Appendix H Section 7 Consultation

United States Department of the Interior
FISH AND WILDLIFE SERVICE
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In Reply Refer to:
81420-2011-F-0066-1

DEC 11 2019

Dena Gonzalez
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Subject: Formal Consultation on the North County Corridor--New SR 108 Project, Stanislaus County, California (California Department of Transportation 10-STA-108-PM 27.5/44.5 [SR 108]; PM 3.7/4.8 [SR 219]; PM 6.9/11.6 [SR 120]; EA 10-0S800)

Dear Ms. Gonzalez:

This letter is in response to the California Department of Transportation's (Caltrans) request to initiate formal consultation with the U.S. Fish and Wildlife Service (Service) on its action to provide oversight of the proposed North County Corridor--New SR 108 Project in Stanislaus County, California (project). Caltrans is providing federal oversight of the project to Stanislaus County (County). Caltrans' initial request was received by the Service on February 14, 2019. At issue are the proposed project's effects on the central California distinct population segment of the federally-threatened California tiger salamander (*Ambystoma californiense*; Central California tiger salamander), the federally-threatened vernal pool fairy shrimp (*Branchinecta lynchi*), Colusa grass (*Neostapfia colusana*), and valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and the federally-endangered vernal pool tadpole shrimp (*Lepidurus packardi*), Greene's tuctoria (*Tuctoria greenei*), and Hartweg's golden sunburst (*Pseudobahia bahiifolia*). This response is provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), and in accordance with the implementing regulations pertaining to interagency cooperation (50 CFR 402).

Caltrans has assumed the Federal Highway Administration's (FHWA) responsibilities for section 7 consultation per the Act, in accordance with 23 U.S.C. 327, and as described in the *Memorandum of Understanding* (MOU) *between the FHWA and Caltrans concerning the State of California's participation in the Surface Transportation Project Delivery Program pursuant to 23 U.S.C. 327* (renewed on December 23, 2016 for a term of five years, and finalized effectively on March 30, 2017). The MOU allows Caltrans to assume the FHWA's environmental responsibilities for highway projects in California under the National Environmental Policy Act and other federal laws.

The federal action on which we are consulting is Caltrans' proposal to oversee the construction of a new segment of SR 108 that will connect SR 219 near the city of Modesto to SR 120 near the town of Oakdale. Pursuant to 50 CFR 402.12(j), Caltrans submitted a biological assessment for our review of the findings presented therein. Following our request for additional information, Caltrans subsequently submitted a revised biological assessment in July 2019 for our review. These findings concluded that the proposed project may affect, but is not likely to adversely affect the valley elderberry longhorn beetle; and may affect, and is likely to adversely affect the Central California

tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst.

In considering your request, we based our evaluation on the following: (1) Caltrans' original February 13, 2019, letter and the supporting *North County Corridor New State Route 108 Biological Assessment*, prepared by the County's biological consultant, LSA Associates (LSA) and revised in July 2019 (revised Biological Assessment); (2) email and telephone correspondence between the Service and Caltrans; and (3) other information available to the Service.

'Not Likely to Adversely Affect' Discussion for the Valley Elderberry Longhorn Beetle

Three elderberry shrubs (*Sambucus* sp.) were observed incidentally within the action area during the course of other species surveys for the project. However, LSA did not carry out focused surveys either for elderberry shrubs or for valley elderberry longhorn beetles; accordingly, there is no data available as to whether any of the shrubs' stems contain exit holes, the presence of which increases the likelihood that a shrub is occupied by the beetle. All three elderberry shrubs were observed around rural residences/livestock corrals rather than amongst the mature riparian vegetation associated with a river system that is typical of the type of habitat in which the valley elderberry longhorn beetle is more likely to be found. There are two shrubs situated to the north of the Fogarty Road/Emery Road intersection at the eastern end of the action area, which were mapped in March 2014: the southernmost shrub is located approximately 105 feet (ft.) from the project footprint, while the northernmost one is located approximately 250 ft. from the project footprint. The third shrub, positioned south of the intersection of Bentley Road and Lexington Avenue in the central part of the action area is located approximately 190 ft. from the project footprint. Two additional elderberry shrubs, which initially were located east of the Roselle Avenue/Claribel Road intersection, were removed by a private landowner sometime between the 2014/2015 and 2015/2016 survey efforts for the project at large. It is possible though that additional elderberry shrubs could be detected during preconstruction survey efforts on lands where the consultant did not have permission to enter at the time of the original project surveys, and on lands that they were unable to view from roadways or adjacent accessible lands.

According to the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB; 2019), there are 10 records of the species within 10 miles (mi) of the project (in relation to the proposed alignment's westernmost extent, its middle, and its easternmost extent); the most recent three records all date from 2009. However, none of these records are located within the action area.

Caltrans has determined that the proposed project is not likely to adversely affect the valley elderberry longhorn beetle. The Service concurs with this conclusion for the following reasons: 1) even though suitable habitat for the species exists within the action area in the form of elderberry shrubs, all of these are isolated, non-riparian occurrences, and therefore are less likely to be occupied by, or become colonized by, the valley elderberry longhorn beetle; 2) only one of the three shrubs is located within 165 ft. of the project footprint, so adverse effects to the beetle stemming from project implementation are less likely to occur (Service, 2017); 3) none of these shrubs are located within 2,526 ft. of a riparian area, which means that they are increasingly less likely to be occupied by the beetle (Service, 2017); and 4) Caltrans proposes to implement a series of conservation measures for the valley elderberry longhorn beetle that will reduce the potential for adverse effects to the species. These measures are incorporated in the Conservation Measures section of the biological opinion.

For the reasons described above, the potential for the action to adversely affect the valley elderberry longhorn beetle is discountable. Therefore, the Service concurs with Caltrans' determination that the

proposed action may affect, but is not likely to adversely affect this species. The remainder of this document provides our biological opinion on the effects of the proposed project on the Central California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst.

Consultation History

October 27, 2010: The Service received a letter from Caltrans inviting the Service to become a participating agency/cooperating agency on the project; such a role likely would involve providing early input on defining the project's purpose/need/range of alternatives and participating in coordination meetings and joint field reviews.

January 19, 2011: The Service attended an inter-agency early coordination meeting at the Modesto Department of Public Works offices to participate in discussions on anticipated agency roles and responsibilities, the project's purpose and need, project alternatives, project scheduling, and future meetings.

May 17, 2011: The Service attended another inter-agency early coordination meeting at the Modesto Public Work offices. Topics discussed included project updates and background, progress of surveys and technical studies, and the screening and mapping of build alternatives.

October 19, 2011: The Service attended a third inter-agency early coordination meeting in Modesto. Topics discussed included project updates pertaining to project access, threatened and endangered species and the status of environmental studies and surveys, the screening process for the build alternatives, and mapping the study limits.

November 1, 2011 - January 5, 2018: Through numerous email and telephone communications, the Service engaged with Caltrans, CDFW, the County's biological consultants (ICF International (ICF) and later LSA), and the County's prime consultant (Jacobs Engineering and later Dokken Engineering and Drake Haglan & Associates) on various early coordination matters, project developments, and survey efforts.

April 5, 2012: The Service, Caltrans, CDFW, and ICF attended a field review of the project site; they drove most of the length of the proposed corridor that was accessible at that time by vehicle. Attendees viewed landscapes and habitats in conjunction with draft land cover mapping. One of the main purposes of the site visit was for the resource agencies to gain enough familiarity with the project to provide preliminary feedback on ICF's survey strategies.

May 4-23, 2012: Caltrans and the Service exchanged emails regarding whether the project site was likely to contain suitable habitat for the federally-endangered San Joaquin kit fox (*Vulpes macrotis mutica*) and the federally-threatened giant garter snake (*Thamnophis gigas*), and how likely it was that these species were present there. They also discussed habitat assessment/survey recommendations for these species. The Service acknowledged that it was unlikely that either species occurred in the proposed project area.

August 10, 2012: The Service met with Caltrans, CDFW, and ICF to discuss updates on species surveys and future survey plans. ICF informed them that one of the proposed build alternatives had been dropped.

August 15, 2012: The Service telephoned in to an inter-agency early coordination meeting held at the Jacobs Engineering office in Sacramento. Topics that were discussed included updates on why one of the build alternatives had been removed from consideration; public input on other alternatives; survey issues pertaining to the Central California tiger salamander; and other matters related to threatened and endangered species.

January 23, 2014: The Service met with Caltrans, CDFW, LSA, the County, Drake Haglan & Associates, and Dokken Engineering to discuss the current status of species surveys and proposals for how to proceed with future surveys (for the Central California tiger salamander and vernal pool crustaceans in particular) given the ongoing drought conditions.

October 28, 2014: The Service attended a coordination meeting in Modesto with Caltrans, CDFW, Drake Haglan & Associates, Dokken Engineering, the County, and various other agencies to discuss the latest findings of the environmental technical studies.

October 26 & 31 and November 15, 2018: Caltrans emailed the Service to inform the Service that Caltrans was providing oversight of the project to the County and was in the process of helping the County's biological consultant to prepare the Biological Assessment. Caltrans requested the Service's input on the County's proposed species determination for the Central California tiger salamander. The Service responded.

February 14, 2019: The Service received from Caltrans hard copies of the Biological Assessment (prepared by LSA) in addition to Caltrans' February 13, 2019, letter requesting initiation of formal consultation.

May 9, 2019: The Service emailed Caltrans to request additional information concerning the Biological Assessment and to pose numerous questions/comments on the document.

June 5, 2019: Caltrans telephoned the Service to report that the County currently was preparing how to address the Service's May 9, 2019 questions and comments, and had decided to assume that the Central California tiger salamander as well as the listed plants were present on the project site; accordingly, the County proposed to change its determinations for these species from 'not likely to adversely affect' to 'likely to adversely affect.' Caltrans and the Service briefly discussed future survey efforts, Central California tiger salamander observation records, and conservation measures pertaining to the plants.

June 11, 2019: Caltrans telephoned the Service to ask for input on, and to review together, the County's draft responses to the Service's May 9 request for additional information. They focused particularly on the revised species determinations for the Central California tiger salamander and listed plants (Colusa grass,

Greene's tuctoria, and Hartweg's golden sunburst), and on future protocol-level survey efforts.

July 25-26, 2019: Caltrans responded to the Service's request for additional information by providing a comment response matrix that specifically identified how the County's consultant and Caltrans had addressed each of the Service's comments and questions. The Service also received a hard copy of the revised Biological Assessment (prepared by LSA).

August 5, 2019: The Service received a second hard copy of the revised Biological Assessment in which modified sections were highlighted to facilitate the Service's review of the changes to the document.

October 10&15, 2019: The Service emailed Caltrans to follow-up with further questions and comments about the revised Biological Assessment. Caltrans responded to the Service's request and provided additional supporting materials prepared by LSA and Dokken Engineering.

October 24&31, 2019: The Service emailed Caltrans to ask several final questions about the revised Biological Assessment as well as about other aspects of the project.

October 25, 2019: During a telephone call, the Service and Caltrans discussed topics related to a potential alternative survey method, undercrossing structures, and indirect effects to one of the species.

November 1&4, 2019: Caltrans emailed the Service to provide responses to the Service's questions from October 24 and 31 (prepared by LSA and Dokken Engineering).

November 6-8,14, 2019: The Service emailed Caltrans to request clarification on a matter pertaining to habitat impact mapping for the Hartweg's golden sunburst, and to provide Caltrans and the County with the draft proposed conservation measures for their review and comment. Caltrans provided several comments on the measures and delivered revised habitat impact maps for the Hartweg's golden sunburst, as prepared by LSA and Dokken Engineering. The County's consultant confirmed that it did not have any additional comments on the proposed conservation measures.

December 5-6, 2019: The Service and Caltrans exchanged emails on matters related to how best to minimize impacts to particular life stages for species by conducting certain work during the dry season, the proposed conservation measures for listed plants, and the proposed compensatory mitigation for multiple species.

December 9-10, 2019: The Service telephoned Caltrans and later exchanged emails with Caltrans to discuss adding a conservation measure pertaining to conducting specific work in aquatic habitat during the dry season.

BIOLOGICAL OPINION

Description of the Proposed Action

The County, in coordination with Caltrans, proposes to build the North County Corridor (NCC), i.e., a new SR 108 freeway/expressway alignment measuring approximately 17 mi long, and

connecting SR 219 near the city of Modesto to SR 120 near the town of Oakdale in Stanislaus County, California (see Figure 1). The project is located within portions of the Modesto, Riverbank, and Oakdale communities. The purpose of the project is to reduce existing and future traffic congestion in the northern part of the county, enhance traffic safety on the existing SR 108, support the efficient movement of goods, and improve interregional travel.

The project is composed of three segments: Segment 1 begins at the SR 219 (Kiernan Avenue)/Tully Road intersection (north of Modesto) and continues to the vicinity of the Claus Road/Claribel Road intersection. Segment 2 begins near the Claus Road/Claribel Road intersection, veers northeast, and passes through the southern boundary of Oakdale. Segment 3 picks up here and ends along SR 108/120 in the vicinity of Lancaster Road, east of Oakdale.

Broadly, the project will involve:

- constructing new freeway/expressway controlled-access travel lanes;
- implementing local county and city roadway improvements at various locations;
- constructing at-grade intersections;
- constructing grade separation structures at major roadway and railway crossings; and
- building structures at various waterway crossings, such as at the Modesto Irrigation District (MID) and Oakdale Irrigation District (OID) canals.

Freeway/Expressway Alignment and Ditches/Basins

The County, in coordination with Caltrans, will build two to three 12 ft.-wide through-lanes with a 5-10 ft.-wide inside and outside shoulder in each direction of travel. The eastbound and westbound lanes will be separated by an approximately 46-70 ft.-wide median (composed of a 26 to 60 ft.-wide graded, unpaved area and the 5-10 ft.-wide inside shoulders). A minimum width of 244 ft. of right-of-way (ROW) will be required. The County, in coordination with Caltrans, also will construct various elevated roadways, separated grade crossings, single point urban interchanges, signalized intersections, and roundabouts. In addition, they will build a Class 3 bicycle lane on the outside shoulder of the new NCC alignment in each direction of travel, from Claus Road to the eastern terminus at SR 108/120. Drainage ditches and/or retention basins will be installed along each side of the new corridor, between the edge of the pavement and the proposed ROW boundary.

