
E-6: Line 406/407 Amphibian and Reptile Habitat Assessment

SPECIAL-STATUS AMPHIBIAN AND REPTILE SPECIES HABITAT ASSESSMENT
for the
PACIFIC GAS and ELECTRIC COMPANY
NATURAL GAS TRANSMISSION LINE 406/407 PROJECT
PLACER, SACRAMENTO, SUTTER, and YOLO COUNTIES

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1 INTRODUCTION

1.1 Background

The Pacific Gas and Electric Company (PG&E) is planning to construct the Natural Gas Transmission Line 406 and Line 407 Project (project) to address the need for additional natural gas supply to serve on-going residential and commercial load growth in the greater Sacramento River Valley region within Placer, Sutter, Sacramento, and Yolo counties. The project includes approximately 40 miles of 30-inch transmission pipeline, approximately 2.5 miles of 10-inch transmission pipeline, and a number of pressure regulation and metering stations and additional appurtenances to serve load growth and new development in the region. Service to the area is required by late 2009.

1.2 Objectives of Amphibian Assessment

This special-status amphibian and reptile species habitat assessment was prepared as a supplement to the project Biological Assessment. The objectives of this habitat assessment are to summarize the results of field reconnaissance and review of existing resource information; assess the potential for project activities to affect special-status herpetofauna species; and to propose measures that minimize or avoid potential adverse effects of the project.

1.3 Project Description

1.3.1 General project area

The project area extends from west of the City of Roseville, Placer County to western Yolo County (Lines 400 and 401). The proposed alignment follows a series of county roads and crosses several expanses of open croplands, grasslands and riparian belts associated with various water crossings. The alignment is generally flat with the exception of rolling grasslands in the Dunnigan Hills area. Elevation along the alignment ranges from approximately 15 to 255 feet above mean sea level. Primary land use along the alignment is agricultural and current residential development is considered rural and sparse in nature.

Six natural vegetation communities were identified along the project alignment. These communities are non-native annual grasslands (most prevalent community type), valley freshwater marsh, seasonal wetland, vernal pool, riparian forest/scrub, and oak woodland habitat types. The majority of the proposed alignment passes through agricultural lands supporting various dry-land crop and rice production.

1.3.2 Description of proposed project

Pipeline Segments and Regulator Stations

The new gas transmission pipeline will consist of three segments:

- 30-inch Line 407 East will extend west from existing Line 123 on the northwest corner of Fiddymont Road and Baseline Road in Placer County to the corner of Riego Road and Powerline Road in Sutter County (12-miles).



- 10-inch Powerline Road Feeder Main (DFM) will extend south from Line 407 East to the corner of Powerline Road and West Elverta Road in northern Sacramento County (2.5-miles).
- 30-inch Line 407 West will extend from the corner of Riego Road and Powerline Road in Sutter County to Line 172A, just east of Interstate 5 in Yolo County (13.5-miles).
- 30-inch Line 406 will extend from Line 172A, just east of Interstate 5 in Yolo County to Lines 400/401 in western Yolo County (14-miles).

PG&E will also construct various pressure regulation stations in fenced, above-ground yards. Pressure Limiting Stations are required to assure the proper pressures are maintained in the transmission system. Regulation Stations are required to reduce the pressure of the gas before delivering it to the distribution pipeline system.

Construction and Right-of-Way

Construction of the pipeline will generally require a 100-foot wide construction right-of-way (ROW). The construction ROW may be narrowed in places to avoid environmental impacts; however, additional workspace may be needed at select locations for stream crossings, road crossings, and in other areas where special construction methods are required. A 50-foot permanent easement is required for operation and maintenance of the pipeline.

