

salamander species. In Madera County, Feaver (1971) found that only 11 of 30 sampled pools supported larval salamanders, and 5 of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only 6 (20 percent) provided suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998).

Following metamorphosis, juvenile California tiger salamanders leave their pools and move to upland habitat. This emigration can occur in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Wet conditions are more favorable for upland travel but summer rain events seldom occur as metamorphosis is completed and ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under dry conditions, juveniles may be limited to seeking upland refugia in close proximity to their aquatic larval pool. These individuals often wait until the next winter's rains to move further into more suitable upland refugia. The peak emergence of these metamorphs in ponds is typically between mid-June and mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Juveniles remain active in their upland habitat, emerging from underground refugia during rainfall events to disperse or forage (Trenham and Shaffer 2005). Depending on location and other development factors, metamorphs will not return as adults to aquatic breeding habitat for 2 to 5 years (Loredo and Van Vuren 1996; Trenham *et al.* 2000).

Reproductive success for the California tiger salamander is low. Results from one study suggest that the average female bred 1.4 times over their lifespan and produced 8.5 young per reproductive effort that survived to metamorphosis (Trenham *et al.* 2000). This resulted in the output of roughly 11 metamorphic offspring over a breeding female's lifetime. The primary reason for low reproductive success may be that this relatively short-lived species requires two or more years to become sexually mature (Shaffer *et al.* 1993). Some individuals may not breed until they are 4 to 6 years old. While California tiger salamanders may survive for more than 10 years, many breed only once, and in one study, less than 5 percent of marked juveniles survived to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well human-caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/birth pond to breed, while 20 percent dispersed to other ponds (Trenham *et al.* 2001). After breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before attempting to breed again (Trenham *et al.* 2000).

California tiger salamanders are known to travel long distances between breeding ponds and their upland refugia. Generally it is difficult to establish the maximum distances traveled by any species, but salamanders in Santa Barbara County have been recorded dispersing up to 1.3 miles from their breeding ponds (Sweet 1998). As a result of a 5-year capture and relocation study in Contra Costa County, Orloff (2007) estimated that captured California tiger salamanders were

traveling a minimum of 0.5 miles to the nearest breeding pond and that some individuals were likely traveling more than 1.3 miles to and from breeding ponds. California tiger salamanders are also known to travel between breeding ponds. One study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at other ponds approximately 1,900 and 2,200 feet away (Trenham *et al.* 2001). In addition to traveling long distances during juvenile dispersal and adult migration, salamanders may reside in burrows far from their associated breeding ponds.

Although previously cited information indicates that California tiger salamanders can travel long distances, they typically remain close to their associated breeding ponds. A trapping study conducted in Solano County during the winter of 2002/2003 suggested that juveniles dispersed and used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile California tiger salamanders were captured at traps placed at 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Approximately 20 percent of the captured juveniles were found at least 1,312 feet from the nearest breeding pond. The associated distribution curve suggested that 95 percent of juvenile California tiger salamanders were within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-04 trapping efforts at the same study site detected juvenile California tiger salamanders at even further distances, with a large proportion of the captures at 2,297 feet from the breeding pond (Trenham 1998a). Surprisingly, most juveniles captured, even those at 2,100 feet, were still moving away from ponds. In Santa Barbara County, juvenile Santa Barbara County DPS California tiger salamanders have been trapped approximately 1,200 feet away while dispersing from their natal pond (Science Applications International Corporation, unpublished data). These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-breeding emigration from aquatic habitat, radio-equipped adult California tiger salamanders were tracked to burrows between 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders exiting the ponds with depleted physical reserves, or drier weather conditions typically associated with the post-breeding upland migration period.

California tiger salamanders are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults were more abundant in grasslands with scattered large oaks, than in more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as terrestrial movement corridors (Trenham 2001). In addition, captures of arriving adults and dispersing new metamorphs were evenly distributed around two ponds completely encircled by drift fences and pitfall traps. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Threats: The Central California tiger salamander is imperiled throughout its range due to a variety of human activities (Service 2004). Current factors associated with declining Central California tiger salamander populations include continued habitat loss and degradation due to agriculture and urbanization; hybridization with the non-native eastern salamander (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003); and predation by introduced species. Central California tiger salamander populations are likely threatened by multiple factors but continued habitat fragmentation and colonization of non-native salamanders may represent the most significant

current threats. Habitat isolation and fragmentation within many watersheds have precluded dispersal between sub-populations. Other threats include predation and competition from introduced exotic species; possible commercial over-utilization; diseases; various chemical contaminants; road kill; and certain mosquito and rodent control operations. Currently, these various primary and secondary threats are largely not being offset by existing Federal, State, or local regulatory mechanisms. The Central California tiger salamander is also prone to chance environmental or demographic events to which small populations are particularly vulnerable.