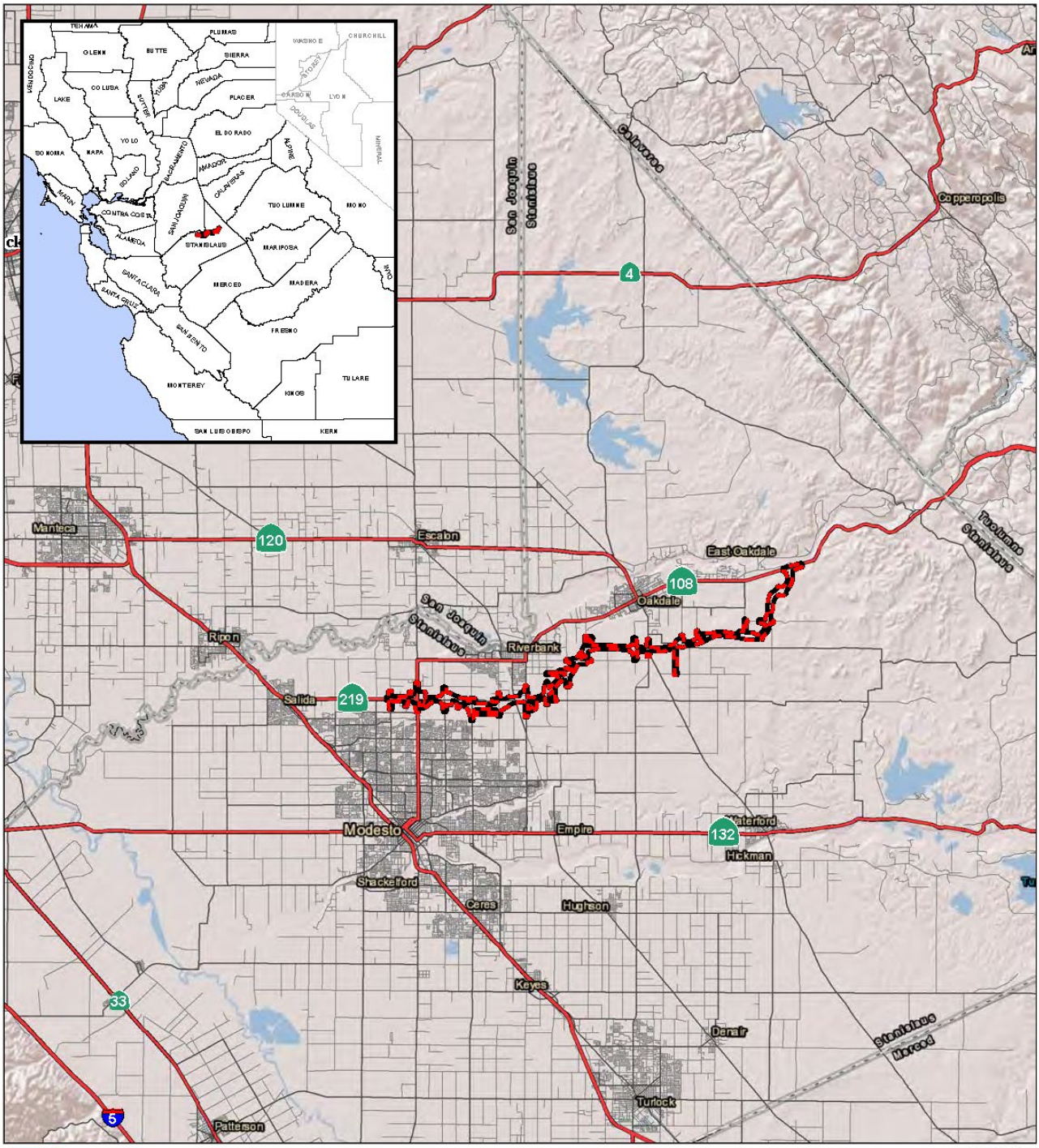
Local Access Roads

Because the new NCC alignment will function as a freeway/expressway with controlled-access, new and realigned local access roads will be required to facilitate continued access to/from existing properties. There will be entry and exit opportunities at most crossroad intersections situated a minimum of 1 mi apart. All of this will necessitate the construction of a discontinuous local roadway system that will provide one 12 ft.-wide through-lane and one 4-8-ft.-wide shoulder in each direction. Where needed, left- and right-turn lanes will be built at intersections to connect to crossroads. Class 2 bicycle facilities also may be constructed.

Interchanges/Intersections and Lighting

Signals will be added to the proposed intersections along the new NCC alignment, with the exception of where roundabouts will be constructed. A modified signalized at-grade intersection will be built at SR 219 (Kiernan Avenue)/Tully Road. Single-point urban interchanges and separate-grade undercrossing structures will be constructed at SR 108 (McHenry Avenue)/SR 219 (Kiernan Avenue)/new SR 108, Coffee Road/new SR 108, Oakdale Road/new SR 108, and Roselle

Figure 1: Regional scale map of the action area (prepared by Dokken Engineering)



Avenue/new SR 108. These will be the only four interchanges built as part of the project. The signalized at-grade intersection at Claus Road/new SR 108 will provide access from the new SR 108 facility east of Claus Road as well as local road access to Riverbank and to future areas in the northeastern part of Modesto.

New permanent lighting (requiring LED bulbs) will be installed at multiple intersections along the new NCC alignment, including at Oakdale Road, Roselle Avenue, Crane Road, Albers Road, South Sterns Road, and at the existing SR 108.

Railroads

At the westernmost extent of the project, the new NCC alignment crosses the Burlington Northern Santa Fe (BNSF) railroad between Roselle Avenue and Claus Avenue using a grade separation. The proposed Claribel Road and SR 108 alignment will be elevated over the BNSF railroad and Terminal Avenue via separate overhead structures; no changes will be made to the existing BNSF railroad and Terminal Avenue alignments.

The existing Union Pacific Railroad, which crosses SR 219 (Kiernan Avenue) between Tully Road and McHenry Avenue is an abandoned line. Tracks associated with this railroad line were removed within the roadway as part of the separate SR 219/Kiernan Avenue Widening Project that began construction in March 2013.

Canal Crossings

Multiple canals exist within the project's boundaries. These canals supply irrigation water throughout the county; most of the major ones are owned and maintained by the MID and OID but many private canals also exist. Crossings will be built over seven canals, as required by the MID and OID; five of these will be at-grade and two will be elevated. Crossings over private canals and ditches also will be constructed.

Hetch-Hetchy Crossing

The new NCC alignment will cross the Hetch-Hetchy/San Francisco Public Utilities Commission water pipeline and electrical transmission line approximately 1,200 ft. west of the proposed SR 108/Oakdale Road intersection, while the proposed Oakdale Road alignment will cross Hetch-Hetchy about 500 ft. north of this same intersection. All crossings will be at-grade over the water pipeline and under the electrical transmission line. The new NCC alignment will traverse Hetch-Hetchy four times via one major crossing and three minor crossings at the westernmost extent of the project, and also will cross three valve boxes.

Staging Areas, Access, and Detours

Designated staging areas for equipment storage, vehicle parking, and other project-related activities will be established on-site; numerous potential locations have been identified across the project's extent. However, specific locations for establishing staging areas and access will depend on the County's decisions, in coordination with those of Caltrans, during the final phases of project design, and after the construction contractor is hired. For the purpose of this project, all staging and access areas will occur within the project footprint, as described under the Action Area heading in this document, and outside of environmentally sensitive areas (ESAs), e.g., interior live oak woodland, blue oak savannah, and riparian scrub. Any location the contractor uses that is outside the project footprint will need to be evaluated and may require Caltrans to revise its consultation.

Detours will be developed for each stage of the project in order to facilitate closures and unanticipated events.

ROW and Temporary Construction Easements

Work activities will necessitate the acquisition of additional permanent ROW as well as temporary construction easements (TCEs). Caltrans tentatively anticipates that this new ROW will be procured by the end of 2020/early 2021, after which Caltrans and the County will have access to the entirety of the project footprint.

Borrow/Fill

The project will require the import of fill; the amount of fill is expected to be commercially available to the contractor and so no borrow sites have been identified as part of the project area.

Utilities

Various utilities will require relocation, including sewer, water, gas, overhead and underground electrical, cable, telephone and communications, storm drains, irrigation lines, street lighting, and signal equipment. All relocation efforts will be coordinated with the appropriate utility companies in advance and will be relocated prior to the start of construction. At this time, the locations to which the affected utilities will be relocated are unknown, but they will be contained within the action area.

Scheduling and Sequencing

Construction is anticipated to start in December 2022 and to continue through December 2025, and will take up to 700 working sessions (i.e., daytime and/or nighttime work). Nighttime work is expected to occur, but specific details pertaining to the amount and frequency are not available at this time.

A stage construction/traffic handling plan will be included in the final project design to clarify how individual project components will be constructed while maintaining the existing transportation network. The project will consist of two main construction stages.

- During Stage 1, traffic will remain on the existing roadways, but there will be temporary closures in order to set up temporary railing and traffic control, as well as pavement transitions. Construction will begin with building the travel lanes and drainage features that lie predominantly beyond the existing roadways and ROW; this may take place on one or both sides of the existing roadways. In rural areas where there are no existing roadways present within the project footprint, various parts of the project are likely to be built without traffic control. Construction will continue with widening the cross-streets in areas located beyond the existing roadways; meanwhile, traffic will remain on the existing lanes. At undercrossings and overcrossings, falsework will be used to build full structures. Due to the grade differences at overcrossings, structure and approach work will begin by constructing temporary detour roads parallel to existing cross-streets (on one or both sides of the existing cross-streets). While these detours are in progress, traffic will remain on the existing cross-streets, with closures for pavement transitions. Traffic then will be shifted onto the completed temporary detour roads and construction of the overcrossings will commence. If a proposed structure is located parallel to an existing cross-street, it may be built in stages (depending on available ROW). Temporary shoring systems may be used to support the embankment between the detours and overcrossing construction. Local access will be maintained.

- During Stage 2, traffic will be shifted onto the newly built travel lanes situated beyond the existing roadways, though some traffic may remain on segments of the existing roadways. Pavement transitions and temporary signals will be used to connect to existing facilities. All, or portions of, the existing roadways then will be removed so that construction of the travel lanes and the median can continue. The cross-streets will be widened while existing segments of the cross-streets will be overlaid with new material. Construction within rural areas and work involving undercrossings, overcrossings, and overheads will continue.

Additional stages may be required to accommodate traffic shifts due to grade differences at overcrossings, undercrossings, overheads, pavement conforms, and at other features.

Conservation Measures

The County, in coordination with Caltrans, as well as the County's contractors will implement the following conservation measures for the Central California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, Hartweg's golden sunburst, and valley elderberry longhorn beetle to reduce potential adverse effects to these species.

General/Multi-Species

1. At least four weeks prior to the start of ground disturbance and/or construction, Caltrans will submit to the Service the names and qualifications of suitable individuals (e.g., resumes) for the Service's approval to work as biologists and monitors on the project.

2. Prior to the start of work, a Service-approved biologist(s) will provide worker environmental awareness training for all construction personnel, including contractors, subcontractors, and contractors' representatives, covering the status of all listed species; how to identify these species and their habitats; the importance of avoiding impacts to the species; the laws that protect them; and what to do if an individual is encountered during construction. New construction personnel who are added to the project after the training is first conducted also will be required to take the training. Documentation of the training, including sign-in sheets, will be kept on-file.

3. Construction best management practices (BMPs) that are consistent with the most recent Caltrans manuals (including the Construction Site BMP Manual and the Stormwater Pollution Prevention Plan and Water Pollution Control Program Manuals) will be developed for the project and will be implemented throughout the course of construction in order to avoid adverse effects to water quality. BMPs associated with an erosion control plan will be prepared for avoiding discharge of pollutants from vehicle/equipment cleaning into aquatic habitats. Caltrans personnel and the contractor will perform routine inspections of the construction area to verify that BMPs are being properly implemented and maintained, and are operating effectively as designed. A water quality inspector will inspect the site before and after a rain event to ensure that stormwater BMPs are adequate.

    a. An Emergency Spill Prevention Plan (ESPP) will be prepared to minimize the risk of fluids or other materials (oils, transmission and hydraulic fluids, cement, fuel) from entering water features and sensitive upland habitats. The ESPP will be kept on-site and will be easily accessible throughout the course of construction.

b. Vehicle and equipment fueling and maintenance operations will occur at least 50 ft. away from watercourses, except at established commercial gas stations or vehicle maintenance facilities. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils, or solvents.

c. Water trucks and dust palliatives will be used to control dust in excavation and fill areas, and for covering temporary stockpiles of dirt or other loose construction materials when weather conditions require.

4. To reduce the mortality to Central California tiger salamander eggs, larvae, and breeding adults, as well as to adult vernal pool fairy shrimp and vernal pool tadpole shrimp, all aquatic habitats that are scheduled to be permanently filled, first will be delineated and mapped, and then filled during the dry season only (i.e., when these specific life stages are absent from aquatic habitats).

5. To avoid introducing non-native, invasive species into the action area, all earthmoving equipment will be cleaned thoroughly before arriving on the project site and all seeding equipment (i.e., hydroseed trucks) will be cleaned prior to beginning seeding work. Also, to avoid transferring any invasive species already present on-site to off-site areas, all equipment will be cleaned thoroughly before leaving the action area.

6. All project-related vehicles will observe a daytime speed limit of no more than 20 mi per hour (mph) and a nighttime speed limit of no more than 10 mph in all project areas, except on the highway.

7. The use of temporary artificial lighting on-site will be limited, except when necessary for construction, or for driver and pedestrian safety. Any artificial lighting used during construction, particularly at night, will be confined to areas within the construction footprint and directed away from surrounding sensitive habitat. Caltrans will limit non-target casting of light by installing shielding behind and underneath the light source to confine the illumination further so as to minimize its effects on the species.

8. All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed daily from the project site in order to reduce the potential for attracting predator species.

9. To eliminate the potential for disturbance or injury to, or death of, any species resulting from the presence of pets and firearms, neither (with the exception of firearms carried by authorized law enforcement officials) will be allowed on the project site.

10. In order to control erosion and restore habitat value, all areas within the action area that are disturbed during construction (e.g., graded, denuded) will be re-contoured if necessary and stabilized as soon as possible; following the completion of construction, areas will be revegetated via hydro-seeding with an appropriate, weed-free native plant seed mixture. The County, in coordination with Caltrans, proposes to use the following native seeds (though this list may be updated at a later time): California mugwort (*Artemisia douglasiana*), Coyote brush (*Baccharis pilularis*), California poppy (*Eschscholzia californica*), and bicolored lupine (*Lupinus bicolor*). Regreen (*Elymus x Triticum*), which is a sterile hybrid between non-native wheatgrass and common wheat (and therefore won't reseed), will be used in the mix as a temporary bank stabilizer.

Central California tiger salamander

1. Once the new ROW is acquired and the entire project extent can be accessed, a Service-approved biologist(s) will conduct protocol-level surveys covering all suitable aquatic habitat within the action area for the Central California tiger salamander in the closest appropriate season prior to the start of construction. Results will inform/confirm habitat suitability and areas of impacts and proposed compensation in advance of the start of project construction (see measure #10 below).