2 STUDY METHODS

2.1 Species Evaluated

Prior to conducting reconnaissance-level surveys, target lists of special-status amphibian and reptile species that have been recorded in or that have potential to occur in the project area were prepared (Table 1). Special-status species lists from the U.S. Fish and Wildlife Service (USFWS), California Natural Diversity Data Base (CNDDDB), and California Department of Fish and Game (CDFG) Special Animals List, were referenced to compile a master list of species from these two taxa. Species lists were compiled for the following U.S. Geological Survey (USGS) 7.5-minute quadrangles:

- Esparto
- Madison
- Woodland
- Knights Landing
- Verona
- Grays Bend
- Taylor Monument
- Rio Linda
- Citrus Heights



- Pleasant Grove
- Roseville

Sources of information used to compile species lists included the on-line USFWS list of federally threatened and endangered species (USFWS 2007a), the CDFG California Natural Diversity Database (CDFG 2007a), and the CDFG Special Animals list (CDFG 2007b).

Special-status species were defined as those species currently listed, proposed for listing, or candidates for listing as rare, threatened, or endangered under Federal or California State Endangered Species Acts. California State species of concern were also reviewed (CDFG).

A total of three special-status amphibian species and three special-status reptile species with potential to occur in the project area and/or vicinity were identified (Table 1); all six species are further evaluated in this assessment.

2.2 Project Surveys

In order to encompass all potential ROW adjustments, extra work spaces, and potential effects of the project on the environment, a survey area of 500 feet was established and assessed for both sides of the proposed pipeline alignment (1000-foot survey corridor). Aerial photography and geographic information system maps, in conjunction with ground reconnaissance surveys, were used to assess the potential for sensitive species habitats to occur within the project survey corridor. Reconnaissance-level field surveys of the project alignment were performed on June 12 & 13, 2006 for L407 East; November 30, December 5 and 7, 2006 for L406; and June 29, 2007 for L407 West. The purpose of these reconnaissance level surveys was to assess site conditions, habitat types present, and to note any special-status wildlife species and habitats that may be present. The survey corridor was assessed by driving available roads and walking representative portions of the habitat within the survey area along the pipeline alignment, thus allowing a close-up inspection of the habitat; observable habitat characteristics were noted. The survey area was assessed for its potential to provide suitable habitat for special-status amphibian and reptile species. The only amphibians documented during surveys were introduced bullfrogs, *Rana catesbeiana*. Both tadpole and juvenile lifestages were observed.

3 RESULTS

3.1 Herpetofauna

Special-status herpetofauna species potentially occurring in the project action area may be directly impacted by noise, vibration, dust, sedimentation, vegetation removal, and human presence associated with the pipeline construction. Indirect impacts may also result from these activities in the form of degraded habitat quality resulting in future lost foraging opportunities or decreased prey base and impacted water quality. Significance of these impacts will vary according to when work is performed. Work that occurs during the typical wet season (mid-October through mid-May) would likely have the

most detrimental effects on herpetofauna species in the area, as they will be traversing open land to move between aquatic and terrestrial habitats. Construction of pressure regulating stations will result in a small permanent loss of habitat (4625 sq ft) identified in the project area. Project construction impacts/disturbance will be temporary in nature. The following are individual herpetofauna species accounts which include project area habitat suitability assessment and potential project related effects.

3.1.1 Special-status amphibians

California tiger salamander (*Ambystoma californiense*)

Status, distribution, and habitat requirements

The California tiger salamander (CTS) was federally designated as threatened in 2004 (USFWS 2004). Critical habitat was designated in 2005 (USFWS 2005), though the project area does not fall within the critical habitat designation. It is also listed as a state species of concern. The salamander is a California endemic, and occurs in low elevations of the Coast Ranges from Sonoma County to Santa Barbara County and in the Central Valley from Colusa County to Tulare County (Jennings and Hayes 1994). It breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats with small mammal burrows, particularly those of the California ground squirrel (*Spermophilus beechii*), in which it estivates (Jennings and Hayes 1994). Migration to and from breeding sites typically occurs at night following relatively warm rains from November to March (Shaffer and Fisher 1991). Juvenile salamanders may spend up to five years traveling farther and farther away from breeding pools, before returning to the one they came from or discovering another.

