

Master Response 6 Vegetation, Wetland, and Wildlife Resources

Overview

This master response provides a consolidated response to multiple comments regarding the information used to describe the environmental setting, the approach to the impact analysis, and proposed mitigation measures for Chapter 9, *Vegetation and Wetland Resources*, and Chapter 10, *Wildlife Resources*, collectively referred to as “biological resources” in this response.

Specifically, this master response addresses similar or thematic comments on the RDEIR/SDEIS terrestrial biological resources impact analysis and mitigation measures. The following common topics raised by commenters include but are not limited to:

- General Comments on Vegetation, Wetland, and Wildlife Resources—common general comments that raised concerns, without providing support, regarding impacts on vegetation, wetlands, and wildlife species.
- Baseline Conditions, Special-Status Species Surveys, and Habitat Modeling—the adequacy of the description of baseline conditions for vegetation, wetlands, and wildlife; survey data; and adequacy of species habitat modeling.
- Wetland and Non-Wetland Water Survey Data—the use of wetland field survey data and reliance on aerial imagery interpretation.
- Adequacy of Mitigation—CEQA and NEPA mitigation requirements and the adequacy and suitability of the mitigation measures and mitigation ratios.

For ease of reference, this master response includes a table of contents on the following page to guide readers to topics of their concern. Table of contents entries represent general recurring and common themes found in the comments received.

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General Comments on Vegetation, Wetland, and Wildlife Resources

This section addresses common general comments that raised concerns, without providing support, regarding impacts on vegetation, wetlands, and wildlife species. The methods and results for the detailed analysis of potential effects on riparian habitat, wetlands, and other waters are presented in Chapter 9, *Vegetation and Wetland Resources*. The table titled *Alternatives 1 and 3 Acreages of Permanent Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas* in Chapter 9 presents the acreages of anticipated permanent impacts on specific special-status plant habitats, sensitive natural communities (including riparian habitat), and wetland and non-wetland water types. The table titled *Alternatives 1 and 3 Acreages of Temporary Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas* in Chapter 9 presents the acreages of anticipated temporary impacts on specific special-status plant habitats, sensitive natural communities (including riparian habitat), and wetland and non-wetland water types. Impacts on riparian habitat are discussed in detail in Impact VEG-2, and implementation of Mitigation Measures VEG-2.1 and VEG-2.2 would reduce the level of impact. Impacts on jurisdictional wetlands and non-wetland waters are described in Impact VEG-3, and implementation of Mitigation Measures VEG-3.1, VEG-3.2, and VEG-3.3 would reduce the level of impact. Some commenters stated without support that the analysis did not fully address potential impacts on special-status plants. Impacts on special-status plants are discussed in Impact VEG-1, and implementation of Mitigation Measures VEG-1.1 and VEG-1.2 would reduce the level of impact.

Some commenters made general comments that the preferred alternative would have impacts on natural communities, terrestrial species habitat, and biodiversity in the region, but did not specify deficiencies in the analysis. Potential impacts on wildlife resources are evaluated in Chapter 10, *Wildlife Resources*. Wildlife resources addressed in Chapter 10 are defined as special-status wildlife species (excluding fish) and the habitats on which they depend, nesting migratory birds, colonies of non-special-status roosting bats, and wildlife corridors. Some commenters wanted to know why specific species were or were not analyzed. The *Methods for Assessing Wildlife Resources in the Study Area* section in Chapter 10 describes how potential wildlife resources in the study area were evaluated, and the *Special-Status Wildlife Species Identified as Having the Potential to Occur in the Study Area* table in Appendix 10A, *Wildlife Species Lists, Special-Status Wildlife Table, and Non-Listed Wildlife Species Accounts*, includes the status, habitat requirements description, and likelihood of occurrence for the special-status species identified as potentially present.

Analytical Approach

This section responds to common statements from commenters regarding the overall analytical approach to determining impacts on vegetation, wetlands, and wildlife. It discusses the baseline conditions, the use of existing information and previously conducted surveys to describe baseline

conditions and inform impact analyses, and the use of habitat models to evaluate impacts on wildlife.