2. A Service-approved biologist(s) will conduct visual encounter preconstruction surveys of upland habitat for the Central California tiger salamander no more than 14 days prior to the start of groundbreaking or other general construction activities in any given part of the footprint. The surveys will pay particular attention to detecting burrows and other crevices and cover sites that could be used as refugia by the species. If any burrows are discovered, they will be flagged or otherwise marked, and avoided by at least 50 ft. If the burrows cannot be avoided, they will be inspected and excavated by the Service-approved biologist(s) in accordance with the procedures and methodologies established in a burrow excavation and relocation plan (Relocation Plan) approved by the California Department of Fish and Wildlife (CDFW) and by the Service. If an individual is found, a Service-approved biologist(s) will relocate it to a suitable burrow outside of the project footprint, ideally as close as possible to its original capture location. Both the preconstruction surveys and any subsequent burrow excavations will occur prior to the installation of exclusion fencing around the boundary of the project footprint (see measure #3 below) so as to maximize the clearing of the footprint and to minimize the risk of individuals becoming trapped within the fenced area. Caltrans will provide the Service with a written report that documents the survey efforts. If construction stops for a period of two weeks or longer, a new preconstruction survey will be completed no more than 24 hours prior to restarting work.

3. Prior to the start of work, and immediately following preconstruction surveys and any burrow excavations, temporary silt fencing (or other types of fencing materials that will not entangle the species), will be installed around the limits of the project footprint to preclude construction equipment, vehicles, and personnel from encroaching on areas outside of these limits (i.e., ESAs such as aquatic features and undeveloped uplands), and to prevent the Central California tiger salamander in outside areas from entering the work zones. Installation of this exclusion fencing will focus on where work areas abut suitable upland and/or aquatic habitats. Fencing also will include one-way funnels placed at regular intervals (to be determined in coordination with the Service) to allow any individuals that become trapped inside the fenced area to leave, but not re-enter the project footprint. Fencing will measure at least 3 ft. tall and be buried at least 6 inches below the ground to prevent individuals from attempting to burrow or move under the structure. The exclusion fencing will be well maintained throughout the course of construction and will be removed following project completion.

    a. For any work occurring during the wet season (i.e., defined as approximately November 1 through May 31, which is when breeding adults are likely to be above-ground and actively migrating to and from aquatic habitat to breed, and when eggs and larvae are developing in aquatic habitat), the proposed exclusion fencing must be in place prior to the onset of rain (i.e., when aquatic habitat is still dry) in order to prevent individuals from moving into active construction zones where they could be disturbed, injured, or killed by construction activities, equipment, or crews, and to

prevent any breeding adults from becoming trapped in aquatic habitat within the construction zone.

b. In order to provide shelter for any individuals trapped along the exclusion fence, coverboards will be installed along the construction side of the fence line at regular intervals (to be determined by the Service-approved biologists).

4. No construction activities will be conducted in upland or aquatic habitat areas where the Central California tiger salamander may occur if: 1) it is raining, 2) there is a greater than 70 percent chance of rain based on the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service forecast on any given work day, or 3) a rain event greater than 0.25 inch has occurred within the past 48 hours.

    a. Following a rain event, the Service-approved biologist(s) will conduct visual encounter surveys for the species in all active work areas (including access roads and staging areas) prior to the resumption of construction activities and the use of access routes and staging areas.

5. A Service-approved biologist(s) also will be present on-site to monitor for the species during the installation, replacement, and removal of all exclusion fencing. Additionally, the biologist(s) will be present on-site at least once per week, over the entire course of construction, to inspect the fencing for damage, to report any required remedial actions, and to clear the fenced area. Furthermore, this individual(s) will be present on-site during initial ground-disturbing and vegetation removal activities (i.e., clearing, grubbing, grading, excavating, filling, etc.). Anytime the Service-approved biologist(s) is present on-site, s/he will check for any Central California tiger salamanders trapped within the fenced areas and sheltering under the coverboards prior to the start of each workday. When not present on-site, the Service-approved biologist(s) will be available on-call during all construction periods in the event that the species is detected.

    a. If a live Central California tiger salamander is encountered at any point during preconstruction or construction activities, work will stop in the vicinity of the individual and will not resume until the Service-approved biologist(s) either has monitored the individual and allowed it to move away unharmed, or has relocated it in accordance with the Relocation Plan. If a dead individual is found, the Service-approved biologist(s) will follow the instructions described in the **Salvage and Disposition of Individuals** section of this document. Caltrans will notify the Service of any such encounter (live or dead) as soon as possible and provide a summary of the date(s), location(s), description of the habitat in which it was found, and any other pertinent information.

6. Prior to being moved, vehicles and equipment will be checked for any Central California tiger salamanders or other sensitive wildlife sheltering underneath them. In the event that an animal is observed, the vehicles/equipment will not be moved until the individual has vacated the area of its own accord.

7. To avoid entangling the Central California tiger salamander, erosion control methods will not utilize plastic, monofilament, jute, or similarly tightly woven fiber netting or other such materials. Acceptable substitutes include coconut coir matting, tackified hydro-seeding compounds, or other similar materials.

8. To prevent the inadvertent entrapment of the Central California tiger salamander or other animals during construction, all excavated, steep-walled holes or trenches measuring more than 6 inches deep either will be covered at the close of each working day using plywood or similar materials (without openings), or will be provided with one or more escape ramps constructed of earth fill or wooden planks in the event that the holes/trenches cannot be fully covered. All holes or trenches will be checked daily for trapped wildlife. Before such holes or trenches are filled, they will be thoroughly inspected for trapped wildlife.

9. All construction pipes, culverts, or similar structures that are stored on the construction site for one or more overnight periods will be capped or sealed with tape (or similar materials), or stored at least 3 ft. above ground level. They will be inspected thoroughly for the Central California tiger salamander before being buried, capped, or otherwise used. If an individual is discovered during this inspection, the Service-approved biologist(s) will be notified immediately. The biologist(s) will decide whether to leave the individual to move away on its own, or to intervene and relocate it.

10. The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Central California tiger salamander resulting from construction impacts to aquatic and upland habitats. The County, in coordination with Caltrans, will compensate for the permanent loss of a total of 14.07 acres (ac) of aquatic habitat and 237.43 ac of upland habitat; for temporary disturbance to a total of 2.92 ac of aquatic habitat and 58.98 ac of upland habitat; and for indirect effects to a total of 52.45 ac of aquatic habitat and 516.44 ac of upland habitat (using a 3:1 [ac:ac] compensation ratio for permanent effects; a 1:1 compensation ratio for temporary effects; and a 0.5:1 compensation ratio for indirect effects) ((251.50 ac x 3) + (61.90 ac x 1) + (568.89 x 0.5) = 1,100.85 ac of compensation (see Table 1)). Prior to the start of work, the County, in coordination with Caltrans, will verify the areas of impacts and proposed compensation (see measure #1 above). If the amount of affected habitat increases, Caltrans may need to consider reinitiating formal consultation.

    a. The County, in coordination with Caltrans, proposes either to: 1) purchase a total of 1,100.85 ac worth of Central California tiger salamander credits at a Service-approved conservation bank whose service area covers the project area (credits will be purchased prior to the start of groundbreaking); or 2) fund a conservation easement(s) on a total of 1,100.85 ac of land that is suitable for the species (the easement will be recorded prior to the start of construction). Should a Service-approved conservation easement(s) be established, it will be held by a Service-approved third-party entity, and managed according to a Service-approved long-term management plan (LTMP). A Service-approved endowment will be established to fund the long-term management, maintenance, and monitoring activities on the site. The final LTMP, along with an endowment analysis, will be submitted to the Service for approval prior to recordation of the conservation easement. The Service will review and approve any proposed preservation lands.

Table 1: Proposed compensatory mitigation for effects to suitable aquatic and upland habitat for the Central California tiger salamander

Habitat Type	Type of Effect	Affected Acreage	Compensation Ratio	Compensation Amount (in acres)
Aquatic	Permanent	14.07	3:1	42.21
	Temporary	2.92	1:1	2.92
	Indirect	52.45	0.5	26.23
	Subtotal	**69.44**	**-**	**71.36**
Upland	Permanent	237.43	3:1	712.29
	Temporary	58.98	1:1	58.98
	Indirect	516.44	0.5	258.22
	Subtotal	**812.85**	**-**	**1,029.49**
TOTALS	-	**882.29**	-	**1,100.85**

Vernal pool fairy shrimp and vernal pool tadpole shrimp

1. Access, egress, and ground-disturbing activities will be sited so as to avoid vernal pools and other aquatic resources as much as possible.

2. Suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp that is situated adjacent to the project footprint will be designated as ESAs and protected with exclusion fencing to prevent encroachment into these areas.

3. A Service-approved biologist(s) will be present on-site during initial ground disturbing activities taking place within habitat for listed vernal pool crustaceans.

4. The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the vernal pool fairy shrimp and vernal pool tadpole shrimp resulting from construction impacts to aquatic habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 0.06 ac of aquatic habitat, for temporary disturbance to 0.01 ac of aquatic habitat, and for indirect effects to 2.15 ac of aquatic habitat (see Table 2). However, this combined 2.22 ac of affected habitat is made up of features that also are suitable for/available to the Central California tiger salamander, Colusa grass, and Greene's tuctoria. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander (refer to conservation measure #10 under the *Central California tiger salamander* heading above), 4.51 ac of this total also will apply to the two vernal pool branchiopods and the two vernal pool plants. In other words, the County, in coordination with Caltrans, either will 1) purchase 4.51 ac worth of aquatic credits that cover all five species at a Service-approved conservation bank whose service area covers the project area (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent and temporary effects and a 2:1 compensation ratio for indirect effects; (0.06 x 3) + (0.01 x 3) + (2.15 x 2) = 4.51 ac; see Table 2); or 2) fund a conservation easement that includes a minimum of 4.51 ac of aquatic habitat that also is suitable for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

Table 2: Proposed compensatory mitigation for effects to aquatic habitat for the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, and Greene's tuctoria

Type of Effect	Affected Acreage	Compensation Ratio	Compensation Amount (in acres)
Permanent	0.06	3:1	0.18
Temporary	0.01	3:1	0.03
Indirect	2.15	2:1	4.30
TOTALS	**2.22**	**-**	**4.51**

Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst

1. No more than one year prior to the start of construction, a Service-approved biologist(s) or botanist(s) will conduct a preconstruction botanical survey of the entire action area (once all lands are accessible to survey) during the appropriate blooming season(s) for each plant species, and in accordance with the most recent and accepted botanical survey protocols/guidance.

    a. If individuals are found during these survey efforts, or during construction and can be avoided, exclusion fencing, or some other type of barrier/marker signifying an ESA will be installed to protect them from encroachment by construction activities, equipment, and personnel. Caltrans will coordinate with the Service to determine if any further actions are necessary to avoid effects to the species. If individuals cannot be avoided, the County, in coordination with Caltrans, will implement on-site minimization efforts such as collecting, stockpiling, and re-applying topsoil.

2. The County, in coordination with Caltrans, proposes to provide 4.51 ac of compensatory mitigation for adverse effects to the Colusa grass and Greene's tuctoria resulting from construction impacts to 2.22 ac of suitable aquatic habitat (see Table 2 and refer to conservation measure #4 under the *Vernal pool fairy shrimp and vernal pool tadpole shrimp* heading above).

3. The County, in coordination with Caltrans, proposes to provide compensatory mitigation for adverse effects to the Hartweg's golden sunburst resulting from construction impacts to upland habitat. The County, in coordination with Caltrans, will compensate for the permanent loss of 3.28 ac of habitat and for temporary disturbance to 0.57 ac of habitat (see Table 3). However, this combined 3.85 ac of affected habitat is suitable for/available to both the Hartweg's golden sunburst and the Central California tiger salamander. Therefore, to avoid duplicating its compensation efforts, the County, in coordination with Caltrans, does not propose separate, additive compensatory mitigation for the Hartweg's golden sunburst. Of the 1,100.85 ac worth of compensatory mitigation proposed for the Central California tiger salamander, 10.41 ac of this total also will apply to the Hartweg's golden sunburst. In other words, the County, in coordination with Caltrans, either will 1) purchase 10.41 ac worth of upland credits that cover both species at a Service-approved conservation bank (as part of the total 1,100.85 ac worth of credits for the Central California tiger salamander, using a 3:1 compensation ratio for permanent effects and a 1:1 compensation ratio for temporary effects; (3.28 x 3) + (0.57 x 1) = 10.41 ac; see Table 3); or 2) fund a conservation easement that includes a minimum of 10.41 ac of upland habitat that also is suitable for the Hartweg's golden sunburst. Credits will be purchased and/or an easement will be recorded prior to the start of construction.

Table 3: Proposed compensatory mitigation for effects to habitat for the Hartweg's golden sunburst

Type of Effect	Affected Acreage	Compensation Ratio	Compensation Amount (in acres)
Permanent	3.28	3:1	9.84
Temporary	0.57	1:1	0.57
TOTALS	**3.85**	**-**	**10.41**

Valley elderberry longhorn beetle

1. Prior to ground disturbance and/or the start of construction, a Service-approved biologist(s) will conduct a survey for elderberry shrubs covering the entire project footprint as well as the area 165 ft. out from the edge of the footprint. Data collected during the survey will include whether exit holes are present on the stems, the types of habitat in which the shrubs are located, the types of native plant species that are associated with the shrubs, and the distance to the nearest riparian area.

    a. If shrubs are detected within the project footprint, either during surveys or during construction, and they cannot be avoided (i.e., they will be trimmed during the shrub's growth season, or will need to be removed or transplanted), Caltrans will reinitiate formal consultation with the Service to address adverse effects to the valley elderberry longhorn beetle.

2. The existing three elderberry shrubs that are located within the action area, plus any additional shrubs identified during the preconstruction survey, will be fenced and/or flagged in order to prevent construction equipment or personnel from encroaching on them. Fencing and/or flagging will remain in good condition until construction is complete.

3. Ground-disturbing activities such as trenching, paving, etc., that risk damaging or killing the elderberry shrubs, will not take place within at least 20 ft. of the drip-line of any given shrub.

4. As much as possible, construction activities occurring within 165 ft. of an elderberry shrub will be conducted outside of the flight season of the valley elderberry longhorn beetle (flight season is approximately March-July).

    a. A Service-approved biologist(s) will be present on-site to monitor any ground-disturbing construction activities that take place during the adult beetle's flight season and within 165 ft. of the elderberry shrubs. Caltrans will coordinate with the Service on any additional guidance.

5. In order to avoid adverse effects to the valley elderberry longhorn beetle when trimming elderberry shrubs, any and all trimming will occur between November and February when the shrub is dormant; no stems that are greater than or equal to 1 inch in diameter will be removed.

6. Herbicides will not be used within the drip-line of any given elderberry shrub. Insecticides will not be used within 100 ft. of a shrub.

7. Mechanical weed removal within the dripline of an elderberry shrub will be restricted to the season when adult beetles are not active (i.e., August - February).

Action Area

The action area is defined in 50 CFR 402.02, as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action." The action area for the proposed project is composed of the project footprint, which encompasses the area impacted by construction-related activities, equipment, and personnel (i.e., cut/fill, operations, access, staging/storage, utility work, and TCEs); the limits of the footprint coincide with the limits of the proposed ROW.