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. It is known that vernal pools exist in the vicinity, but none were documented to hold water at the time of the surveys. Even though vernal pool habitats were not holding water during surveys, the area is considered potential breeding habitat for CTS, especially in the L406 segment. The open grassland provides dispersal potential, but estivation habitat (burrows and other refugia) is limited. Few small gopher/vole burrows were documented in L407 East and West, with no larger ground squirrel burrows noted, while L406 segment has many large burrow complexes. CNDDDB records exist for the salamander in the L406 segments of the project area. The California Tiger Salamander is highly likely to occur in the project area.

Potential Project Related Effects

CTS is known to occur near the L406 segment area and may be encountered during construction activities. Project activities that may impact aquatic and upland habitats through excavation or filling could take potentially occurring CTS directly through mortality, harassment, and disruption of

reproduction. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to, and within 200 feet of, aquatic habitat. Project conservation measures will ensure that impacts to CTS and its habitat are minimized or avoided. However, the project is likely to adversely affect CTS.

California red-legged frog (*Rana aurora draytonii*)

Status, distribution and habitat requirements

The California red-legged frog (CRLF) was designated as federally threatened in 1996 (USFWS 1996) and is a state species of concern. A recovery plan for the frog was published in 2002 (USFWS 2002) and Critical Habitat was designated in 2006 (USFWS 2006), though the project area does not fall within the critical habitat designation. Formerly much more widespread, current CRLF distribution is characterized as isolated localities in the Sierra Nevada and along the north and central coast range, and northern transverse range (USFWS 2002). The frog inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation bordering permanent and semipermanent ponds, ponded streams, marshes, and springs (USFWS 1997). Upland habitat surrounding breeding areas is important for shelter during dispersal and estivation. However, it may travel considerable distances away from water on rainy nights (USFWS 1997) and overland movements in excess of two miles have been recorded. At any time of the year, the frogs may take refuge in burrows and other refugia up to several dozen meters from water (USFWS 1997).

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. It is known that vernal pools exist in the vicinity, but none were documented to hold water at the time of the surveys. Because of the relatively shallow water and ephemeral nature of Curry Creek and an unnamed tributary to the Natomas East Main Canal the area is considered marginal for CRLF breeding. While the surrounding open grassland provides dispersal potential, estivation habitat (burrows and other refugia) is limited. No CNDDDB records were found for CRLF within 10 miles of the project vicinity and bullfrog juveniles and tadpoles were identified in Curry Creek. As such, CRLF is not likely to occur in the project area.

Potential project-related effects

Potential habitat for CRLF is considered marginally suitable throughout the project area. In addition, CRLF has not been recorded in the project vicinity; therefore it is not expected to occur at project worksites. The project is expected to have no effect on CRLF.

Western Spadefoot (*Spea hammondi*)

Status, distribution, and habitat requirements

The western spadefoot is designated as a federal and state species of concern. It ranges from the northern end of California's central valley south into northwest Baja California. It also ranges east of the Sierras and the deserts, from near sea level up to 4,000 ft. (1200 m.). The spadefoot prefers open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. The spadefoot breeds from January to May in temporary pools and quiet streams which do not contain bullfrogs, fish, or crayfish. The species burrows into drying pool bottoms or seeks refuge in mammal burrows to pass the dry season (Stebbins 2003).

Habitat assessment and occurrence in the project area

Vernal pool and seasonal wetland habitats in the project area provide suitable potential breeding habitat. Also, lowland soils provide excellent estivation habitat as spadefoots do not use the burrows of mammals, but use their hind limbs to bury themselves in loose, well drained soils. In addition, several CNDDDB records exist for the species in the L407 East project area; therefore the species has a moderate to high potential for occurrence in the L407 East segment of the project area.

Potential project-related effects

Western spadefoots are known from the L407 East segment and suitable habitat exists for them. Project activities that may directly impact on-site grasslands, seasonal wetlands and vernal pools through excavation or filling could take potentially occurring western spadefoots and alter the hydrology of the wetland, thereby affecting its natural function. Construction activities may directly impact the seasonal wetlands and vernal pools in the project area. Project activities that may result in sedimentation and alteration of hydrologic regime may indirectly affect spadefoots. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to and within 250 feet of the wetlands. This practice will also minimize the amount of grassland habitat to be disturbed. Project mitigation measures will ensure that indirect impacts to seasonal wetlands are minimized or avoided. However, the project is likely to have significant impacts to western spadefoots.