Due to the extensive losses of vernal pool complexes and their limited distribution in the Bay Area region, many Central California tiger salamander breeding sites consist of artificial water bodies. Overall, 89 percent (124) of the identified water bodies are stock, farm, or berm ponds used by cattle grazing and/or as a temporary water source for small farm irrigation (CDFW 2013). This places the Central California tiger salamander at great risk of hybridization with non-native tiger salamanders, especially in Santa Clara and San Benito counties. Without long-term maintenance, the longevity of artificial breeding habitats is uncertain relative to naturally occurring vernal pools that are dependent on the continuation of seasonal weather patterns (Shaffer *in litt.* 2003).

San Joaquin Kit Fox

Refer to the *San Joaquin Kit Fox (Vulpes macrotis mutica) 5-Year Review: Summary and Evaluation* (Service 2010b) for the current Status of the Species.

Environmental Baseline

The project is located just above the Central Valley floor in a region of low-lying foothills to the Altamont Hills; specifically, south of Kelso Road, east of Bruns, and west of Mountain House Road in Alameda County, California. In the vicinity are farmlands of row crops and cattle grazing, interspersed with irrigation aqueducts, canals, and cattle stock ponds, as well as State and Federal listed species conservation banks.

The project is within Conservation Zone 6 and 7 of the East Alameda County Conservation Strategy. Conservation Zone 6 contains approximately 57 acres of unprotected seasonal wetland. Conservation Zone 6 contains approximately 12,345 acres of unprotected annual grassland. Annual grassland provides habitat for the San Joaquin kit fox, as well as nonbreeding upland habitat for California red-legged frog and Central California tiger salamander. Much of the annual grassland in Conservation Zone 6 provides suitable habitat for San Joaquin kit fox; this area potentially supports connectivity across the Altamont Hills. The existence of these seasonal wetlands and ponds in a matrix of annual grassland provides a valuable conservation opportunity for the Central California tiger salamander and California red-legged frog, as this type of habitat composition provides upland habitat and breeding habitat in close proximity to one another. The eastern edge of Conservation Zone 6 and western edge of Conservation Zone 7 contains the “shoulder” of the Altamont Hills as they give way to the Central Valley. This area is an important movement corridor for San Joaquin kit fox, including a potentially important linkage to the northernmost portion of the species’ range. Connectivity through the area is compromised by roadways and water conveyance infrastructure (Bethany Reservoir, canals, and aqueducts), though movement through the area is still possible.

Grazed non-native annual grassland is the predominant habitat type in the action area. Dominant plant species observed in the area during the field surveys include yellow star-thistle, rat-tail

fescue, gum plant, and dove weed. A large number of ground squirrel burrows occurs with this habitat type.

An existing stock pond is located on the western edge of the proposed pipeline alignment with wetland vegetation found along the margins of the pond, including rabbits foot grass, rush, mana grass, and spike rush. The sources of water for the stock pond are surface flows and an upslope pipe that exits from under Canal 155. Flows from the latter source are believed to be controlled by a neighboring private landowner.

Wetland “seep” vegetation occurs upslope of the stock pond along a narrow swath that runs parallel to Canal 155 and is apparently associated with leakage from the unlined canal. No water pools are associated with this “seep” vegetation given the slope of the embankment. The vegetation is maintained by saturated soils. There are intermittent drainages at the northern most portion of the project and near Pump Station 3 and staging areas.

California Red-Legged Frog

The proposed project is located within the South/East San Francisco Bay Recovery Unit, which extends from the northernmost portion of Contra Costa County, includes a portion of San Joaquin County south to Santa Clara County, includes the eastern portion of San Mateo County, and all of San Francisco County. Contra Costa and Alameda Counties contain the majority of known California red-legged frog localities within the eastern San Francisco Bay area. Within this Recovery Unit, California red-legged frogs seem to have been nearly eliminated from the western lowland areas near urbanization. The species occurs in isolated populations in the East Bay Foothills (between Interstate 580 and Interstate 680) and is abundant in several areas in eastern Alameda and Contra Costa counties. This Recovery Unit is essential to the survival and recovery of California red-legged frog, as it contains the largest number of occupied drainages in the northern portion of its range.

The action area contains a large stock pond that appears to be inundated all year and provides suitable breeding habitat. Drainages connect the stock pond to other ponds and aquatic habitat. Wetland vegetation adjacent to the stock pond and other wet areas provide foraging and refugial habitat. The adjacent grassland provides upland and dispersal habitat.