Baseline Conditions

Several commenters stated that the biological resources chapters (Chapters 9 and 10) failed to adequately assess, disclose, and describe baseline environmental conditions for vegetation, wetlands, and wildlife resources. Qualified biologists conducted extensive literature and data reviews to support the characterization of the environmental baseline using the best available scientific data and resources (e.g., agency databases, scientific literature, aerial imagery, existing reports), as described in the RDEIR/SDEIS in Chapters 9 and 10 and Appendices 9A, 9B, 10A, and 10B. This information is contained in the following sections and appendices:

- Section 9.3, *Physical Setting*
- Section 9.4, *Methods of Analysis*
- Section 10.2.1, *Methods for Assessing Wildlife Resources in the Study Area*
- Section 10.3, *Methods of Impact Analysis*
- Appendix 9A, *Special-Status Plant Species*
- Appendix 9B, *Vegetation and Wetland Methods and Information*
- Appendix 10A, *Wildlife Species Lists, Special-Status Wildlife Table, and Non-Listed Wildlife Species Accounts*
- Appendix 10B, *Wildlife Habitat Models and Methods*

Baseline conditions are defined to calculate existing land cover acreages; provide a conservative impact analysis using anticipated disturbance footprints and timing; provide decision makers with an understanding of the types/magnitudes of direct and indirect impacts on vegetation, wetland, and wildlife resources; and propose mitigation measures to reduce identified significant impacts. Baseline conditions are also considered when developing the best management practices for resource avoidance that are included in Appendix 2D, *Best Management Practices, Management Plans, and Technical Studies*.

Appendix 9A describes the status and distribution, habitat requirements, blooming periods, and information about the occurrence of 94 special-status plant species in and near the study area. Baseline environmental conditions for vegetation and wetlands are discussed in Appendix 9B. This appendix describes the methodology used for mapping the 28 land cover types identified in the study area and provides the estimated acreage of each land cover type in the study area. The environmental setting information in Appendix 9B describes the environmental conditions of the study area by including descriptions, locations, and extents of land cover types, sensitive natural communities, and wetland and non-wetland water types in the study area. The detailed baseline environmental conditions described in Appendices 9A and 9B are summarized in the *Environmental Setting* sections of Chapter 9 and Chapter 10.

Chapter 10 refers to the information in Appendix 9B, which is the basis for environmental setting for wildlife. Chapter 10 and Appendix 10A provide further detailed information about the

special-status wildlife that could occur in the study area. The *Environmental Setting* section of Chapter 10 presents baseline environmental conditions for wildlife. This section describes the methodology by which wildlife resources in the study area were determined and the common wildlife that are associated with the land cover types described in Appendix 9B. Chapter 10 describes the status and distribution, habitat requirements, and information about the occurrence of special-status wildlife in and near the study area for 13 federally listed, state-listed, and fully protected species. Appendix 10A provides corresponding information for 20 non-listed or non-fully protected species. Appendix 10B contains the special-status species model descriptions.

Special-Status Species Surveys and Impact Analysis

Special-Status Plant Survey Data

Multiple commenters stated that the botanical survey data used to assess impacts in the RDEIR/SDEIS are insufficient and outdated, given that the original field surveys in the study area were conducted between 1998 and 2003 (see *Special-Status Plant Species* section in Chapter 9). The previous botanical surveys conducted for the Project provide on-the-ground evidence that helps support identification of special-status plants that have been documented in the California Natural Diversity Database (CNDDDB) in and around the study area (California Department of Fish and Wildlife 2021a). Use of this previous survey data for the RDEIR/SDEIS impact analysis is valid because there is a high likelihood that the plants and soil seed bank are still present if the soil surface has not been substantially disturbed or a natural community has not been removed for new land use, such as agriculture or development. The land cover mapping included review of Google Earth imagery between 1998 and 2018 (Google Earth 2021), which shows that land use changes in the study area have been minimal in recent decades and that most land uses in the study area remain as previously existing agriculture or grazing lands.