3.1.2 Special-status reptiles

Western pond turtle (*Emys [=Clemmys] marmorata*)

Status, distribution, and habitat requirements

The western pond turtle is designated as a federal and state species of concern. In California, western pond turtles were historically present in most Pacific-slope drainages between the Oregon and Mexican borders (Jennings and Hayes 1994). The turtle is divided into two subspecies; the northwestern subspecies (*E.m.marmorata*) and the southwestern sub-species (*E.m.pallida*). This assessment focuses on

the northwestern sub-species. The turtle is associated with still or slow-moving permanent or nearly permanent aquatic habitats with access to suitable basking sites (logs, rocks, or open banks) and nearby upland nesting habitat. Western pond turtles are thoroughly aquatic and can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation (Stebbins 2003).

Habitat assessment and occurrence in the project area

The larger canals throughout the L407 West and L406 segments of the project area provide suitable habitat for western pond turtles. In addition, portions of Curry Creek and the unnamed tributary in L407 East segment may have permanent pools that could provide suitable habitat for the turtle in the eastern portion of the project area. Upland areas surrounding these waterways could provide suitable nesting habitat. The western pond turtle has moderate potential to occur in the project area.

Potential project-related impacts

The western pond turtle is not known to occur in the project area, but suitable habitat does exist. There is moderate potential to encounter the turtle at project worksites. Project activities that may directly impact on-site aquatic and upland habitats through excavation or filling could take potentially occurring western pond turtle. Also, project activities may result in sedimentation and alteration of hydrologic regime thereby indirectly affecting turtles. Project conservation measures will ensure that impacts to the western pond turtle and its habitat are minimized or avoided. However, the project may significantly impact western pond turtle.

California horned lizard (*Phrynosoma coronatum*)

Status, distribution, and habitat requirements

The California horned lizard is designated as a federal species of concern as well as a state species of concern. This lizard can be found throughout most of California west of the desert and Cascade/Sierra Nevada highlands. They frequent several different habitat communities including scrubland, grassland, coniferous forests, and broadleaf woodland. The coast horned lizard is common in lowlands along sandy washes where scattered low shrubs provide cover. Habitat requirements include open areas for basking and loose soils in which they can bury themselves (Stebbins 2003).

Habitat assessment and occurrence in the project area

Grassland habitat is available in the project area; however these areas lack low shrubs with very loose sandy soils for refuge and estivation. In addition, these lizards are more often known from the foothills and highlands, not the Central Valley floor. The valley floor is likely too moist through the winter to allow these reptiles refuge; unlike the amphibian species that burrow in loose soils these reptiles cannot

tolerate inundation during long wet periods. There are no known occurrences of the lizard within the project vicinity. The species has very low potential for occurring in the project area.

Potential project-related effects

Potential grassland habitat for the horned lizard exists in the project area, but suitable foraging, breeding, and estivation habitat do not. The horned lizard has not been recorded in the project vicinity and extant populations of horned lizard are not known from Sutter or Sacramento Counties. The nearest known occurrences are near Colfax in eastern Placer County. California horned lizards are not likely to occur in the project area. As such, the project is expected to have no significant impacts to the horned lizard.

Giant garter snake (*Thamnophis gigas*)

Status, distribution, and habitat requirements

The giant garter snake was federally designated as threatened in 1993 (USFWS 1993), and a draft recovery plan was proposed in 1999 (USFWS 1999). It is also listed by the state as threatened. The giant garter snake is endemic to valley floor wetlands of the Sacramento and San Joaquin Valleys and its current range extends from near Chico in Butte County south to Fresno County. Thirteen known populations are concentrated in portions of the rice production zones in the Butte, Colusa, Sutter, American, Sacramento, and Yolo basins as well as the areas of Bader Creek-Willow Creek, Caldoni Marsh, East Stockton -Diverting Canal and Duck Creek, North and South Grasslands, Mendota, and Bumell-Lanare. The species inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields of the Central Valley. The giant garter snake requires emergent or riparian vegetation for cover and foraging, basking, and upland habitat for retreat and hibernation activities. The snake also requires permanent water during its active period of May through October (USFWS 1993).