CNDDDB occurrences are documented within a mile of the project site (CDFW 2013). The nearest of these occurrences is associated with a 0.5-acre artificial impoundment in a historical drainage near an adjacent marshy area that is protected from cattle by fencing. This occurrence (#28) is located approximately 0.5 mile west of Mountain House School at Mountain House Road and is approximately 0.3 mile east of the project site. The next nearest occurrence (#100) is associated with an intermittent creek located just southeast of the intersection of Kelso Road and Bruns Road, approximately 0.7 mile northwest of the project site. Multiple occurrences (#266, 384, and 385) have been documented just east of Bethany Reservoir, approximately 0.85 mile from the project site. The Service is unaware of any species specific surveys for the project. Based on documented occurrences adjacent to the project, the presence of suitable habitat, and the biology and ecology of the species, the Service has determined California red-legged frogs use the action area for foraging, resting, dispersal, mating, and other essential behaviors.

California Red-Legged Frog Critical Habitat

Approximately 4.67 acres of the project is located within critical habitat subunit CCS-2B. Unit CCS-2 totals approximately 48,697 acres of land, and is located in eastern Contra Costa County and northeastern Alameda County, north of Highway 580. Subunit CCS-2B contains (44,470 acres) the features that are essential for the conservation of the species. The subunit contains aquatic habitat for breeding and non-breeding activities (PCE 1 and PCE 2), and upland habitat for foraging and dispersal activities (PCE 3 and PCE 4). Subunit CCS-2B was known to be occupied at the time of listing and is currently occupied. The subunit contains permanent and ephemeral aquatic habitats suitable for breeding, and upland areas for dispersal, shelter, and food, and provides for connectivity between populations farther south in the interior Coast Range. Subunit CCS-2B contains some of the highest concentrations of California red-legged frogs and habitat and could serve as a source for potential reintroduction efforts. Subunit CCS-2B consists of 4,059 acres of State, 3,088 acres of local government, and 37,322 acres of private lands and was mapped from occurrences recorded at the time of listing and subsequent to the time of listing. The physical and biological features essential to the conservation of California red-legged frog in Unit CCS-2 may require special management considerations or protection due to predation by nonnative species, urbanization, overgrazing of aquatic and riparian habitats, and erosion and siltation due to flooding, which may alter aquatic and upland habitats and thereby result in the direct or indirect loss of egg masses or adults.

The large stock pond that receives water from Canal 155 via a corrugated pipe appears to hold water for at least 20 weeks. From reviewing the figures in the biological assessment, the pond remains inundated well into the dry season and is considered PCE 1. Additional ponds hydrologically connected to this pond are also considered PCE 1.

Within the action area are areas with wetland “seep” vegetation and saturated soils. There are intermittent drainages which may hold water long enough for the species to complete its aquatic life cycle as well as provide for shelter, foraging, predator avoidance, and aquatic dispersal of juvenile and adult California red-legged frogs (PCE 2).

PCE 3 and PCE 4 occur in the action area as annual grassland with numerous small mammal burrows adjacent to and within one mile of the stock ponds.

Central California Tiger Salamander

The action area contains a large stock pond that appears to be inundated all year and provides suitable breeding habitat. Drainages connect the stock pond to other ponds that appear to provide suitable breeding habitat. The adjacent grassland provides upland and dispersal habitat with numerous ground squirrel burrows.

Central California tiger salamanders have been documented within the vicinity of the action area (CDFW 2013), with the nearest of these occurrences (#150) associated with three ponds approximately 0.9 mile due west of the project site on the described as the Borges Ranch Mitigation Property. These ponds are located immediately north and south of Christensen Road west of Bruns Road. Central California tiger salamanders have also been documented (#205) in a seasonal stock pond approximately 480 feet north of the intersection of Bruns Road and Kelso Road (approximately 1.0 mile northwest of the project site). The Service is unaware of any species specific surveys for the project. Based on documented occurrences adjacent to the

project, the presence of suitable habitat, and the biology and ecology of the species, the Service has determined Central California tiger salamanders use the action area for foraging, resting, dispersal, mating, and other essential behaviors.

San Joaquin Kit Fox

The action area contains suitable foraging, dispersal, and denning habitat. Annual grassland comprises the majority of the site and contains abundant small mammal burrows, providing refugial habitat and an available prey base.