The original special-status plant field surveys and subsequent Project surveys were conducted over multiple years, between 1998 and 2003 in the Sites Reservoir inundation area and along road and conveyance routes, covering approximately 75% of the current study area (Sites Project Authority and U.S. Bureau of Reclamation 2017). The *Botanical Survey and Land Cover Mapping Methods* section in Appendix 9B describes the general locations of the previous surveys with reference to parts of the current study area and confirms that surveys were conducted according to the California Department of Fish and Game (CDFG) protocols in place at the time of the surveys, which included requirements for botanical surveys to be conducted during the appropriate times (i.e., blooming periods) for the special-status plant species. The field survey data were evaluated regionally—that is, even if the surveys did not document a species in the study area, but it was known to occur in the region, that species was considered for inclusion in the analysis (i.e., not excluded from consideration). For example, brittle scale is included in the analysis even though it was not found during past surveys, because it is documented in the CNDDDB as occurring in the study area and in the region (California Department of Fish and Wildlife 2021a). Therefore, these surveys and use of CNDDDB data provide valid special-status plant observation data that support the analysis of environmental impacts in the RDEIR/SDEIS. Additionally, other sources of data and habitat modeling were used to determine the potential presence of special-status plants. Information from the CNDDDB (California Department of Fish and Wildlife 2021b), soils data (Natural Resources Conservation Service 2006, 2020), and geographic information system (GIS) were used to model potential

locations of listed plant species with potential to occur in the Project area—palmate-bracted bird's beak and Keck's checkerbloom. Known habitat requirements for these two species from scientific literature were used as the basis for determining the locations where the species could be present and affected by the Project. Special-status plant surveys will be conducted prior to construction to identify all locations that could be affected by the Project, as discussed below in the "Special-Status Species Impact Analysis" section.

Special-Status Terrestrial Wildlife Survey Data

In contrast to comments regarding special-status plant survey data, multiple commenters stated that the terrestrial wildlife survey data from these earlier surveys should have been used to assess impacts in the RDEIR/SDEIS. As a preliminary issue, *none* of the wildlife species for which past surveys were conducted (e.g., bald eagle [*Haliaeetus leucocephalus*], bank swallow [*Riparia riparia*]) were excluded from the impact analysis, nor did the RDEIR/SDEIS conclude that these species would not occur or be affected by the Project. As stated in Chapter 10, previous wildlife survey data were between 10 and 23 years old. Information on the presence of wildlife species and their habitats are based on surveys conducted between 1998 and 2004 and in 2010 to 2011 (see *Methods for Assessing Wildlife Resources in the Study Area* section of Chapter 10). Additionally, past surveys were conducted for different Project footprints and frequently did not provide specific location information, making it unclear whether the data were relevant to the study area. For these reasons, other sources of data and habitat modeling were used to determine the potential presence of special-status wildlife. Information from the CNDDDB (California Department of Fish and Wildlife 2021b), eBird (Cornell Lab of Ornithology 2021), and GIS modeling based on known habitat associations and habitat requirements for each species from scientific literature were used as the basis for determining the special-status wildlife that could be present and affected by the Project. While previous survey information was reviewed, the inclusion of this old wildlife survey data would not have affected the species that were considered in the RDEIR/SDEIS or the analysis of impacts on these species.

Special-Status Species Impact Analysis

Multiple commenters stated that field surveys for special-status species and wetland resources should have been conducted to inform the impact analysis in the RDEIR/SDEIS. As stated in Chapter 9, *Vegetation and Wetland Resources*, and Chapter 10, *Wildlife Resources*, surveys for special-status plants and animals could not be conducted because of a lack of access to privately held land. For this same reason, field surveys could not be conducted to assess habitat, ground-truth aerial imagery used for habitat modeling, or delineate wetlands. In addition, multiple commenters stated that entry to privately owned property was feasible by seeking court orders pursuant to the precondemnation entry provisions in the California Eminent Domain Law (Code Civ. Proc., Sections 1245.010-1245.060).

Commenters cited *Agoura Cornell Knoll v. City of Agoura Hills*, 46 Cal. App. 5th 665, 694 (2020) to state that the vegetation impact analysis was inadequate without conducting updated surveys. The lead agency in *Agoura Hills* relied solely on outdated surveys in conditions which, according to CDFW, would make it difficult to detect the plant species in question. Further, while the project impact analysis stated that surveys would be conducted in a future blooming season prior to issuance of a grading permit, the lead agency did not show that it was infeasible to perform updated surveys. For the Project, by contrast, the Authority and Reclamation used

past surveys that were conducted during the appropriate times (i.e., blooming periods) for the special-status plant species, in accordance with CDFG protocols in place at the time. Further, the Authority and Reclamation did not rely solely on past surveys but used them *in conjunction* with habitat modeling. Finally, the Authority and Reclamation have explained that it was infeasible to conduct field surveys due to the lack of access to privately held land.