Habitat assessment and occurrence in the project area

Aquatic habitat was present in the project area in the forms of creeks (Curry Creek and an unnamed tributary) and drainage ditches in the L407 East segment of the project. The L407 West segment had canals, rice paddies, sloughs, the Sacramento River and drainage ditches, while canals and drainage ditches and small ephemeral streams on the L406 segment of the project area. Much of this provides suitable habitat for the giant garter snake, including foraging, breeding, and refugia sites. Forty-two CNDDDB records exist of the snake in the lowland areas in the L407 East and West segments of the project area. The giant garter snake is highly likely to occur in the project area.

Potential project-related effects

The giant garter snake is known to occur in the project area and is likely to be encountered during construction activities. Project activities that may impact aquatic and upland habitats through excavation or filling could take potentially occurring giant garter snake directly through mortality, harassment, and

disruption of reproduction. During the design of the final construction plan, all attempts possible will be made to avoid surface impacts to, and within 200 feet of, aquatic habitat. Project conservation measures will ensure that impacts to giant garter snake and its habitat are minimized or avoided. However, the project is likely to adversely affect giant garter snake.

4 SUMMARY OF POTENTIAL EFFECTS

The potential to impact amphibians and reptiles exists year round, because there is potential for estivating and/or nesting animals to be in the ground at any time of the year. Excavation poses the greatest threat to subterranean wildlife, which may be crushed or buried. The risk increases during the wet season (typically mid-October through mid-May), when animals may be moving between terrestrial and aquatic habitats. At these times the animals are more vulnerable to being crushed by moving equipment on roads or at work sites. Though this risk is ameliorated by the fact that most amphibians and turtles move at night, migrating animals may take refuge under equipment during the day.

5 PROJECT CONSERVATION MEASURES

To minimize potential project related impacts, the following measures are recommended:

- Confine all heavy equipment, vehicles, and construction work to existing access roads, road shoulders, and disturbed or designated areas. Avoid construction activities within 200 feet from the banks of giant garter snake aquatic habitat.
- Construction activity within habitat should be conducted between May 1 and October 1. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. Between October 2 and April 30 contact the Service's Sacramento Fish and Wildlife Office to determine if additional measures are necessary to minimize and avoid take.
- Immediately before work begins each day, a qualified biologist will perform a pre-construction survey to inspect a 200 foot buffer around any work site within 500 feet of potential aquatic habitat. 24-hours prior to construction activities that take place near giant garter snake habitat, the project area should be surveyed for giant garter snakes. Survey of the project area should be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed.
- Any dewatered habitat should remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.
- Employ erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) on site. Do not permit any fill or runoff to enter wetland areas or waterways.
- Where feasible, HDD construction methods will be used to install the pipeline beneath sensitive wetland habitats identified on-site. This construction practice will avoid direct surface impacts to most wetland resources.
- Properly fence and/or cover unattended, open trenches or excavations to prevent wildlife entrapment. Provide a soil escape ramp to facilitate the escape of any trapped wildlife.

- After completion of construction activities, remove any temporary fill and construction debris and, wherever feasible, restore disturbed areas to pre-project conditions and contours. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel and soil stabilization.
- Return work areas to preexisting contours and conditions upon completion of work. When work is completed, evaluate and perform if necessary, restoration work (including revegetation and soil stabilization).
- Confine clearing to the minimal area necessary to facilitate construction activities. Flag and designate avoided giant garter snake habitat within or adjacent to the project area as Environmentally Sensitive Areas. This area should be avoided by all construction personnel.
- In accordance with federal and state endangered species acts, report all observations of sensitive species to a PG&E biologist. Allow the PG&E biologist to contact appropriate state and federal resource agency personnel. Take care not to take or harass the species.
- Use extreme caution when handling and or storing chemicals (e.g., fuel and hydraulic fluid) near waterways, and abide by any and all applicable laws and regulations. Follow all applicable hazardous waste BMPs. Appropriate materials will be on site to prevent and manage spills.
- All construction equipment will be well maintained to prevent leaks of fuels, lubricants or other fluids into waterways.
- Service and refueling procedures will be not conducted where there is potential for fuel spills to seep or wash into waterways.
- Properly contain and remove from the project site all trash and waste items generated by construction or crew activities.
- Permit no pets, campfires, or firearms on the project site.
- A qualified biologist will provide environmental awareness training to all construction personnel before construction begins. The training will include species descriptions and protection measure discussion, including training to instruct construction workers to recognize giant garter snakes and their habitat.
- All construction personnel will visually check for wildlife beneath vehicles and equipment before moving or operating them.

