25 to 35	< 5

<sup>1</sup> Multiple fire return intervals are stated for some of the natural communities due to variable fire return intervals stated for the land cover types within each natural community grouping. In addition, fire return intervals are highly variable for individual land cover types (e.g., redwood) depending on site specific variables (e.g., location, topographical isolation).

<sup>2</sup> Sugihara et al. (2006) identified six conceptual fire-return interval patterns occurring in California ecosystems. Ecosystems with a *truncated short fire return interval* experience all-area burns reoccurring at short interval. Longer return intervals for these ecosystems result in type conversion. Ecosystems with a *short fire return interval* experience large-area burns reoccurring at a short interval; however, there is a wide range including a small portion with longer intervals. Long intervals punctuated by short interval burns allow for greater complexity of non-dominant species. *Truncated medium fire-return interval* ecosystems experience a range of area burns. Upper and lower limits are defined by characteristic species life histories. Intervals outside range result in type conversion. *Medium fire-return interval* ecosystems experience area burns at medium-return intervals; however, deviation from interval does not usually result in type conversion. Ecosystems with a *truncated long fire-return interval* experience all-area burns at long intervals, typically 70 or more years; however, repeat fires within a few years or decades do not result in type conversion. *Long fire-return interval* ecosystems have long partial-area or all-area fire-return intervals. Shorter, reoccurring fires may occur in small areas without type conversion occurring.

<sup>3</sup> Return interval influenced by burning conducted by Native Americans (pre-historic) and Europeans (historic).

<sup>4</sup> Return interval influenced by fire suppression.

<sup>5</sup> Assumed to be the same as grassland.

Sources: Davis and Borchert 2006; Stuart and Stephens 2006; Sugihara et al. 2006; Willis 2006.

**Table 10-3.** Modeled Habitat for Eligible Covered Species found on Eligible Neighboring Lands<sup>1</sup>

	Primary Habitat	Secondary Habitat	Dispersal Habitat	Total
California red-legged frog	51 acres	0 acres <sup>2</sup>	17,951 acres	18,002 acres
California tiger salamander	0 acres	19,189 acres	N/A	19,189 acres
Western pond turtle	2,421 acres	12,732 acres	N/A	15,153 acres

Notes:

<sup>1</sup> Assumes maximum amount of land eligible for program. This analysis assumes that none of the existing cultivated agriculture eligible for the program will be lost to covered activities.

<sup>2</sup> Refugia habitat.