These comments largely overlook that the impact analysis for vegetation, wetlands, and wildlife do not solely rely upon past survey information. Rather, the Authority and Reclamation used the best available scientific data literature and extensive habitat modeling to assess impacts and make impact determinations. Chapters 9 and 10 explain why it would have been impractical for the Authority to conduct field surveys of the Project site prior to the approval of the Final EIR/EIS due to the Authority's lack of access to much of the Project area. The RDEIR/SDEIS also includes numerous mitigation measures requiring species-specific, protocol-level, and focused surveys prior to construction, which will be used to verify species modeling results prior to the start of construction. The Authority and Reclamation need not obtain court orders to conduct surveys prior to the approval of the Final EIR/EIS when there are suitable alternatives to inform and support the impact analysis, and the Authority will perform species-specific, protocol-level surveys prior to the start of construction. Suitable alternatives to conducting surveys include the use of habitat models and robust mitigation measures, which are incorporated into Chapters 9 and 10.

In addition, the Authority will be required to complete surveys in accordance with agency guidelines ("protocol-level surveys") or focused surveys for plants and animals prior to construction as part of mitigation measures identified in Chapters 9 and 10. The Authority will complete protocol-level and focused surveys in accordance with agency guidelines during the appropriate season and in accordance with accepted methods prior to the start of construction. The Authority will conduct these preconstruction surveys during the appropriate time frame as described in the mitigation measures presented in the RDEIR/SDEIS and prior to initial ground-disturbing activities associated with Project construction. Specifically, the mitigation measures require protocol-level or focused surveys for special-status plant species, vernal pool branchiopods, California red-legged frog (*Rana draytonii*), burrowing owl (*Athene cunicularia*), bald eagle, golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), and bats.

For example, Mitigation Measure VEG-1.1 requires the Authority to conduct preconstruction surveys for special-status plant species to determine presence/absence and location of the occurrences. In accordance with CDFW guidelines, surveys required under this mitigation measure would be conducted during the blooming periods of all potentially occurring special-status plant species. The CDFW guidelines expand on guidelines published by USFWS in 2000. As part of the CDFW guidelines, existing botanical survey data provided in the RDEIR/SDEIS will be included in the report of preconstruction botanical survey data to provide a more accurate picture of species' distribution and extent in the study area.

Similarly, Chapter 10 includes mitigation measures that require protocol-level, focused, and/or preconstruction surveys for wildlife species with potential to be present in the study area. Some of these surveys must be conducted 1 year in advance of construction because of the timing of surveys and/or the number of surveys recommended by a protocol (e.g., vernal pool

branchiopods, California red-legged frog, and burrowing owl). Surveys would likely begin for some species as soon as property access is obtained to further the permitting efforts for the Project.

Habitat Models

Multiple commenters suggested that the habitat models were not sufficient and should not be relied upon by the Authority and Reclamation. Habitat models based on known species habitat associations and habitat requirements were developed and used to determine where the Project may result in impacts on special-status species. The development and application of habitat models (or conceptual models) have been used to ascertain the scope of potential biological impacts of other large-scale infrastructure projects (i.e., Delta Conveyance, California High-Speed Rail) when survey data are limited or lacking.

Furthermore, habitat modeling used in the preparation of the RDEIR/SDEIS is considered an appropriate approach for assessing the extent of impacts in the RDEIR/SDEIS and is based on scientific literature, incorporates aerial imagery interpretation, and is supported by resource agencies, as discussed below. Qualified biologists worked with a GIS specialist to develop the habitat models by, among other approaches, conducting extensive reviews of scientific literature to support the preparation of the model descriptions, which were used as the basis for the habitat models (see Appendix 10B). For example, the habitat model for tricolored blackbird (*Agelaius tricolor*) was based on the following extensive and credible scientific literature and agency reports: Beedy and Hamilton 1997; Beedy et al. 2020; California Department of Fish and Wildlife 2018; Cook and Toft 2005; DeHaven et al. 1975; Graves et al. 2013; Hamilton 2004; Meese 2017; Neff 1937; Orians 1961; and U.S. Fish and Wildlife Service 2019.

Qualified biologists also conducted aerial imagery interpretation, which is a reliable method to identify land cover types used in the habitat models because it includes review of multiple images from different years and times of year, providing a more thorough understanding of habitat conditions over time. Land cover types will be field verified when preconstruction surveys are conducted as required by multiple mitigation measures in Chapters 9 and 10, as discussed above.