6 CONCLUSIONS AND DETERMINATIONS

Several special-status amphibian and reptile species have been recorded in the project vicinity. Of the six species reviewed, four have potential to occur on site and are susceptible to project impacts. Potential adverse impacts to amphibian and reptile species assessed can be minimized or avoided if project conservation measures are implemented. Restricting work to non-sensitive or designated areas, implementation of appropriate construction BMPs, careful handling of chemicals near waterways, providing environmental awareness training to the crew, surveying work sites near aquatic habitat before construction, and restoring the site appropriately are general measures that will reduce or eliminate the negative effects that may be associated with the project. Additional conservation measures that will prevent or minimize adverse affects to potentially occurring sensitive species include avoiding sensitive temporal windows for wildlife, conducting appropriate pre-construction surveys for wildlife species in the project action area, checking for wildlife beneath vehicles and equipment at the project area, and having a

qualified biologist on-site for potential aquatic species rescue purposes. Implementation of all of these measures and careful planning will help ensure that the project has the least amount of adverse affects on ecosystems or sensitive species in the project area.

Three amphibian species were considered for this assessment. The project occurs within potential habitat for the federally listed California tiger salamander, and habitat is of low, moderate, and high quality depending on the segment within the project. The project is expected to have no effect on the California tiger salamander or California tiger salamander critical habitat for the L407 East and West segments; however it is likely to adversely affect CTS in the L406 segment. The federally listed California red-legged frog is not expected to occur in the project area. While there is suitable aquatic habitat, refugia sites are limited and there are no known localities for the frog near the project vicinity. The project is expected to have no effect on California red-legged frog or California red-legged frog critical habitat. Western spadefoot, a species of concern, is expected to occur in the eastern portion of the project area. Suitable habitat for breeding and estivation are present and previous occurrences have been documented. The project is expected to have significant impacts to western spadefoot.

Three reptile species were considered for this assessment. The western pond turtle, a species of concern, is a thoroughly aquatic turtle. Aquatic habitat within the project area has the potential to provide both breeding and basking/refugia sites. The nearest known location for pond turtles is approximately 5 miles from the project area, but the occurrence was in very similar habitat. The project may have significant impacts on western pond turtle. California horned lizard, a species of concern, is not expected to occur in the project vicinity. Horned lizards are found in foothill and highland areas with shrubby vegetation for foraging and refuge and cannot tolerate soils that experience seasonal inundation, therefore the project area does not provide suitable habitat. The project is not expected to have significant impacts on California horned lizard. Giant garter snake, a federally and state listed species, is expected to occur in the project area. Suitable habitat for breeding, foraging, and estivation are present and many previous occurrences in the project vicinity have been documented. The project is likely to adversely affect giant garter snake.

Project activities may impact waterway habitats; therefore it is required that appropriate permitting be obtained. Implementation of and adherence to recommended conservation measures will ensure that the project has the minimal amount of adverse affects on herpetofauna species and habitats.