The project footprint consists of: 1) segments of existing roadway infrastructure and pavement/ hardscape associated with SR 219 and SR 120/SR 108, along with numerous local roads; and 2) a mosaic of habitat types situated within Caltrans' proposed ROW, including a variety of natural communities and other vegetation types/land uses interspersed with various aquatic features. The action area also includes land and water features extending approximately 250 ft. from the edge of the footprint, which will experience further-reaching effects of construction activities such as noise, visual disturbance (i.e., lighting), and hydrologic modifications. Should the County, in coordination with Caltrans, choose to undertake permittee-responsible mitigation, the action area further includes the property that will be placed under a conservation easement.

Analytical Framework for the Jeopardy Determination

Section 7(a)(2) of the Act requires that federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).

The jeopardy analysis in this biological opinion considers the effects of the proposed federal action, and any cumulative effects, on the rangewide survival and recovery of the listed species. It relies on four components: (1) the *Status of the Species*, which describes the current rangewide condition of the species, the factors responsible for that condition, and their survival and recovery needs; (2) the *Environmental Baseline*, which analyzes the current condition of the species in the action area without the consequences to the listed species caused by the proposed action, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines all consequences to listed species that are caused by the proposed federal action; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-federal activities in the action area on the species. The *Effects of the Action* and *Cumulative Effects* are added to the *Environmental Baseline*, and in light of the *Status of the Species*, the Service formulates its opinion as to whether the proposed action is likely to jeopardize the continued existence of the listed species.

Status of the Species

Central California tiger salamander

For the most recent comprehensive assessment of the species' rangewide status, please refer to the *Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander* (Service, 2017; Central CTS Recovery Plan). Threats evaluated during preparation of the Central CTS Recovery Plan and discussed in the final document have continued to act on the species since the 2017 Central CTS Recovery Plan was finalized, with loss and fragmentation of habitat being the most significant effect to its survival and recovery. While there have been continued losses of Central California tiger salamander habitat throughout the various recovery and management units

defined in the Central CTS Recovery Plan, including the Central Valley Recovery Unit in which the proposed project is located, to date, no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

Vernal pool fairy shrimp and vernal pool tadpole shrimp

For the most recent comprehensive assessment of the range-wide status for each species, please refer to the *Vernal Pool Fairy Shrimp 5-Year Review* (Service, 2007a) and the *Vernal Pool Tadpole Shrimp 5-Year Review* (Service, 2007b). No change in the listing status for either species was recommended in these 5-year reviews. Threats evaluated during those reviews and discussed in the final documents have continued to act on both species since the 2007 5-year reviews were finalized, with loss and fragmentation of habitat being the most significant effect to their survival and recovery. There have been continued losses of vernal pool fairy shrimp and vernal pool tadpole shrimp habitat throughout the various vernal pool regions identified in the *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (Service, 2005; Vernal Pool Recovery Plan), including the Southern Sierra Foothills vernal pool region (in which the majority of the proposed project is located) and the Merced Core Area (in which a tiny portion of the eastern end of the proposed project is located), but to date, no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for these species.

Colusa grass and Greene's tuctoria

For the most recent comprehensive assessment of the range-wide status for each species, please refer to the *Colusa Grass 5-Year Review* (Service, 2008a) and the *Greene's tuctoria 5-Year Review* (Service, 2008b). No change in the listing status for either species was recommended in these 5-year reviews. Threats evaluated during those reviews and discussed in the final documents have continued to act on the species since the 2008 5-year reviews were finalized, with loss, degradation, and fragmentation of habitat being the most significant effect to their survival and recovery. There have been continued losses of Colusa grass and Greene's tuctoria habitat throughout the various vernal pool regions identified in the Vernal Pool Recovery Plan, including the Southern Sierra Foothills vernal pool region (in which the majority of the proposed project is located) and the Merced Core Area (in which a tiny portion of the eastern end of the proposed project is located), but to date, no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for these species.

Hartweg's golden sunburst

For the most recent comprehensive assessment of the species' range-wide status, please refer to the *Hartweg's golden sunburst and San Joaquin adobe sunburst 5-Year Review* (Service, 2008c). No change in the listing status for the species was recommended in the 5-year review. Threats evaluated during the review and discussed in the final document have continued to act on the species since the 5-year review was finalized in 2008, with loss and fragmentation of habitat being the most significant effect to its survival and recovery. While there have been continued losses of habitat for the Hartweg's golden sunburst throughout its range, to date, no project has proposed a level of effects for which the Service has issued a biological opinion of jeopardy for the species.

Environmental Baseline

Environmental baseline refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts

of all proposed federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline.

Within the action area, it is reasonably likely that the Central California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst all have been adversely affected by past and ongoing events, including: 1) the introduction of transportation infrastructure like SR 219, SR 120, SR 108 and the local road networks, as well as water conveyance structures (like the Hetch-Hetchy Aqueduct and numerous local irrigation canals), which have removed and fragmented previously contiguous habitat; 2) roadway- and vehicle-related risks, which likely have caused injury and mortality to specific species like the Central California tiger salamander, and are likely to continue to do so; and 3) conversions of once natural uplands and aquatic features through agricultural operations/conversions and urban development.

ICF completed vegetation mapping of the action area in 2012, which was updated subsequently by LSA in 2014 to reflect the current conditions in the action area and to account for changes to the project design, which resulted in modifications to the limits of the proposed action area. LSA biologists also conducted a preliminary jurisdictional delineation of wetlands and potential waters of the United States present within the action area on March 12-14, April 15-16 and 22, and June 6, 2014.

The action area encompasses a variety of different natural communities and other vegetation types and land uses, which together make up approximately 97 percent of the entire action area (see Table 4). The action area is composed predominantly of orchards, which are generally sprinkler-irrigated and intensively managed (1,141.35 ac comprising approximately 32 percent of the action area); followed by 724.88 ac of irrigated pastures for livestock, which are located throughout the action area (comprising approximately 20 percent of the action area); and 547.95 ac of agricultural lands (comprising approximately 15 percent of the action area), which occur throughout the action area and include row crops and rice, alfalfa, and grain fields. The action area further includes 9.92 ac of interior live oak woodland, which occur in two locations at the east end of the action area, i.e., where the new NCC alignment joins SR 108/120, plus approximately 1 mi south of this junction, and in one location at the west end of the action area, i.e., between Oakdale Road and Roselle Avenue, south of the new NCC alignment; 5.08 ac of blue oak savannah, which are present at one location at the east end of the project extent where the new NCC alignment abuts SR 108/120; 117.33 ac of annual grasslands, which occur throughout the action area, but comprise larger areas in the eastern half of the project; 2.93 ac of Himalayan blackberry bramble, which occur in scattered locations across the project extent, namely north of Claribel Road/west of Claus Road and south of Warnerville Road/west of Smith Road; 0.36 ac of riparian scrub, which occurs in a single location in the western part of the action area along a concrete canal just north of Claribel Road/east of Coffee Road; 142.45 ac of ruderal habitat, which occur throughout the action area, typically along roadsides, buildings, and dirt roads; 88.74 ac of dairy and poultry farms, which occur throughout the action area, but mainly in the central and eastern parts; 26.53 ac of landscaped areas (containing ornamental trees, shrubs, and forbs), which occur throughout the action area interspersed with residential and commercial areas; 212.28 ac of rural residential areas, which are present throughout the action area; and 426.76 ac of urban areas, which occur throughout the action area, but predominantly at the western end of the project extent (and include high-density housing, industrial and commercial buildings, and the majority of paved and dirt roads).

Table 4: Natural communities, other vegetation communities/land uses, and hydrological resources within the action area

Habitat Type	Amount of Habitat (in acres)	Percent of Action Area (%)
Natural Communities		
Interior live oak woodland	9.92	0.28
Blue oak savannah	5.08	0.14
Annual grassland	117.33	3.31
Himalayan blackberry bramble	2.93	0.08
Riparian scrub	0.36	0.01
Subtotal	**135.62**	**3.82**
Other Vegetation Communities/Land Uses		
Ruderal	142.45	4.02
Agricultural	547.95	15.45
Orchard	1,141.35	32.19
Irrigated pasture	724.88	20.45
Dairy and poultry farms	88.74	2.50
Landscaped	26.53	0.75
Rural residential	212.28	5.99
Urban	426.76	12.04
Subtotal	**3,310.94**	**93.35**
Hydrological Resources		
Perennial marsh	5.04	0.14
Seasonal marsh	4.28	0.12
Seasonal wetland	3.26	0.09
Pond/basin	61.91	1.75
Canal	19.54	0.55
Ditch	6.27	0.18
Subtotal	**100.30**	**2.83**
TOTALS	**3,546.85**	**100**

The action area also encompasses a variety of aquatic features, which comprise approximately three percent of the entire action area (see Table 4). Of these resources, ponds/basins (both natural and created) are the most prevalent (61.91 ac comprising 1.75 percent of the action area) and they occur throughout the action area but are more concentrated in the central and eastern parts; most ponds support wetlands, are utilized as detention basins, and tend to be associated with irrigation and/or stock ponds for cattle. The action area also includes 5.04 ac of perennial marsh habitat, which occurs in the central part of the action area, i.e., south of Patterson Road/west of Langworth Road and north of Warnerville Road around South Stearns Road and Wren Road; 4.28 ac of seasonal marsh habitat, which occurs primarily in the eastern part of the action area adjacent to annual grasslands and irrigated pastures, with one isolated seasonal marsh situated in the western part of the action area; 3.26 ac of seasonal wetlands, which are concentrated in the eastern portion of the action area though there are also several isolated wetlands in western and central locations; 19.54 ac of man-made, concrete-lined canals contained within levees, which are located throughout the action area; and 6.27 ac of ditches (non-leveed water conveyance channels), which occur throughout the action area, but are concentrated more heavily in the central portion.

Central California tiger salamander

Within the action area, there is both suitable aquatic and upland habitat present in which the Central California tiger salamander can breed, forage, shelter, migrate, and disperse. Suitable breeding habitat within the action area includes depressional aquatic features that support seasonal inundation and lack populations of predatory fish or invertebrates, i.e., certain ponds/basins, seasonal wetlands, and certain seasonal marshes. Adjacent annual grasslands, blue oak savannah, ruderal areas, and non-irrigated agricultural lands provide suitable upland and dispersal areas for the species.

LSA biologists conducted early season habitat assessments on December 17, 2014, January 15 & 16, 2015, January 15 & 22, 2016, and February 10, 2016, in order to identify aquatic features that held sufficient water and were suitable for the Central California tiger salamander. They surveyed these features visually for the presence of Central California tiger salamander egg masses. LSA biologists also conducted protocol-level aquatic larval surveys for the species during the 2015 and 2016 wet seasons; larval surveys were not conducted during the 2014 wet season due to there being particularly low rainfall and a consequent lack of inundation of sufficient duration. These surveys (conducted on four occasions between late January and early April 2015, and on three occasions between mid-March and late May 2016), focused on seining and dip-netting all suitable aquatic habitat for the species (22 aquatic features) located within accessible parts of the action area as well as in close proximity to the action area. Because the consultant was not granted permission to enter some private lands, and some features were temporarily inaccessible (i.e., the consultant had permission to enter but the property owner was not available to provide access on the actual survey date), the biologists were unable to survey numerous water features during the 2015 survey period. They had greater access during the 2016 survey period, but still faced some instances in which either features were temporarily inaccessible or they were not granted property access (three aquatic features were not surveyed at all). The consultant did not detect any egg masses, larvae, or metamorphs during these survey efforts. However, it is very likely that conditions were not ideal for breeding and larval development, or for detection by surveyors because the surveys did not cover the entire action area due to restricted access, and because in 2015, there was below average rainfall for this area (which followed three earlier consecutive years of consistently far below average rainfall) (California Nevada River Forecast Center (CNRFC), 2019). Therefore, it is reasonable to expect that the species is more likely to have greater breeding and developmental success in years of average/above average rainfall.

To provide a comparison with the action area, LSA biologists also visually surveyed a reference site on January 29 and February 18, 2015, and on January 21, February 11, April 13, and May 4, 2016. This reference site is located approximately 15 air mi west/northwest of the western end of the action area and south of the City of Lathrop adjacent to the SR 120/McKinley Road undercrossing; the site contains both suitable aquatic and upland habitats (with burrows) and includes past documented occurrences of the Central California tiger salamander. The biologists observed multiple egg masses, emergent larvae, and larger larvae at this reference site during both the 2015 and 2016 wet seasons.

Although access to the entire action area was limited at the time that survey efforts were implemented, and no specific, comprehensive burrow mapping was carried out, the consultant biologists observed the presence of small mammal burrows throughout those areas that were surveyed, particularly within annual grasslands and ruderal lands with friable soils. They also observed California ground squirrels (*Otospermophilus beecheyi*) and other small mammals within the action area, so it is evident that suitable burrows exist and are available for the Central California tiger salamander to use as refugia.

Per the Service's Central CTS Recovery Plan, the action area is located within the Central Valley Recovery Unit (Service, 2017). According to the CNDDB (2019), there are 16 records of the Central California tiger salamander within 10 mi of the project (situated in relation to the new NCC alignment's westernmost end, its middle, and its easternmost end); none of these records are located within the action area. Two of the records date recently from 2013, but the majority were recorded in the 1970s, 1980s, and 1990s. Several records describe extirpated and possibly extirpated occurrences, but the majority are presumed to be extant.

Linear features on the landscape, such as highways (SR 219, SR 108/120), local roads (including, but not limited to, Claribel Road, Terminal Avenue, Patterson Road, Warnerville Road, Albers Road, and Fogarty Road), and irrigation canals already serve as existing barriers to Central California tiger salamander movement; highways and local roadways also pose ongoing hazards to the species in the form of vehicular strikes and will continue to be hazards for the Central California tiger salamander in eastern Stanislaus County regardless of Caltrans' proposed build-out activities.

The Central California tiger salamander is reasonably expected to occur within the action area because 1) the species is known to exist within the Central Valley Recovery Unit and the project is located both within this region (Service, 2017) and within the range of the species; 2) there is suitable aquatic and upland habitat available inside the action area, as well as adjacent to it, that can support the species in its individual life stages (egg, larval, juvenile, and adult stages); and 3) there are known species occurrences (historical as well as recent) located in relative proximity to the action area.

Vernal pool fairy shrimp and vernal pool tadpole shrimp

Within the action area, eight seasonal wetlands that are characteristic of vernal pools (e.g., based on vegetation associations and the presence of hardpan) offer suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp. These seasonal wetlands are located in two distinct areas of undeveloped, annual grasslands near the eastern end of the project extent, north of Warnerville Road and between Emery and Stoddard Roads. The grasslands are surrounded by active agricultural lands, orchards, and irrigated pastures; several canals also pass through them. These neighboring land uses likely have modified the natural hydrology of the area and have increased the potential for sedimentation and the introduction of chemicals and other hazards into the watershed; consequently, these land uses likely have contributed to, and continue to contribute to, the degradation of these wetlands and a decrease in water quality.