The Authority provided KMZ files of the habitat models and met with California Department of Fish and Wildlife (CDFW) staff on June 26, July 2, and July 24, 2019; August 10, October 28, and November 17, 2020; and September 7, 2021 to discuss the models for state-listed species in detail, and incorporated CDFW staff input. Additionally, the Authority provided model parameters and details for federally listed species to the Reclamation biologist, who discussed the species model information with the U.S. Fish and Wildlife Service (USFWS) and provided feedback from USFWS to the Authority. This feedback was also incorporated into the habitat models. CDFW did not object to the modeling approach or the adequacy of the models in its comments on the RDEIR/SDEIS. Similarly, USFWS issued a Planning Aid Memorandum on August 5, 2021 (Appendix 33C, *Planning Aid Memorandum*, to the RDEIR/SDEIS), in which USFWS also did not object to the modeling approach or sufficiency of the models. Furthermore, during consultation meetings with the Authority and Reclamation, neither CDFW nor USFWS raised concerns with the concept of habitat modeling, using habitat modeling as an approach to assess impacts or the adequacy of the habitat models used.

Commenters also stated the habitat models make unsubstantiated assumptions, that the models can underestimate habitat, and that the models overestimate the amount of potential habitat and are not based on science. Model assumptions are described in Appendix 10B and were developed from scientific literature and, therefore, are not unsubstantiated. Identification of potential habitat for special-status species in the models was based on scientific literature review and aerial imagery interpretation. In general, the modeling approach assumed that potential habitat is suitable and occupied by special-status species. This comprehensive conceptual approach overestimates the amount of occupied habitat for species within the study area because not all potentially suitable habitat is occupied. Consequently, the assessment of impacts on special-status species is generally overestimated. As discussed above, both CDFW and USFWS reviewed the model methods and had opportunities to provide input on the models. Neither agency expressed any concern with the assumptions in the model methods.

Commenters also stated that the habitat models are not reliable because they require field surveys to ground truth their accuracy. The RDEIR/SDEIS includes numerous mitigation measures that require the Authority to conduct species-specific, protocol-level, and focused surveys prior to construction, which will be used to verify species modeling results. This is standard practice for evaluation of potential project effects in CEQA documents because protocol-level and focused surveys can take multiple seasons to complete. Furthermore, the results of surveys may only be valid for a limited period of time per agency requirements (e.g., plant surveys), and thus it is appropriate to conduct the surveys closer to construction start dates as they may no longer be valid by the time construction begins if they are conducted too early.

The model limitations section acknowledges when habitat might be underestimated for a particular species. The potential underestimates of habitat are generally related to not being able to map all individual trees that could provide nesting habitat for some bird and bat species. The Authority will perform preconstruction surveys at individual trees that would be impacted to determine presence or absence of these special-status species. In the unlikely event that the modeling constitutes an underestimate of potential impacts, the Authority and Reclamation will consider whether this new information warrants additional review under CEQA and NEPA.

Wetlands and Non-Wetland Waters Survey Data

Some commenters stated that the wetland field survey data are outdated and incomplete and suggested that surveys should be conducted prior to the preparation or approval of the Final EIR/EIS. As stated in Chapter 9, wetlands and non-wetland waters of the United States were documented between 1998 and 2003 in approximately 75% of the study area based on aerial photo interpretation and field verification (see *Vegetation and Wetland Resource Types in the Study Area* section in Chapter 9). In addition, aquatic resource delineation experts spent several months conducting detailed aerial photo interpretation of wetlands and non-wetland waters (aquatic resources) using information listed in Appendix 9B, including Google Earth Pro aerial images of the entire study area from multiple years, but particularly March 2016, May 2017, and August 2018; review of the 1998–2003 field-surveyed data; climate and precipitation data; National Hydrography Dataset; National Wetland Inventory maps; soil survey data; topographic maps; and vernal pool distribution data. Details of the methods used for creating the updated aquatic resources delineation maps are provided in the *Sources of Background Information* and *Methods for Delineation of Wetlands and Non-Wetland Waters* sections of Appendix 9B.

A conservative approach was used for the desktop delineation where wetland boundaries could not be accurately separated from surrounding grassland and were mapped as a matrix of grassland and potential wetlands. Additionally, many areas of ephemeral water flow were mapped as non-wetland waters and not all are likely to meet criteria of non-wetland waters. Therefore, the extent of mapped wetlands and non-wetland waters is likely greater than the actual extent, which will be determined by onsite surveys to be conducted during the permitting process. Due to the conservative approach used for desktop mapping, therefore, the wetland and non-wetland water impact acreages in the RDEIR/SDEIS are conservative and likely greater than what will eventually be quantified to determine the amount of required mitigation.