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Tables



**Table 1. Special-Status Amphibian and Reptile Species
with Potential to Occur in the Project Vicinity**

<i>Scientific name</i> Common name	Status ¹	Habitat Requirements	Habitat suitability and occurrence in the project area.
<i>Ambystoma californiense</i> California tiger salamander	FT CSC	Inhabits lowlands and foothills. Breeds in long-lasting temporary pools as well as some permanent pools in grasslands and oak woodland habitats. Estivates in small mammal burrows, particularly those of the California ground squirrel, as well as cracks and crevices in dry earth.	Habitat is moderately to highly suitable in lowland areas with temporary pools in grasslands. Minimal small burrows (gopher/vole), a lot of ground squirrel activity in L406 segment. Nearest occurrences in Yolo County near Dunnigan and in southeastern Sacramento County. The species is highly likely to occur in the L406 segment of project area.
<i>Rana aurora draytonii</i> California red-legged frog	FT CSC	Believed to either never have occurred or to have been extirpated from Valley floor. Inhabits lowlands and foothills in or near permanent deep water with dense growth of emergent and woody riparian vegetation bordering permanent and semipermanent ponds, ponded streams, marshes, and springs. Upland habitat surrounding breeding areas is important for shelter during dispersal and estivation.	Habitat is marginal for CRLF breeding because of the relatively shallow water and ephemeral nature of Curry Creek and an unnamed tributary to the Natomas East Main Canal the area is. The surrounding open grassland provides dispersal potential; estivation habitat (burrows and other refugia) is limited. No CNDDDB records were found for CRLF within 10 miles of the project vicinity and bullfrog juveniles and tadpoles were identified in Curry Creek. The species is not expected to occur in the project area.
<i>Spea hammondi</i> Western spadefoot	FSC CSC	Inhabits lowlands in open areas with sandy or gravelly soils, in a variety of habitats including mixed woodlands, grasslands, chaparral, sandy washes, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Breeds in temporary pools and quiet streams.	Vernal pool and seasonal wetland habitats in the project area provide suitable potential breeding habitat and soils provide excellent estivation habitat in the L407 East segment. In addition, several CNDDDB records exist for the species in the L407 East segment. The species has a moderate to high potential for occurrence in the eastern portion of the project area.
<i>Emys marmorata</i> Western pond turtle	FSC CSC	Can be found throughout the state inhabiting woodland, grassland, and open forest habitats that contain ponds, permanent pools along intermittent drainages, lakes, marshes, rivers, streams, or irrigation ditches with rocky or muddy bottoms and emergent or aquatic vegetation.	The larger canals, sloughs, and creeks throughout the project area provide suitable habitat for western pond turtles. Upland areas surrounding these waterways could provide suitable nesting habitat. A Single CNDDDB record was found for the turtle approximately 5.5 miles south of the project area. The species has moderate potential

**Table 1. Special-Status Amphibian and Reptile Species
with Potential to Occur in the Project Vicinity**

<i>Scientific name</i> Common name	Status ¹	Habitat Requirements	Habitat suitability and occurrence in the project area.
			to occur in the project area.
<i>Phrynosoma coronatum</i> California horned lizard	FSC CSC	Can be found throughout most of California west of the desert and Cascade/Sierra Nevada highlands. Common in lowlands along sandy washes with scattered low shrubs to provide cover and open areas for basking and loose soils in which they can bury themselves.	Grassland habitat is available in the project area; however these areas lack low shrubs and very loose sandy soils for refuge and estivation. In addition, these lizards are more often known from the foothills and highlands, not the Central Valley floor. There are no known occurrences of the lizard within the project vicinity. The species has very low potential for occurring in the project area.
<i>Thamnophis gigas</i> Giant garter snake	FT ST	Inhabits freshwater marshes, wetlands, slow-moving streams, drainage ditches, irrigation canals, and rice fields of the Central Valley. Requires emergent or riparian vegetation for cover and foraging and basking and upland habitat for retreat and hibernation activities	Suitable habitat is available throughout the project area, especially in L407 East and West segments, including foraging, breeding, and refugia sites. Forty-two CNDDDB records exist of the snake in the lowland areas in the central and western portions of the project area. The species is highly likely to occur in the project area.

Status¹

US Fish and Wildlife Service

- FT Federally listed as threatened
- FE Federally listed as endangered
- FC Federal candidate species
- FSC Federal species of concern

California Dept. Fish and Game

- CT State listed as threatened
- CE State listed as endangered
- CSC State species of concern
- CFP State fully protected species