Per the Service's Vernal Pool Recovery Plan, the action area is located predominantly within the Southern Sierra Foothills vernal pool region; a minute segment of the eastern end of the action area is situated within the smaller-scale Merced Core Area (Service, 2005). According to the CNDDB (2019), there are five records of the vernal pool fairy shrimp and nine records of the vernal pool tadpole shrimp within 10 mi of the project (situated in relation to the new NCC alignment's westernmost end, its middle, and its easternmost end); none of the records for either species are located within the action area. Four of the vernal pool fairy shrimp records date more recently from 2012 and 2013 and all are presumed to be extant. Two of the vernal pool tadpole shrimp records date from 2011 and 2013 and also are presumed to be extant occurrences.

The County's consultants conducted protocol-level surveys for the vernal pool fairy shrimp and vernal pool tadpole shrimp over two seasons. Wet season surveys were conducted by ICF biologists in December 2012, as well as in January, February, March, and April 2013, and by LSA biologists in February, March, and April 2014. The 2012/2013 and 2014 seasons involved surveys of various aquatic features within the action area, as well as in close proximity to the action area, at its western and eastern ends. During the 2014 season, the LSA biologists confirmed that the vernal pool fairy shrimp was present in three seasonal wetlands (situated north of Warnerville Road, east of Stoddard

Road, and approximately 0.3 mi south of the limits of the action area at the project's eastern extent). During the 2014 season, they also surveyed a seasonal wetland situated along the railroad track near Plainview Road, approximately 0.2 mi west of the limits of the action area at the western end of the project, and detected both the vernal pool fairy shrimp and the vernal pool tadpole shrimp present there. The consultant biologists also identified the eight seasonal wetlands mentioned at the start of this section. Though suitable, none of these seasonal wetlands were surveyed during the 2012/2013 and 2014 seasons either due to their not being included in the surveys or because access to them was not granted by the property owners.

Dry season surveys (soil analyses) were conducted by ICF biologists in September and October 2012, and by LSA biologists and others in January and February 2014; soil samples from both seasons were processed by an LSA biologist. The biologist identified cysts from the genus *Branchinecta* in samples from six features in 2012 and from four features in 2014 (fewer features were sampled in 2014 due to private lands having been converted to other uses during the interim years, which had destroyed the other features sampled previously). No vernal pool tadpole cysts were detected in the samples.

The vernal pool fairy shrimp and vernal pool tadpole shrimp are reasonably expected to occur within the action area because 1) the species are known to exist within the Southern Sierra Foothills vernal pool region and the project is located both within this region (Service, 2005) and within the range of each of the species; 2) there is suitable aquatic habitat available for both species situated within, and in proximity to, the action area; and 3) there are known, recent occurrences of the species located in similar habitat close to the action area.

Colusa grass and Greene's tuctoria

At the eastern end of the action area, the same eight seasonal wetlands that provide suitable habitat for the listed shrimp species (as described in the previous section), also offer suitable habitat for the Colusa grass and Greene's tuctoria.

According to the CNDDB (2019), there are 10 records of the Colusa grass and four records of the Greene's tuctoria within 10 mi of the project (situated in relation to the new NCC alignment's westernmost end, its middle, and its easternmost end); none of the records for either species are located within the action area. Three of the Colusa grass records date recently from 2017 and are presumed to be extant occurrences. The remaining Colusa grass occurrences are all either extirpated or possibly extirpated. All four of the Greene's tuctoria records date from 1987 and are considered to be extirpated occurrences due to the agricultural conversion of vernal pool habitat.

LSA botanists and biologists conducted a single season of focused botanical surveys on March 20, April 10, and July 23, 2014, covering only a portion of suitable habitat within the accessible parts of the action area. Additionally, only one of these survey dates corresponded with the blooming period specific to each plant. Botanical survey locations were limited to the easternmost end of the new NCC alignment in three general areas. No reference populations for either of the target species were identified or visited during the survey period. The consultant did not detect any listed individuals during the course of their surveys. It is very likely that conditions were not ideal for detection by surveyors or for plant development because the surveys were severely limited in scope and did not cover all areas of suitable habitat within the action area due to access restrictions; and because in 2015, there was below average rainfall for this area (which followed three earlier consecutive years of drought conditions) (CNRFC, 2019). Therefore, it is reasonable to expect that both species could emerge during a year with average/above average rainfall, and/or in parts of the action area that were not surveyed previously.

It is reasonably likely that the Colusa grass and Greene's tuctoria occur in the action area because 1) the species are known to exist within the Southern Sierra Foothills vernal pool region and the project is located within this region (Service, 2005); 2) there is suitable aquatic habitat for the species within the action area; and 3) there are documented occurrences of both plants situated in the vicinity of the project. The County, in coordination with Caltrans, plans to conduct focused, protocol-level surveys of the entire action area (including the currently restricted part) for both species following the acquisition of these additional lands in late 2020/early 2021.

Hartweg's golden sunburst

Within the action area, there are sections of annual grasslands underlain by certain soil types (clay soil types or Pentz series soils) that could support the Hartweg's golden sunburst; this suitable habitat (15.58 ac) comprises six distinct areas near the eastern end of the new NCC alignment, i.e., between Kaufman Road and Emery Road, south of Fogarty Road. These grasslands, while undeveloped, are surrounded by lands subject to various agricultural and urban uses.

According to the CNDDB (2019), there are four records of the Hartweg's golden sunburst within 10 mi of the project (situated in relation to the new NCC alignment's westernmost end, its middle, and its easternmost end); none of these records are located within the action area. All four records date from 2010; three are presumed to be extant, while one is possibly extirpated.

LSA botanists and biologists conducted a single season of focused botanical surveys on March 20, April 10, and July 23, 2014, covering only a portion of suitable habitat within the accessible parts of the action area. Additionally, only two of these survey dates corresponded with the blooming period specific to this species. Botanical survey areas were limited to the easternmost end of the new NCC alignment. No reference population for the target species was identified or visited during the survey period. The consultant did not detect any individuals of this species during the course of their surveys. It is very likely that conditions were not ideal for plant development or for detection by surveyors because the surveys were limited in scope and did not cover all areas of suitable habitat within the action area due in large part to access restrictions; and because in 2015, there was below average rainfall for this area (which followed three earlier consecutive years of drought conditions) (CNRFC, 2019). Therefore, it is reasonable to expect that the species could emerge during a year with average/above average rainfall, and/or in parts of the action area not surveyed previously.

There is reasonable potential for the Hartweg's golden sunburst to occur in the action area because: 1) the species is known to exist within the Southern Sierra Foothills vernal pool region and the project is located within this region (Service, 2005); 2) there is suitable habitat available for the species within the action area in the form of grasslands combined with appropriate soil types; and 3) there are documented occurrences of the plant situated in the vicinity of the project. The County, in coordination with Caltrans, plans to conduct focused, protocol-level surveys of the entire action area (including the currently restricted part) for this species following the acquisition of these additional lands in late 2020/early 2021.

Effects of the Action

Effects of the action refers to all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action.

Construction activities will involve grading, excavating, building the new NCC alignment as well as the new local access road network and associated structures, installing new facilities, and applying concrete and/or asphalt. Permanently affected habitats generally include those habitats that either will be lost through conversion to other uses, or that will have permanent structures/features constructed upon them. Temporarily affected habitats generally include those habitats that can be returned to pre-project conditions within a limited number of seasons following the completion of construction. For this project, the County, in coordination with Caltrans, has defined permanently affected habitats as all areas located within the cut and fill limits; temporarily affected habitats as all areas situated between the cut and fill limits and the proposed ROW boundary, i.e., the boundary of the project footprint; and indirectly affected habitats as areas that are situated up to 250 ft. out from the edge of the project footprint (including ESAs marked by exclusion fencing). Indirectly affected habitats are those that are reasonably certain to be impacted by the proposed project later in time, e.g., effects resulting from changes in hydrology, sedimentation, shading, and increased noise and disturbance. Within the 1,364.24 ac project footprint, there will be a total permanent loss of 219.85 ac of habitat due to cut and fill activities associated with the new NCC alignment and local access road network as well as temporary disturbance to a total of 1,144.39 ac of habitat stemming from activities like vehicle/equipment staging, construction access, and the stockpiling of soils and other materials. Within the broader action area, there will be 17.94 ac of habitat identified as ESAs.

Operation and maintenance activities associated with the new highway are expected to be minimal, limited primarily to the roadway prism, and will not occur within areas of native vegetation (with the exception of monitoring and/or remediation of erosion control measures).

Table 5: Effects to habitat (in acres) for the Central California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst

Type of Effect	Central California Tiger Salamander-Aquatic	Central California Tiger Salamander-Upland	Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	Colusa Grass and Greene's Tuctoria	Hartweg's Golden Sunburst
Permanent	14.07	237.43	0.06	0.06	3.28
Temporary	2.92	58.98	0.01	0.01	0.57
Indirect	52.45	516.44	2.15	2.15	-
TOTALS	**69.44**	**812.85**	**2.22**	**2.22**	**3.85**

Central California tiger salamander

Habitat Loss and Disturbance: Within the project footprint, construction-related activities will result in the permanent loss of 14.07 ac of aquatic habitat and in temporary disturbance to 2.92 ac of aquatic habitat for the Central California tiger salamander (see Table 5). The County, in coordination with Caltrans, has identified numerous ponds/basins, seasonal marshes, and seasonal wetlands throughout the project extent as features that adults could use for breeding and in which eggs and larvae could develop. Within the project footprint, construction work also will result in the permanent loss of 237.43 ac of upland habitat and in temporary disturbance to 58.98 ac of upland habitat for the species (see Table 5). Caltrans has identified non-native annual grasslands, blue oak savannah, ruderal areas, and non-irrigated agricultural lands as providing suitable upland refugia and migration/dispersal habitats for Central California tiger salamander juveniles and adults. These lands contain small mammal burrows that are suitable for the Central California tiger salamander to use.

The permanent loss of aquatic and upland habitats due to the creation of the new NCC alignment, the associated local access road network, and other structures and facilities will remove

opportunities for the species to fulfill its life-cycle functions during its different life stages (egg to larva to juvenile to adult), such as breeding, feeding, metamorphosing, seeking refugia, and migrating between burrows and breeding ponds. With the elimination of suitable aquatic features, the species, in its egg and larval forms, will be unable to develop and persist to adulthood. Fewer adults, in turn, could lead to a reduction in the species' success in finding mates. Meanwhile, the elimination of suitable upland habitats could lead to a decrease in the ability of juveniles and adults to locate food and suitable burrows for protection; together, these losses are likely to diminish both the reproductive success as well as the fitness of individuals across this localized area. Without these ponds/basins, seasonal marshes and wetlands, grasslands, blue oak savannah, and ruderal and non-irrigated agricultural lands, individuals will need to seek out other suitable aquatic and upland habitats. Alternative locations that are located further afield will increase the amount of time in which an individual travels overland, which could increase its risk of exposure to predation as well as to the elements, thereby reducing the survivorship of individuals in the area. The temporary disturbance to both aquatic and upland habitats from construction will prevent the species from using these areas in the short-term, i.e., for the duration of construction. Once work is completed, however, the remaining un-filled habitat will be available once again for the species, albeit as lower quality habitat in its post-construction state; post-construction revegetation efforts to restore upland habitat value will serve to minimize the effects of this temporary disturbance. The creation of the new NCC alignment ultimately will result in the further fragmentation of, as well as a reduction in the amount and/or suitability of, habitat available to the species in the area and will reduce both the species' dispersal ability and the genetic diversity in, and exchange between, populations.

There also will be indirect effects to a total of 52.45 ac of suitable aquatic habitat for the Central California tiger salamander (see Table 5), comprising ponds/basins, seasonal marshes, and seasonal wetlands located up to 250 ft. out from the edge of the project footprint and/or in ESAs protected by exclusion fencing (but still within the confines of the action area as defined under the Action Area heading in this document). Construction work will reduce, over time, the suitability of these features as suitable habitat for the species (in all life stages) due to 1) changes in the water regime resulting from soil compaction and an increase in/introduction of new paved and impermeable roadway surfaces (e.g., degradation of water quality through factors like sedimentation and runoff; changes in the amount of water available; and changes in hydrology influencing the rate, extent, and duration of inundation); and 2) the reduction in the footprint of each aquatic feature and consequently, in the amount of water that each feature is able to hold. These future changes are expected to stem from the extensive ground-disturbing activities set to occur inside the adjoining project footprint (e.g., grading, excavating, filling, compacting, paving, etc.). Indirect effects to aquatic habitat may be reduced by a small degree (but certainly not eliminated) through the implementation of BMPs developed to address water quality and erosion.

Construction-related activities will further indirectly affect 516.44 ac of suitable upland habitat for the species, encompassing areas outside the project footprint but still within the boundaries of the action area (see Table 5). Because the proposed NCC alignment will introduce a brand-new, large-scale, paved, and permanent corridor to the landscape (including in rural areas where there are either no existing roadways or only low-density networks of small, private dirt roads), the resulting habitat fragmentation is reasonably certain to negatively influence, over time, the mobility of the Central California tiger salamander in this part of eastern Stanislaus County, as well as the species' ability to access habitat that was formerly contiguous. In conjunction with other sources of fragmentation that are likely to persist in eastern Stanislaus County (such as agricultural conversions and rural residential development), the presence of the new NCC alignment will lead to less favorable conditions for the species and has the potential to decrease, or even eliminate, local populations of Central California tiger salamanders in this eastern part of the county. Morey and Guinn (1992) surveyed for amphibians from 1982 to 1986 in Stanislaus County in an area that had experienced recent and

large-scale changes in land use, i.e., a shift from grazing to intensive agriculture, particularly orchards and vineyards. Their study documented a significant decline in tiger salamanders over the four years surveyed. In addition, they also reported a proportional increase in bullfrogs (*Lithobates catesbeiana*) throughout their study area, suggesting that changes in aquatic habitat favored bullfrogs over the salamanders. The spatial distribution of the Central California tiger salamander has not changed significantly since the time of listing (Service, 2014) so the species still occurs in Stanislaus County. While there is no recent research on the current status of, and conditions specific to, local populations of the species within the action area, or more broadly, within eastern Stanislaus County, the predominantly rural nature of much of this area retains the necessary aquatic and upland habitat components that the Central California tiger salamander needs to survive. Consequently, a shift in land uses to include large-scale highway development is expected to reduce species abundance across a wider landscape.