A verified delineation of aquatic resources is not required to satisfy CEQA or NEPA. These desktop delineation methods are accepted by the Regional Water Quality Control Board (RWQCB) and the U.S. Army Corps of Engineers (USACE), because they provide preliminary delineation data for the purposes of the CEQA/NEPA analysis where, as an acceptable approach for a Level 3 routine delineation approach described in USACE's 1987 wetland delineation manual and implemented here, the mapping will be field reviewed and verified to make the jurisdictional determination needed for permitting (Roberts pers. comm.; Environmental Laboratory 1987). The Authority and Reclamation use this methodology for the CEQA and NEPA analyses as the methodology generates sufficient detail to quantify acres of impacts, providing decision makers with information to meaningfully compare the significant physical environmental impacts of each alternative to inform their assessment and approval of an alternative. Appendix 9B discusses the aquatic resources mapping used to determine impacts in the RDEIR/SDEIS. Chapter 9 indicates that aquatic resources in the study area may be altered and/or removed by the different alternatives, and this impact is identified as significant. The estimated temporary and permanent impact acreage of each alternative on each type of aquatic resource is provided in the following tables under Impact VEG-1:

- *Alternatives 1 and 3 Acreages of Permanent Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas (Table 9-2a).*
- *Alternatives 1 and 3 Acreages of Temporary Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas (Table 9-2b).*
- *Alternative 2 Acreages of Permanent Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas (Table 9-4a).*
- *Alternative 2 Acreages of Temporary Impacts on Special-Status Plant Habitats, Sensitive Natural Communities, and Wetland and Non-Wetland Water Types in Project Component Areas (Table 9-4b).*

In summary, the Authority and Reclamation use a scientifically credible approach coordinated with USACE and RWQCB such that the decision makers can understand the magnitude of impacts presented in the RDEIR/SDEIS and the differences in impacts between the alternatives, as NEPA and CEQA requires. Field verification of wetland and non-wetland water features will occur during the Clean Water Act permitting process with the USACE.

Adequacy of Mitigation

Some commenters question the adequacy and feasibility of mitigation for impacts on biological resources resulting from the alternatives, including the level of detail in the mitigation measures, and whether the mitigation approach satisfies legal requirements. The Authority and Reclamation must certify the RDEIR/SDEIS pursuant to CEQA and NEPA, respectively, and approve the mitigation measures described therein. Under CEQA, the Authority must identify significant and unavoidable impacts, if it is infeasible to reduce impacts to less than significant levels through mitigation. The Authority is required to prepare a mitigation monitoring and reporting program (MMRP) identifying the mitigation measures that will be implemented. The timing of the mitigation measures will be identified in the MMRP. The construction of the Project would be phased, and the Authority anticipates being able to appropriately phase and time implementation of all mitigation measures and construction of different Project components.

The impact analysis was not based on speculation, and thus the mitigation requirements are based on facts and data from multiple sources, including previous surveys, database searches, and aerial imagery interpretation, as detailed in the preceding sections.

The following subsections describe the adequacy of mitigation under CEQA and NEPA.

Adequacy of Mitigation under CEQA

This section relates to adequacy of mitigation under CEQA, for which the Authority is responsible. Reclamation is not subject to CEQA and, therefore, is not required to adopt measures to mitigate impacts. Mitigation under NEPA is discussed in a separate section below.

CEQA requires that agencies adopt feasible mitigation measures to substantially lessen or avoid otherwise significant adverse environmental impacts. CEQA (Section 21061.1) defines “feasible” to mean “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” Mitigation measures are not required for impacts that are found to be less than significant (Pub. Resources Code, Section 21081; CEQA Guidelines, Sections 15002(a)(3), 15021(a)(2), 15091(a)(1)). Prior to the initiation of each phase of construction activities, the Authority will enter into a memorandum of agreement with each regulatory agency to specify the mechanisms for financial assurances to cover all mitigation costs, including land acquisition, mitigation construction, monitoring and maintenance, adaptive management, and contingency and administrative fees.

CEQA Guidelines Section 15370 defines “mitigation” as: (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of an action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (5) compensating for the impact by replacing or providing substitute resources or environments. Where feasible, the Authority would avoid implementing an action in locations where a special-status species or habitat is most likely to occur or when a special-status species is most active.

The RDEIR/SDEIS employs all five of the CEQA Guidelines mitigation approaches to reduce impacts on biological resources from the Project. The general approach to mitigation for the Project is that the RDEIR/SDEIS first identifies whether the potential environmental effects of each Project alternative—whether permanent or temporary—are significant and adverse. For significant adverse impacts, the RDEIR/SDEIS then considers whether mitigation measures would lessen the effects and, if so, analyzes whether the mitigation measures would reduce the impact to less than significant levels.

In Chapters 9 and 10, in the sections titled *Impact Analysis and Mitigation Measures*, mitigation measures are articulated, where feasible, for each significant impact on vegetation and wetland resources and wildlife. The implementation of these mitigation measures would reduce impacts to a level of “less than significant with mitigation” under CEQA. The tables titled *Summary of Construction Impacts and Mitigation Measures for Vegetation and Wetland Resources* and *Summary of Operations Impacts and Mitigation Measures for Vegetation and Wetland Resources* in Chapter 9 summarizes the mitigation measures for each Project alternative that would result in significant impacts for vegetation and wetland resources. Similarly, the tables titled *Summary of Construction Impacts and Mitigation Measures for Wildlife Resources* and *Summary of Operation Impacts and Mitigation Measures for Wildlife Resources* in Chapter 10 summarizes the mitigation measures for each Project alternative that would result in significant impacts for wildlife resources.

For example, in Chapter 9, Mitigation Measures VEG-1.1 and VEG-1.2 require surveys to document special-status plant locations in all work areas, avoidance and minimization of impacts on special-status plants in or near temporary work areas, and compensation for any unavoidable impacts, including performance standards for monitoring and management of any non-mitigation-bank compensatory special-status plant habitat.

Similarly, in Chapter 10, Mitigation Measure WILD-1.20 includes actions to avoid and minimize impacts through timing of work, excluding work within habitat, limiting work areas, and conducting preconstruction surveys. Impacts on giant gartersnake (*Thamnophis gigas*) are rectified and compensated for through implementation of Mitigation Measure WILD-1.21. This measure requires compensation for temporary and permanent impacts on giant gartersnake habitat and describes the general performance standards for management of non-mitigation-bank giant gartersnake habitat.

Adequacy of Mitigation under NEPA

Unlike CEQA, NEPA does not require the adoption of mitigation measures where feasible. Instead, NEPA requires that an EIS identify relevant, reasonable mitigation measures not already included in the project alternatives that could avoid, minimize, rectify, reduce, eliminate, or compensate for the project’s adverse environmental effects (40 Code of Federal Regulations 1502.14(f), 1502.16(h)). While NEPA requires agencies to take a “hard look” at environmental consequences, it does not impose a duty to mitigate environmental impacts. The analyses of the Project alternatives, which include mitigation measures as summarized in tables titled *Summary of Construction Impacts and Mitigation Measures for Vegetation and Wetland Resources* and *Summary of Operations Impacts and Mitigation Measures for Vegetation and Wetland Resources* in Chapter 9 and tables titled *Summary of Construction Impacts and Mitigation*

Measures for Wildlife Resources and Summary of Operation Impacts and Mitigation Measures for Wildlife Resources in Chapter 10, are consistent with these requirements.

Adequacy of Mitigation in the EIR/EIS

Commenters stated that there was a lack of evidence that proposed mitigation will effectively reduce impacts. The mitigation measures in Chapters 9 and 10 require avoidance, minimization, and compensation for potential impacts. The avoidance and minimization measures will substantially reduce impacts because they require actions that lessen disturbance of habitat, including wetlands and non-wetland waters, and special-status species. Compensatory mitigation is provided to mitigate for the unavoidable loss of habitat either through the purchase of mitigation credits or creation or enhancement and preservation of habitat, including wetlands and non-wetland waters. Additionally, compensatory mitigation measures in the RDEIR/SDEIS describe performance standards that the Authority is required to meet as a condition of the measures. The purchase of mitigation credits or the establishment of onsite or offsite mitigation areas (or a combination of these options) would be completed as agreed upon by the Authority and appropriate regulatory agencies (if any). Where compensatory mitigation is required, the previous statement was added to the mitigation measures in Chapters 9 and 10 of the Final EIR/EIS to add assurance that compensatory mitigation would be completed per agreements with the regulatory agencies.