As noted previously in the **Description of the Proposed Action** section, the County, in coordination with Caltrans, has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effects on the Central California tiger salamander resulting from direct and indirect construction impacts to a total of 882.29 ac of aquatic and upland habitats combined, as described above. The compensatory habitat proposed will be either in the form of conservation credits purchased at an appropriate conservation bank, or of permittee-responsible mitigation, i.e., funding a conservation easement on an appropriate land parcel. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory credits or lands will provide suitable habitat for breeding, feeding, or sheltering that is commensurate with, or better than, habitat lost and disturbed as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Construction Activities: There is a reasonable likelihood that construction work will adversely affect the Central California tiger salamander. The County, in coordination with Caltrans, therefore will implement a variety of conservation measures to reduce the effects from these activities. Work crews will receive environmental awareness training and a Service-approved biologist(s) will conduct preconstruction visual surveys and monitor the site for the species, so the risk of construction crews or equipment running over, crushing, entombing, unearthing, or otherwise killing juvenile and adult Central California tiger salamanders situated either above- or below-ground during the course of initial groundbreaking and later construction, is less likely to occur (but cannot be discounted). Other proposed conservation measures, such as setting up silt fencing to preclude access to the work areas and using appropriate erosion control materials, are all designed to minimize the risk of encountering individuals during construction. These measures are particularly important in terms of preventing individuals from becoming trapped, entangled, or otherwise confined, which could lead to prolonged exposure, desiccation, starvation, and/or dehydration.

If any aquatic features are permanently excavated and/or filled during the rainy season, eggs and larvae will suffocate and die, leading to a reduction in the offspring of a given reproductive season. This in turn could reduce the number of individuals that successfully reach reproductive age, thereby resulting in less reproductive output in future seasons and smaller local populations. However, the County, in coordination with Caltrans, proposes to conduct its permanent fill work in aquatic features during the dry season when eggs and larvae are absent, so there is unlikely to be mortality of the species in its early life stages resulting from these particular activities. Work that is scheduled to occur during the rainy season also will involve a greater likelihood of encountering adults moving above-ground, as they migrate to and from their burrows in the uplands and the suitable breeding features within the project footprint and wider action area. Even work that is scheduled to occur

during the dry season is likely to coincide with the peak periods in which juveniles leave their natal ponds for the first time and enter upland habitat in search of burrows (i.e., approximately May through July). So, even though conservation measures like conducting preconstruction visual surveys and placing exclusion fencing around the boundary of the project footprint will reduce these risks, there still remains some potential that construction personnel will encounter juveniles and/or adults inside the project footprint (even after the installation of the exclusion fencing), given that such individuals may still be hidden in underground refugia while these measures are implemented.

Burrow Excavation & Capture and Relocation: In the event of encounters between individuals and construction crews, equipment, and materials, the Central California tiger salamander may need to be captured and moved to an area(s) where it will not be adversely affected by project work (i.e., outside of the project footprint, but preferably as close as possible to its original capture location). Such individuals could experience further annoyance, distress, and even injury as a result of being handled during the capture and relocation process. However, the risk of these particular effects should be low given that a Service-approved biologist(s) with appropriate experience will be on-hand to move the species carefully and safely, and in accordance with the Relocation Plan. Individuals also may experience stress and disorientation at being moved to a different location and may prove reluctant to use new burrow sites, which will increase their risk of predation or desiccation. Generally, the survivorship of relocated wildlife is lower due to factors such as intraspecific competition; lack of familiarity with the locations of new breeding, feeding, and refugia habitats; and predation risk. However, given that any relocated individuals will be moved only far enough away so that they avoid immediate interactions with construction activities, equipment, and/or crews, these effects are expected to be minimal. Those Central California tiger salamanders that already inhabit the areas to which new individuals are relocated also are likely to experience a degree of stress and disruption, and even a reduction in fitness due to an increase in competition for resources like burrows and food.

Prior to the start of construction, burrows that are known to be occupied, or could be occupied by the Central California tiger salamander, may need to be excavated. Individuals could be injured or killed during this process (particularly if the excavation is carried out using mechanized equipment rather than by hand) as a result of improper excavation technique, handling, a lack of disease prevention measures, and improper transport of individuals. The County, in coordination with Caltrans, will prepare a Relocation Plan that sets out appropriate procedures and methodologies for undertaking excavation, capture, and relocation activities, while reducing the risk of adverse effects from such activities.

Lighting and Noise: Perry *et al.* (2008) identify light pollution as a threat to a wide variety of amphibians; they note that altering the natural variation in nocturnal light intensities and the spectral properties of lights has the potential to disrupt species' physiology, behavior, and ecology. The introduction into the action area of nighttime lighting from various new sources, i.e., permanent light features at multiple intersections along the new NCC alignment, vehicle headlights, and temporary artificial lighting used during nighttime construction work, is likely to disturb adult and juvenile Central California tiger salamanders by interfering with, shifting, and/or delaying their movement/foraging patterns in upland habitat where it otherwise would be dark (or darker), causing disorientation. The introduction of/increase in lighting at night from fixed lights as well as from the headlights of vehicles traveling along the new NCC alignment also could attract predator species to the project site, which in turn could prey upon the Central California tiger salamander. However, because the temporary lighting will be confined only to those areas located within the active construction footprint (to which the Central California tiger salamander should not have access due to the installation of exclusion fencing prior to the start of work) and will have shielding installed behind and underneath the light source, effects to the species resulting from the use of temporary

artificial lighting are expected to be minimal. Conversely, the presence of new permanent light features will illuminate areas indefinitely that previously experienced continual nighttime darkness (or at the very least, darker conditions than those expected post-installation); accordingly, habitat that is located in proximity to these lights will be permanently altered and the Central California tiger salamander is likely to experience, into the future, ongoing disturbance and disorientation, and even mortality as a result of this introduced lighting.

Species rely on meaningful sounds against a background of noise to guide their everyday functions and behaviors, e.g., for navigation, finding food, and avoiding danger (Kaseloo & Tyson, 2004). Kaseloo & Tyson (2004) also note that the level of effects from noise may be qualified either as disturbance (e.g., changes in behavior) or as damage (e.g., harm to species' health, habitat use, distribution, and survivorship). While there is no research specific to the effects of noise on the Central California tiger salamander, particularly as it relates to roads, it is reasonable to consider that noise originating from short-term construction processes and equipment use, and especially from long-term vehicle use of the new NCC alignment, could both have some degree of adverse influence on the Central California tiger salamander.

Barriers and Road Mortality: Injury and death are likely to occur to the Central California tiger salamander when individuals attempt to cross roads. By introducing the extensive new NCC alignment and its associated local road network into an already fragmented landscape, the species will encounter new paved surfaces when traveling overland, which will obstruct the species outright, or else increase the frequency of it being struck by vehicles should it attempt to cross. Vehicular mortality remains a direct source of death for many amphibian species, and if sufficiently frequent in a given area, can result in reduced local abundance. Female mortality prior to breeding and laying eggs is especially detrimental as this can lead to reduced reproductive success and subsequent recruitment of new individuals into the population.

Additional barrier features along roadsides, such as curbs, could further entrap individuals on the roadway, thereby increasing mortality from vehicle strikes and prolonged exposure, i.e., the species could drop from the top of a curb onto the road surface, but then would be unable to climb back up over the curb to exit the road. In conjunction with SR 108/120 to the north of the action area and SR 132 to the south, the presence of the new NCC alignment will pose a significant barrier to Central California tiger salamander movement in eastern Stanislaus County and will further fragment the landscape, particularly in more rural areas that are not already subject to divisions by larger-scale road networks. Indirect injury and death of Central California tiger salamander are expected to increase incrementally over the lifetime of the new NCC alignment.

Vernal pool fairy shrimp and vernal pool tadpole shrimp

The County, in coordination with Caltrans, has identified eight seasonal wetlands (located both within the project footprint and outside the project footprint) as suitable habitat in which the vernal pool fairy shrimp and vernal pool tadpole shrimp can reproduce, develop, and fulfill other basic life-cycle needs. The entirety of each of these wetlands will be adversely affected by construction. Within the project footprint, construction activities will permanently eliminate 0.06 ac of seasonal wetlands and temporarily disturb 0.01 ac of seasonal wetlands (see Table 5). If any aquatic features are permanently excavated and/or filled during the rainy season, adult vernal pool fairy shrimp and vernal pool tadpole shrimp will suffocate and die, leading to a reduction in the current generation of shrimp species. This in turn could reduce the number of individuals that are able to successfully breed, thereby resulting in less reproductive output in future seasons and smaller local populations. However, the County, in coordination with Caltrans, proposes to conduct its permanent fill work in aquatic features during the dry season when adult vernal pool fairy shrimp and vernal pool tadpole shrimp are absent, so there is unlikely to be mortality of either species in this specific life stage

resulting from these types of activities. Vernal pool fairy shrimp and tadpole shrimp cysts are likely to be crushed by construction equipment/vehicles driving through the aquatic features in which they live, and/or be killed by ground-disturbing activities involving the grading, excavating, and filling of pools. Cysts also could be transported in the wheels of construction vehicles and equipment to areas without suitable aquatic habitat where they would be unable to hatch. The temporary disturbance to these aquatic features from short-term, minor-scale construction activities will preclude the species from inhabiting these areas for the duration of construction. Once work is completed, however, the remaining un-filled habitat will be available once again for the species, albeit as lower quality habitat in its post-construction state. All of these activities ultimately will result in the fragmentation of, and reduction in the amount and/or suitability of, habitat available to the species in the area; will lead to the death of cysts; and will reduce both the species' dispersal ability and the genetic diversity in, and exchange between, populations.

Construction activities also will result in indirect effects to 2.15 ac of seasonal wetland habitat located up to 250 ft. out from the edge of the project footprint and/or in ESAs protected by exclusion fencing (but still within the confines of the action area as defined under the Action Area heading in this document) (see Table 5). The suitability and functionality of these features as habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp (in both life stages) are likely to decrease over time due to 1) changes in the water regime resulting from soil compaction and an increase in/introduction of new paved and impermeable roadway surfaces (e.g., degradation of water quality through factors like sedimentation and runoff; changes in the amount of water available to the perched water tables characteristic of vernal pool regions; and changes in hydrology influencing the rate, extent, and duration of inundation); and 2) the reduction in the footprint of each aquatic feature and consequently, in the amount of water that each feature is able to hold. These future changes are expected to stem from the extensive ground-disturbing activities set to occur inside the adjoining project footprint during the course of construction (e.g., grading, excavating, filling, compacting, paving, etc.). Indirect effects to aquatic habitat may be reduced by a small degree (but certainly not eliminated) through the implementation of BMPs developed to address water quality and erosion.

As noted previously in the **Description of the Proposed Action** section, the County, in coordination with Caltrans, has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effects on the vernal pool fairy shrimp and vernal pool tadpole shrimp resulting from direct and indirect construction impacts to a total of 2.22 ac of aquatic habitat, as described above. The compensatory habitat proposed will be either in the form of conservation credits purchased at an appropriate conservation bank, or of permittee-responsible mitigation, i.e., funding a conservation easement on an appropriate land parcel. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory credits or lands will provide suitable habitat for breeding, feeding, or sheltering that is commensurate with, or better than, habitat lost and disturbed as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Colusa grass and Greene's tuctoria

The County, in coordination with Caltrans, has identified eight seasonal wetlands (located both within the project footprint and outside the project footprint) as suitable habitat for the Colusa grass and Greene's tuctoria; these are the same features identified as suitable habitat for the vernal pool fairy shrimp and vernal pool tadpole shrimp. The entirety of each of these wetlands will be adversely affected by construction. Within the project footprint, construction activities will permanently

eliminate 0.06 ac of suitable habitat for the species and temporarily disturb 0.01 ac of suitable habitat for the species (see Table 5). Ground-disturbing activities associated with constructing the new NCC alignment, new local access road network, and new facilities (i.e., clearing, grubbing, grading, excavating, and filling) are reasonably likely to bury, unearth, or destroy individual plants and their seeds, leading to the removal of individuals within the project footprint and a subsequent decrease in local species abundance. By eliminating suitable habitat and individuals within the project footprint, the species will no longer be able to carry out its basic life-cycle functions, such as germination, growth, flowering, and producing seed. The temporary disturbance to these aquatic features from short-term, minor-scale construction activities will reduce the species' ability to persist in these areas for the duration of construction. Once work is completed, however, the remaining un-filled habitat will be available once again for the species, albeit as lower quality habitat in its post-construction state. All of these activities ultimately will result in the further fragmentation of, as well as a reduction in, the amount and/or suitability of, habitat available to the species in the area; and will reduce both the species' dispersal ability and the genetic diversity in, and exchange between, populations.

Construction activities also will result in indirect effects to 2.15 ac of seasonal wetland habitat located up to 250 ft. out from the edge of the project footprint and/or in ESAs protected by exclusion fencing (but still within the confines of the action area as defined under the Action Area heading in this document) (see Table 5). The suitability and functionality of these features as habitat for the Colusa grass and Greene's tuctoria are likely to decrease over time due to 1) changes in the water regime resulting from soil compaction and an increase in/introduction of new paved and impermeable roadway surfaces (e.g., degradation of water quality through factors like sedimentation and runoff; changes in the amount of water available to the perched water tables characteristic of vernal pool regions; and changes in hydrology influencing the rate, extent, and duration of inundation); and 2) the reduction in the footprint of each aquatic feature and consequently, in the amount of water that each feature is able to hold. These future changes are expected to stem from the extensive ground-disturbing activities set to occur inside the adjoining project footprint during the course of construction (e.g., grading, excavating, filling, compacting, paving, etc.). Indirect effects to aquatic habitat may be reduced by a small degree (but certainly not eliminated) through the implementation of BMPs developed to address water quality and erosion.

As noted previously in the **Description of the Proposed Action** section, the County, in coordination with Caltrans, has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effects on the Colusa grass and Greene's tuctoria resulting from direct and indirect construction impacts to a total of 2.22 ac of aquatic habitat, as described above. The compensatory habitat proposed will be either in the form of conservation credits purchased at an appropriate conservation bank, or of permittee-responsible mitigation, i.e., funding a conservation easement on an appropriate land parcel. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory credits or lands will provide suitable habitat for germination, growth, and flowering that is commensurate with, or better than, habitat lost and disturbed as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Hartweg's golden sunburst

Within the project footprint, construction-related activities will result in the permanent loss of 3.28 ac of annual grassland habitat suitable for the Hartweg's golden sunburst, and in temporary disturbance to 0.57 ac of annual grassland habitat (see Table 5). Ground-disturbing activities

associated with constructing the new NCC alignment, new local access road network, and new facilities (i.e., clearing, grubbing, grading, excavating, and filling) are reasonably likely to bury, unearth, or destroy individual plants and their seeds, leading to the removal of individuals within the project footprint and a subsequent decrease in local species abundance. By eliminating suitable habitat and individuals within the project footprint, the species will no longer be able to carry out its basic life-cycle functions, such as germination, growth, flowering, and producing seed. The temporary disturbance to these grasslands from short-term, minor-scale construction activities will reduce the species' ability to persist in these areas for the duration of construction. Once work is completed, however, the habitat there will be available once again for the species, albeit as lower quality habitat in its post-construction state; post-construction revegetation efforts to restore upland habitat value will serve to minimize the effects of this temporary disturbance. No indirect effects to suitable grassland habitat for the plant are reasonably certain to occur outside the project footprint as a result of construction activities.

As noted previously in the **Description of the Proposed Action** section, the County, in coordination with Caltrans, has proposed a set of conservation measures, including the commitment to provide compensatory habitat as a condition of the action. This compensatory habitat is intended to minimize the effects on the Hartweg's golden sunburst resulting from direct construction impacts to a total of 3.85 ac of upland habitat, as described above. The compensatory habitat proposed will be either in the form of conservation credits purchased at an appropriate conservation bank, or of permittee-responsible mitigation, i.e., funding a conservation easement on an appropriate land parcel. This component of the action will have the effect of protecting and managing lands for the species' conservation in perpetuity. The compensatory credits or lands will provide suitable habitat for germination, growth, and flowering that is commensurate with, or better than, habitat lost and disturbed as a result of the proposed project. Providing this compensatory habitat as part of a relatively large, contiguous block of conserved land may contribute to other recovery efforts for the species.

Cumulative Effects

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

During this consultation, the Service identified one future non-federal action that is reasonably certain to occur in the action area of the proposed project: the South Oakdale Industrial Specific Plan (Plan). The Plan addresses the expansion of the City of Oakdale's existing industrial center to the south and to the east of the city, which will result in developed areas abutting a segment of the new NCC alignment and several of the new intersections/interchanges. This future development is broken into two sub-plan areas, the Northeast Sub-Plan Area and the Southwest Sub-Plan Area; together they cover approximately 500 ac. The Plan area is composed predominantly of agricultural lands (row crops, pastures, orchards) and developed lands (rural residences, farms, and landscaped areas); additionally, there are very small portions of non-native annual grasslands and wetland habitat present (South Oakdale Industrial Specific Plan, 2006). The grassland habitat (approximately 2.8 ac) is limited to the eastern part of the Plan area but is contiguous with a much larger area of non-native grassland outside the boundaries of the Plan area (South Oakdale Industrial Specific Plan, 2006), so it could offer suitable upland and dispersal habitat for the Central California tiger salamander, particularly since this habitat was observed to contain California ground squirrel burrows, i.e., potential refugia for the Central California tiger salamander. The approximately 5 ac of wetland habitat (comprising one pond and drainage channels) are surrounded entirely by developed and

agricultural lands and therefore are isolated from areas of natural habitat (South Oakdale Industrial Specific Plan, 2006), so these features are unlikely to provide suitable breeding habitat for the Central California tiger salamander. However, it is possible that the vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, or Greene's tuctoria could occur in the pond. Ultimately, the development of this project is likely to remove only small amounts of aquatic and upland habitat that could be suitable for certain species discussed herein, but it also could lead to the further fragmentation of what little suitable habitat remains in and around the City of Oakdale.

Conclusion

After reviewing the current status of the Central California tiger salamander, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, and Hartweg's golden sunburst, the environmental baseline for the action area, the effects of the proposed North County Corridor--New SR 108 Project, and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of the species. The Service reached this conclusion because the project-related effects to the species, when added to the environmental baseline and analyzed in consideration of all potential cumulative effects, will not rise to the level of precluding recovery or reducing the likelihood of survival of the species. This conclusion is based on the following reasons:

1) This project is extensive in scale and scope, therefore, it is important to recognize that the action is reasonably likely to have considerable effects on landscape-scale population dynamics. However, in spite of this, the conservation measures proposed by the County, in coordination with Caltrans, will go a long way towards avoiding, minimizing, and mitigating for adverse effects to the species. Measures such as training construction personnel, implementing preconstruction surveys for species, installing exclusion fencing, filling aquatic habitat during the dry season, and restricting work during rain events will serve to avoid and minimize the specific loss of, injury to, and impairment of individuals of each species. Additionally, proposed off-site compensatory mitigation measures will off-set the loss of, disturbance to, and indirect effects to, on-site habitats for all of the species.

2) Because the range of each species extends variably across other parts of the San Joaquin Valley and is not restricted only to this particular project location, the resulting adverse effects of the project (reduced by the aforementioned conservation measures) are not expected to appreciably diminish the likelihood of both the survival and recovery of the listed species in the wild by reducing their reproduction, numbers, or distribution.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by Service regulations at 50 CFR 17.3 as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the same regulations as an act that actually kills or injures wildlife. Harm is defined further to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action

is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans so that they become binding conditions of any contract developed with the contractor for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans: (1) fails to assume and implement the terms and conditions or (2) fails to require its contractor to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the contract, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

Sections 7(b)(4) and 7(o)(2) of the Act, which refer to terms and conditions and exemptions on taking listed fish and wildlife species, do not apply to listed plant species. However, section 9(a)(2) of the Act prohibits removal, reduction to possession, and malicious damage or destruction of listed plant species on federal lands and the removal, cutting, digging up, or damaging or destroying of such species in knowing violation of any state law or regulation, including state criminal trespass law. Actions funded, authorized, or implemented by a federal agency that could incidentally result in the damage or destruction of such species on federal lands are not a violation of the Act, provided the Service determines in a biological opinion that the actions are not likely to jeopardize the continued existence of the species.

Amount or Extent of Take

Central California tiger salamander

It is infeasible for the Service to quantify the actual number of Central California tiger salamanders that will be taken as a result of the proposed action because the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. Furthermore, the species is difficult to detect because it spends the majority of its life inhabiting underground burrows or other cover sites; it comes above-ground only for limited periods during nighttime rain events in the fall, winter, and spring; spends only short periods of its life, by comparison, in breeding ponds; and finding an injured or dead individual is unlikely due to the species' relatively small body size (particularly in its early egg and larval life stages), rapid carcass deterioration, and likelihood that the remains will be removed by a scavenger.

In instances in which the number of individuals that may be taken cannot be determined, the Service may quantify take in the amount of lost or disturbed habitat resulting from the project action; since take is expected to result from these effects to habitat, the quantification of habitat becomes a surrogate for the species that will be taken. Accordingly, there is a risk of harm to, capture of, injury to, and mortality of all Central California tiger salamanders (in multiple life stages) occupying, using, or moving through the action area resulting from: 1) the effects to 69.44 ac of aquatic habitat, and to 812.85 ac of upland habitat, inclusive of any burrows and other cover/refugia features, which will impair their ability to breed, forage/feed, move, seek protection from predators, and find shelter; 2) interactions with construction crews and their equipment/materials, and with construction activities; and 3) burrow excavation, and capture and relocation efforts.

The Service therefore is exempting the following take incidental to the proposed action from the prohibitions described under section 9 of the Act:

1) The capture of all juvenile and adult Central California tiger salamanders within the project footprint;

2) The harm, injury to, and mortality of Central California tiger salamander eggs and larvae within a total of 69.44 ac of suitable aquatic habitat in the action area;

3) The harm, injury to, and mortality of, no more than six juvenile or adult Central California tiger salamanders within a total of 882.29 ac of suitable upland and aquatic habitats in the action area over the course of the project.

The initial species-specific surveys that were carried out for the project did not provide a clear picture regarding the presence in the action area of the Central California tiger salamander given that these surveys were conducted primarily during years of low rainfall and did not extend to the entire action area. However, because this proposed project extends across a very large footprint that contains both suitable breeding and upland habitats, is bordered by other areas of suitable habitat for the species, and is located in relative proximity to areas where the Central California tiger salamander has been observed in more recent years (i.e., the eastern end of the project extent is within approximately 2-3 mi of these recorded occurrences), it is reasonably likely to expect that the species will be encountered during project activities, and that more than one injury and/or mortality will occur in association with the project. Although the Service cannot quantify the number of Central California tiger salamanders that will be incidentally taken within the action area for the reasons listed above (some of which is anticipated to go undetected, particularly that which is associated with the egg and larval stages), the Service anticipates that the number taken will be relatively low based on the fact that: 1) most juveniles and adults are expected to be excluded from active construction areas prior to the start of work and prior to the wet season, so individuals are more likely to occur in neighboring aquatic and upland habitats outside of the project footprint during construction; and 2) the County, in coordination with Caltrans, will implement a series of conservation measures to reduce the potential for adverse effects to the species, including permanently filling aquatic habitats during the dry season when Central California tiger salamander eggs and larvae are absent, thereby substantially reducing egg and larval mortality. The Service anticipates that up to six injured or dead juveniles/adults will be detected over the course of project-related activities. This number is based on an estimate that up to two injured or killed Central California tiger salamanders will be found per year over the proposed three-year construction period (2 injured/dead x 3 years=6 injured/dead).

In other words, if more than six injured or dead juveniles or adults are detected by biological monitors or other project personnel, and/or more than a combined total of 882.29 ac of suitable aquatic and upland habitats are affected, then take has been exceeded and conservation measures and project implementation need to be re-evaluated and possibly modified, and Caltrans must reinitiate formal consultation.

Vernal pool fairy shrimp and vernal pool tadpole shrimp

It is infeasible for the Service to quantify the actual number of vernal pool fairy shrimp and vernal pool tadpole shrimp, including their cysts, that will be taken as a result of the proposed action because the number of individuals in the action area is unknown, and estimates of population density in the action area are unavailable. Furthermore, the species are difficult to detect because it is not possible to know how many cysts are present in the soil of any given water feature, or how many adult shrimp or cysts will occupy any given water feature at a later point in time; also, the species are subject to seasonal fluctuations in their numbers, and finding dead individuals is highly unlikely due to the species' extremely small body sizes and the fact that they exist as tiny cysts in the soil for the

majority of the year. Although the Service cannot quantify the number of vernal pool fairy shrimp and vernal pool tadpole shrimp that will be incidentally taken, Caltrans will implement conservation measures to reduce the potential for adverse effects to the species, including permanently filling aquatic habitats during the dry season when adult vernal pool fairy shrimp and vernal pool tadpole shrimp are absent, thereby reducing adult mortality.

In instances in which the number of individuals that may be taken cannot be determined, the Service may quantify take in the amount of lost or disturbed habitat resulting from the project action; since take is expected to result from these effects to habitat, the quantification of habitat becomes a surrogate for the species that will be taken. Accordingly, there is a risk of harm to, and mortality of, all adult vernal pool fairy shrimp and vernal pool tadpole shrimp, including their cysts, occupying the action area resulting from: 1) the effects to 2.22 ac of suitable aquatic habitat; and 2) interactions with construction crews and their equipment/materials, and with construction activities.

The Service therefore is exempting the following take incidental to the proposed action from the prohibitions described under section 9 of the Act:

1) The harm to, and mortality of adult vernal pool fairy shrimp and vernal pool tadpole shrimp, along with all of their cysts, within 2.22 ac of suitable aquatic habitat in the action area.

If more than a total of 2.22 ac of suitable aquatic habitat is affected, then take has been exceeded and conservation measures and project implementation need to be re-evaluated and possibly modified, and Caltrans must reinitiate formal consultation.

Upon implementation of the following reasonable and prudent measure, terms and conditions, and the aforementioned proposed conservation measures, incidental take of the Central California tiger salamander, vernal pool fairy shrimp, and vernal pool tadpole shrimp associated with constructing the proposed project will become exempt from the prohibitions described in section 9 of the Act. No other forms of take are exempted under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the Central California tiger salamander, vernal pool fairy shrimp, or vernal pool tadpole shrimp.

Reasonable and Prudent Measures

All necessary and appropriate measures to avoid or minimize effects on the Central California tiger salamander, vernal pool fairy shrimp, and vernal pool tadpole shrimp resulting from implementation of this project have been incorporated into the project's proposed conservation measures. Therefore, the Service believes the following reasonable and prudent measure is necessary and appropriate to minimize incidental take of the species:

1) All conservation measures, as described in the **Description of the Proposed Action** section of this biological opinion, shall be fully implemented and adhered to. Further, this reasonable and prudent measure shall be supplemented by the terms and conditions below.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans, the County, as well as any contractor acting on either Caltrans' or the County's behalf, must ensure compliance with the

following terms and conditions, which implement the reasonable and prudent measure described above. These terms and conditions are nondiscretionary.

1) Caltrans and the County shall include full implementation and adherence to the conservation measures as a condition of any contract issued for the project.

2) Prior to the start of construction, Caltrans shall provide the Service either with a copy of the County's completed bill of sale and payment receipt upon the purchase of conservation credits for all of the species; or with confirmation that the County, in coordination with Caltrans, has recorded a Service-approved conservation easement(s) on an appropriate parcel(s) of land, and has established a LTMP and endowment account to fund long-term management and monitoring activities on the property for the benefit of all of the species.

3) In order to monitor whether the amount or extent of incidental take anticipated from implementation of the proposed project is approached or exceeded, Caltrans shall adhere to the following monitoring and reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate consultation per 50 CFR 402.16.

    a. For those components of the action that will result in habitat loss and disturbance whereby incidental take in the form of harm is anticipated, Caltrans shall provide to the Service, prior to the start of construction, a precise and updated accounting of the total acreage of habitat to be impacted in order to confirm that ground disturbance does not exceed what is described in this biological opinion.

    b. Caltrans shall immediately contact the Service's Sacramento Fish and Wildlife Office (SFWO) at (916) 414-6544 to report direct encounters between listed species and project workers and their equipment/materials whereby incidental take in the form of harm, injury, or death occurs. If the encounter occurs after normal working hours, Caltrans shall contact the SFWO at the earliest possible opportunity the next working day.

    c. In the event that injured or killed individuals of the listed species are found (regardless of whether or not incidental take has been exceeded), Caltrans and the County shall follow the steps outlined in the **Salvage and Disposition of Individuals** section below.

    d. For those components of the action that will require the capture and relocation of listed species, Caltrans shall immediately contact the SFWO to report the activity. If capture and relocation efforts need to occur after normal working hours, Caltrans shall contact the SFWO at the earliest possible opportunity the next working day.

    e. A final post-construction report detailing compliance with the project design criteria and proposed conservation measures described under the **Description of the Proposed Action** section of this biological opinion shall be provided to the Service within 90 calendar days of completion of the project. The report shall include: (1) dates of project groundbreaking and completion; (2) pertinent information concerning the success of the project in meeting the conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the species, if any; (5) observed incidents of harm to, capture of, injury to, or death of the species, if any; and (6) any other pertinent information.

Salvage and Disposition of Individuals:

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist(s) associated with the project. Dead individuals must be sealed in a re-sealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it; the bag containing the specimen must be frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact person is the San Joaquin Valley Division Chief of the Endangered Species Program at the SFWO at (916) 414-6544.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1) Using the appropriate data sheets, the Service-approved biologist(s) should report sightings of any Central California tiger salamanders, vernal pool fairy shrimp, vernal pool tadpole shrimp, Colusa grass, Greene's tuctoria, Hartweg's golden sunburst, or other listed species to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location in which the animal/plant was observed also should be provided to the Service.