Commenters stated that more discrete mitigation measures incorporating the best available science should be included in the RDEIR/SDEIS. Mitigation measures in Chapters 9 and 10 are described for individual species or groups of species with similar habitat and by type of resource (e.g., sensitive communities, wetlands, non-wetland waters, wildlife corridors), which is logically discrete and common practice in CEQA analyses. Mitigation measures include avoidance and minimization efforts that are described in current CDFW and USFWS guidelines (which are cited in the mitigation measures) and long-standing federal programmatic authorizations, such as the *Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California* (U.S. Fish and Wildlife Service 1997). Resource agencies consider the recommended avoidance, minimization, and compensatory mitigation methods in these guidelines and programmatic authorizations as the best available approach to mitigation for special-status plants and wildlife.

Commenters stated that the mitigation ratios for species, particularly for vernal pool branchiopods and valley elderberry longhorn beetle, and for wetlands and non-wetland waters are too low. All mitigation ratios provided in the RDEIR/SDEIS are minimum ratios that will be implemented at an equivalent or greater requirement, as stated in each measure that proposes compensation (see e.g., Mitigation Measures VEG-3.2 and VEG-3.3 in Chapter 9, and Mitigation Measures WILD-1.3 [vernal pool branchiopods] and WILD-1.8 [valley elderberry longhorn beetle] in Chapter 10). These measures state that mitigation may be accomplished by creation or preservation of habitat (or a combination of purchasing mitigation credits, habitat preservation, and habitat creation) and that the Authority will determine final ratios in coordination with state and federal agencies.

The Authority and Reclamation have been coordinating with regulatory agencies regarding permitting conditions, terms, requirements, and mitigation and will continue to coordinate with regulatory agencies to obtain the permits required to construct and operate the Project. Mitigation ratios required in the permits may be greater than the minimum mitigation ratios stated in each mitigation measure, depending on the final Project design and permitting requirements. The Authority and Reclamation will comply with the most stringent mitigation ratios.

Comments Related to Deferred Mitigation

Some commenters stated that the mitigation measures improperly defer mitigation to a later time. Some of these comments focus on the fact that certain mitigation measures constitute deferred mitigation because they require biological surveys to be conducted prior to the start of construction. The mitigation measures, which require the surveys, will be in place upon certification of the Final EIR/EIS and prior to an activity's adverse effect on the environment. These surveys will confirm the scope of the impacts, which will be used to calculate the amount of required mitigation using established ratios and performance standards in the mitigation measures. This does not constitute deferred mitigation.

For example, Mitigation Measure VEG-1.1 states that the Authority will conduct surveys in accordance with applicable CDFW protocols, or the most current protocols with respect to the number and timing of surveys, and that the results of the surveys will be submitted in a report to CDFW and/or USFWS for review no less than 1 year prior to the start of ground-disturbing activities. The Authority will implement this measure to conduct preconstruction botanical surveys that will confirm the extent of the Project's impacts on vegetation communities and special-status plants and will confirm the quantity of compensatory mitigation using the ratios, as described in the mitigation measure. The Authority understands that surveys over multiple growing seasons could be necessary before confirming survey results for annual special-status plant species.

Similarly, Chapter 10 includes mitigation measures that require protocol or focused surveys for vernal pool branchiopods, California red-legged frog, burrowing owl, bald eagle, golden eagle, and Swainson's hawk once property access is granted and prior to the start of construction. Some of these surveys must be conducted a minimum of 1 year in advance of construction because of the timing of surveys and/or the number of surveys recommended by a protocol (e.g., vernal pool branchiopods, California red-legged frog, burrowing owl). Surveys would likely begin for some species as soon as property access is obtained in order to provide information for permitting and mitigation planning.

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Personal Communications

Roberts, Matthew. Senior Project Manager. U.S. Army Corps of Engineers, Regulatory Division, Sacramento District, CA. October 1, 2020—Email to Lisa Webber, Botanist/Wetland Ecologist, ICF, Sacramento, CA; John Spranza, Integration Environmental Permitting Lead, HDR, Inc., Sacramento, CA; Monique Briard, Project Manager, ICF, Sacramento, CA; and Michael Vondergeest, Regulatory Specialist, ICF, Sacramento, CA.

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