2) Caltrans should assist the Service in implementing recovery actions identified in the 2017 Central CTS Recovery Plan and in the 2005 Vernal Pool Recovery Plan by reviewing the document's recovery goals, objectives, and criteria, and identifying activities that could be incorporated into Caltrans' proposed projects, and successfully implemented.

3) Caltrans has expressed interest in utilizing environmental DNA (eDNA) sampling techniques to survey for Central California tiger salamander larvae on the project site, with the aim to detect the species and improve its capability to accurately identify which parts of the action area may require more comprehensive application of conservation measures. Before initiating any eDNA sampling efforts, Caltrans and the County should research eDNA methodologies/procedures and coordinate first with the Service. Any eDNA collection should be carried out in conjunction with (and not instead of) the proposed protocol-level surveys for the Central California tiger salamander.

4) Caltrans and the County should plan to install undercrossing structures for the Central California tiger salamander in appropriate locations along the new NCC alignment in order to facilitate species movement. Crossing structures contribute to creating safe dispersal corridors for the species, reducing vehicular/road mortalities, and connecting increasingly fragmented habitats. Caltrans and the County should explore designs and include photos, plans, and other information concerning the incorporation of undercrossings into the project design, which should be discussed in future reinitiations of consultation.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION—CLOSING STATEMENT

This concludes formal consultation on the North County Corridor--New SR 108 Project. As provided in 50 CFR 402.16(a), reinitiation of consultation is required and shall be requested by the federal agency or by the Service, where discretionary federal involvement or control over the action has been retained or is authorized by law and:

(1) If the amount or extent of taking specified in the incidental take statement is exceeded;

(2) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;

(3) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion or written concurrence; or

(4) If a new species is listed or critical habitat designated that may be affected by the identified action.

If you have any questions regarding this biological opinion, please contact Jen Schofield (jen_schofield@fws.gov), or Patricia Cole (patricia_cole@fws.gov) at the letterhead address, at (916) 414-6544, or by e-mail.

Sincerely,

Jennifer M. Norris, Ph.D.
Field Supervisor

cc:
Steven Hulbert, California Department of Fish and Wildlife, Fresno, California

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_____2008a. Colusa Grass (*Neostapfia colusana*) 5-Year Review: Summary and Evaluation. Sacramento Fish and Wildlife Office, Sacramento, California. 27 pp.

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_____2017a. Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*). U.S. Fish and Wildlife Service; Sacramento, California. 28 pp.

_____2017b. Recovery Plan for the Central California Distinct Population Segment of the California Tiger Salamander *(Ambystoma californiense)*. U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. v + 69pp.

Appendix I U.S. Fish and Wildlife Service and NOAA Species Letter

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Avena (3712171) OR Bachelor Valley (3712087) OR Brush Lake (3712151) OR Ceres (3712058) OR Cooperstown (3712065) OR Denair (3712057) OR Escalon (3712078) OR Farmington (3712088) OR Knights Ferry (3712076) OR Manteca (3712172) OR Montpelier (3712056) OR Oakdale (3712077) OR Paulsell (3712066) OR Peters (3712181) OR Ripon (3712162) OR Riverbank (3712068) OR Salida (3712161) OR Stockton East (3712182) OR Turlock Lake (3712055) OR Waterford (3712067) OR Westley (3712152))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Anniella pulchra northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Atriplex cordulata var. cordulata heartscale	PDCHE040B0	None	None	G3T2	S2	1B.2
Atriplex minuscula lesser saltscale	PDCHE042M0	None	None	G2	S2	1B.1
Atriplex subtilis subtle orache	PDCHE042T0	None	None	G1	S1	1B.2
Blepharizonia plumosa big tarplant	PDAST1C011	None	None	G1G2	S1S2	1B.1
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus crotchii Crotch bumble bee	IIHYM24480	None	Candidate Endangered	G3G4	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	Candidate Endangered	G2G3	S1	
Branchinecta conservatio Conservancy fairy shrimp	ICBRA03010	Endangered	None	G2	S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta mesovallensis midvalley fairy shrimp	ICBRA03150	None	None	G2	S2S3	
Branta hutchinsii leucopareia cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T3	S3	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Calicina breva Stanislaus harvestman	ILARAU8020	None	None	G1	S1	
Calycadenia hooveri Hoover's calycadenia	PDAST1P040	None	None	G2	S2	1B.3
Castilleja campestris var. succulenta succulent owl's-clover	PDSCR0D3Z1	Threatened	Endangered	G4?T2T3	S2S3	1B.2
Caulanthus lemmonii Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Clarkia rostrata beaked clarkia	PDONA050Y0	None	None	G2G3	S2S3	1B.3
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Cryptantha hooveri Hoover's cryptantha	PDBOR0A190	None	None	GH	SH	1A
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G2?	S2?	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Egretta thula snowy egret	ABNGA06030	None	None	G5	S4	
Elderberry Savanna Elderberry Savanna	CTT63440CA	None	None	G2	S2.1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Eryngium racemosum Delta button-celery	PDAPI0Z0S0	None	Endangered	G1	S1	1B.1
Erythranthe marmorata Stanislaus monkeyflower	PDPHR01130	None	None	G2?	S2?	1B.1
Eschscholzia rhombipetala diamond-petaled California poppy	PDPAP0A0D0	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia hooveri Hoover's spurge	PDEUP0D150	Threatened	None	G1	S1	1B.2
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Great Valley Mixed Riparian Forest Great Valley Mixed Riparian Forest	CTT61420CA	None	None	G2	S2.2	
Great Valley Valley Oak Riparian Forest Great Valley Valley Oak Riparian Forest	CTT61430CA	None	None	G1	S1.1	
Haliaeetus leucocephalus bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Lagophylla dichotoma forked hare-leaf	PDAST5J070	None	None	G2	S2	1B.1
Lasionycteris noctivagans silver-haired bat	AMACC02010	None	None	G5	S3S4	
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G4	S3S4	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lytta moesta moestan blister beetle	IICOL4C020	None	None	G2	S2	
Melospiza melodia song sparrow ("Modesto" population)	ABPBXA3010	None	None	G5	S3?	SSC
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1	S1S2	
Monardella leucocephala Merced monardella	PDLAM180C0	None	None	GH	SH	1A
Mylopharodon conocephalus hardhead	AFCJB25010	None	None	G3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Neostapfia colusana Colusa grass	PMPOA4C010	Threatened	Endangered	G1	S1	1B.1
Neotoma fuscipes riparia riparian (=San Joaquin Valley) woodrat	AMAFF08081	Endangered	None	G5T1Q	S1	SSC
Northern Hardpan Vernal Pool Northern Hardpan Vernal Pool	CTT44110CA	None	None	G3	S3.1	
Oncorhynchus mykiss irideus pop. 11 steelhead - Central Valley DPS	AFCHA0209K	Threatened	None	G5T2Q	S2	
Orcuttia inaequalis San Joaquin Valley Orcutt grass	PMPOA4G060	Threatened	Endangered	G1	S1	1B.1
Orcuttia pilosa hairy Orcutt grass	PMPOA4G040	Endangered	Endangered	G1	S1	1B.1
Pseudobahia bahiifolia Hartweg's golden sunburst	PDAST7P010	Endangered	Endangered	G2	S2	1B.1
Puccinellia simplex California alkali grass	PMPOA53110	None	None	G3	S2	1B.2
Spea hammondii western spadefoot	AAABF02020	None	None	G3	S3	SSC
Sphenopholis obtusata prairie wedge grass	PMPOA5T030	None	None	G5	S2	2B.2
Sylvilagus bachmani riparius riparian brush rabbit	AMAEB01021	Endangered	Endangered	G5T1	S1	
Thamnophis gigas giant gartersnake	ARADB36150	Threatened	Threatened	G2	S2	
Tuctoria greenei Greene's tuctoria	PMPOA6N010	Endangered	Rare	G1	S1	1B.1
Vireo bellii pusillus least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
Vulpes macrotis mutica San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 75

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: October 15, 2019
Consultation Code: 08ESMF00-2017-SLI-0820
Event Code: 08ESMF00-2020-E-00294
Project Name: North County Corridor New State Route 108

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-0820

Event Code: 08ESMF00-2020-E-00294

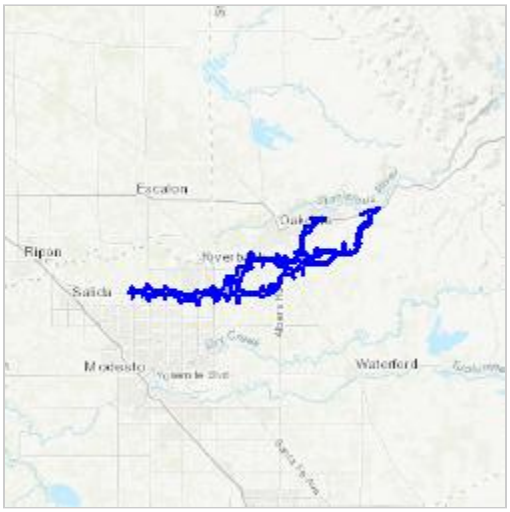
Project Name: North County Corridor New State Route 108

Project Type: TRANSPORTATION

Project Description: The proposed project is located in Caltrans District 10 within portions of the Oakdale, Riverbank, and Modesto communities, Stanislaus County, California. The NCC Project will connect SR-219 near Modesto, CA to SR-120 near Oakdale, CA. The proposed project consists of four Build Alternatives (1A, 1B, 2A, and 2B) and the No-Build Alternative. Construction is expected to begin in 2018, and be completed by 2022.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.7433913433743N120.8211648599591W



Counties: Stanislaus, CA

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Flowering Plants

NAME	STATUS
Colusa Grass *Neostapfia colusana* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5690	Threatened
Greene's Tuctoria *Tuctoria greenei* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1573	Endangered
Hartweg's Golden Sunburst *Pseudobahia bahiifolia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1704	Endangered
San Joaquin Orcutt Grass *Orcuttia inaequalis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5506	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

From:	Courtney Owens
To:	NMFSWCRCA Specieslist - NOAA Service Account
Cc:	Zach Liptak
Subject:	North County Corridor New State 108, Stanislaus County, California
Date:	Tuesday, October 15, 2019 10:41:52 AM

Project Name: North County Corridor New State 108
CEQA Lead: North County Corridor Transportation Expressway Association

Quad Name **Oakdale**

Quad Number **37120-G7**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - **X**
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Knights Ferry**
Quad Number **37120-G6**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -

Chinook Salmon EFH - **X**

Groundfish EFH -

Coastal Pelagics EFH -

Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Quad Name **Waterford**

Quad Number **37120-F7**

ESA Anadromous Fish

SONCC Coho ESU (T) -

CCC Coho ESU (E) -

CC Chinook Salmon ESU (T) -

CVSR Chinook Salmon ESU (T) -

SRWR Chinook Salmon ESU (E) -

NC Steelhead DPS (T) -

CCC Steelhead DPS (T) -

SCCC Steelhead DPS (T) -

SC Steelhead DPS (E) -

CCV Steelhead DPS (T) - **X**

Eulachon (T) -

sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -

CCC Coho Critical Habitat -

CC Chinook Salmon Critical Habitat -

CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -

CCC Steelhead Critical Habitat -

SCCC Steelhead Critical Habitat -

SC Steelhead Critical Habitat -

CCV Steelhead Critical Habitat - **X**

Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Riverbank**
Quad Number **37120-F8**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - X
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -

North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - **X**
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans -
MMPA Pinnipeds -

Quad Name **Salida**
Quad Number **37121-F1**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) -
CCV Steelhead DPS (T) - **X**
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -

SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat - X
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -
Steller Sea Lion Critical Habitat -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH - X
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds

See list at left and consult the NMFS Long Beach office 562-980-4000

MMPA Cetaceans -

MMPA Pinnipeds -

Regards,

Courtney S. Owens, M.S.
Environmental Planner/Biologist
DOKKEN ENGINEERING
110 Blue Ravine Road, Suite 200, Folsom, CA 95630
Phone: (916) 858-0642 - Fax: (916) 858-0643

From: Courtney Owens
To: Zach Liptak
Subject: FW: North County Corridor New State 108, Stanislaus County, California
Date: Tuesday, October 15, 2019 10:42:24 AM

From: NMFSWCRCA Specieslist - NOAA Service Account <nmfswcrca.specieslist+canned.response@noaa.gov>
Sent: Tuesday, October 15, 2019 10:42 AM
To: Courtney Owens <cowens@dokkenengineering.com>
Subject: Re: North County Corridor New State 108, Stanislaus County, California

Receipt of this message confirms that NMFS has received your email to nmfswcrca.specieslist@noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office.

Northern California/Klamath (Arcata) 707-822-7201

North-Central Coast (Santa Rosa) 707-387-0737

Southern California (Long Beach) 562-980-4000

California Central Valley (Sacramento) 916-930-3600

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

26 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3712087, 3712151, 3712058, 3712065, 3712057, 3712078, 3712088, 3712076, 3712056, 3712066, 3712181, 3712162, 3712182 3712055 and 3712067;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	4.2	S3	G4T3
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	1B.1	S2	G2
Atriplex subtilis	subtle orache	Chenopodiaceae	annual herb	Jun,Aug,Sep(Oct)	1B.2	S1	G1
Calycadenia hooveri	Hoover's calycadenia	Asteraceae	annual herb	Jul-Sep	1B.3	S2	G2
Castilleja campestris var. succulenta	succulent owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	(Mar)Apr-May	1B.2	S2S3	G4? T2T3
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Clarkia rostrata	beaked clarkia	Onagraceae	annual herb	Apr-May	1B.3	S2S3	G2G3
Cryptantha hooveri	Hoover's cryptantha	Boraginaceae	annual herb	Apr-May	1A	SH	GH
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Eryngium racemosum	Delta button-celery	Apiaceae	annual / perennial herb	Jun-Oct	1B.1	S1	G1
Euphorbia hooveri		Euphorbiaceae	annual herb	Jul-Sep(Oct)	1B.2	S1	G1

	Hoover's spurge						
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Lagophylla dichotoma	forked hare-leaf	Asteraceae	annual herb	Apr-May	1B.1	S2	G2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Monardella leucocephala	Merced monardella	Lamiaceae	annual herb	May-Aug	1A	SH	GH
Neostapfia colusana	Colusa grass	Poaceae	annual herb	May-Aug	1B.1	S1	G1
Orcuttia inaequalis	San Joaquin Valley Orcutt grass	Poaceae	annual herb	Apr-Sep	1B.1	S1	G1
Orcuttia pilosa	hairy Orcutt grass	Poaceae	annual herb	May-Sep	1B.1	S1	G1
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Sphenopholis obtusata	prairie wedge grass	Poaceae	perennial herb	Apr-Jul	2B.2	S2	G5
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Tuctoria greenei	Greene's tuctoria	Poaceae	annual herb	May-Jul(Sep)	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 15 October 2019].