The project is located within the San Joaquin kit fox recovery satellite population S1. In addition to protection of core areas, protection of at least three satellite populations is required for downlisting and protection of additional satellite populations with three or more showing stable or increasing populations during one precipitation cycle is required for delisting. According to the 5-year review (Service 2010b) the trend for the S1 population has declined with no known breeding. The recovery plan (Service 1998) lists protecting habitat in the northern, northeastern, and northwestern segments of the range and existing connections between habitat in those areas and habitat south as a recovery action.

There are several CNDDB records for the San Joaquin kit fox within 10 miles of the action area (CDFW 2013). Eleven of these occurrences are within 3 miles or less of the project site. The nearest of these records (#41) is from just north of the intersection of Bruns Road and Kelso Road (approximately 0.9 mile northwest of the project site). The next nearest occurrence (#44) is just east of the intersection of Mountain House Road and the DMC (approximately 1.2 miles southeast of the project site). The Service is unaware of any species specific surveys for the project. Based on documented occurrences adjacent to the project, the presence of suitable habitat, and the biology and ecology of the species, the Service has determined San Joaquin kit fox likely use the action area for foraging, resting, dispersal, mating, and other essential behaviors.

Effects of the Proposed Action

The construction of the project will result in the permanent loss of 0.73 acre and temporary loss of 6.3 acres of suitable upland habitat for a total of 7.03 acres. The area of disturbance for the proposed improvements at the pump station is approximately 0.8 acres, of that 0.5 acres will be permanently disturbed and 0.3 will be temporarily disturbed. The laydown and stockpiling area will result in the temporary disturbance of 2.0 acres. Installation of the pipeline requires a total of 3.73 acres, of which 3.5 will be temporarily and 0.23 acres will be permanently disturbed. The access road stabilization will result in the temporary disturbance of 0.5 acre. The effect of habitat loss will be minimized by the purchase of 8.49 acres of credits at the Mountain House Conservation Bank. The credits were calculated using the Standard Ratios from the East Alameda County Conservation Strategy for permanent effects and the programmatic biological opinion for the temporary effects.

California Red-Legged Frog and Central California Tiger Salamander

Activities associated with the construction of the proposed project may result in the crushing or injury of an unknown number of dispersing adult or post-metamorphic California red-legged frogs and Central California tiger salamanders or individuals in small mammal burrows within the pipeline construction corridor, construction area associated with Pump Station 3, and

laydown and stockpiling area located adjacent to Pump Station 3. Individuals may take refuge under equipment or materials at night when moving across the landscape and then be encountered during the day when equipment or materials are moved. Individuals that are exposed on the surface during excavation or grading may also be crushed and killed or injured by construction activities.

California red-legged frogs and Central California tiger salamanders may fall into the trenches for the new turnout and pipeline if those trenches are left open overnight and be killed (through desiccation, entombment, or predation). Individuals may also become trapped even with “amphibian-friendly” barrier fencing used for wildlife exclusion and then be subject to predation, starvation, or desiccation. These effects may occur during any season but are also most likely to occur when local, seasonal aquatic sites begin to dry down.

Construction activities associated with the proposed project would result in a temporary increase in vehicle traffic on the improved and unimproved roadways that lead to the project site (though a measureable increase in traffic is likely to occur only on Bruns Road, Kelso Road, and the unimproved road into the site). Consequently, an unknown number of dispersing California red-legged frogs and Central California tiger salamanders may experience roadway mortality during construction of the proposed project. Such mortality would be expected when dispersing adult and post-metamorphic individuals are moving away from drying ponds.

The nearest potentially suitable aquatic breeding habitat for California red-legged frogs and Central California tiger salamanders is a stock pond located approximately 170 feet west of the pipeline construction corridor. Construction is not anticipated to occur during the wet season as is therefore unlikely that sedimentation or water quality effects to the nearest aquatic sites (from surface runoff) would occur as a result of the proposed project. The integrity (quantity and quality) of pond would be maintained through the use of a bypass to temporarily divert water flowing to the adjacent stock pond through the existing corrugated metal pipe that crosses the pipeline. However, the activities associated with temporary diversion could result in effects to water quality or individuals.

Preconstruction surveys and the relocation of individual California red-legged frogs or Central California tiger salamanders may reduce injury or mortality. However, the capturing and handling of individuals to remove them from a work area may result in the harassment, mortality or injury of individuals. Stress, injury, and mortality may occur as a result of improper handling, containment, and transport of individuals. Death and injury of individual red-legged frogs or tiger salamanders could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated animals has not been estimated, survivorship of translocated wildlife, in general, is lower because of intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation. Improper handling, containment, or transport of individuals would be reduced or prevented by use of a Service-approved biologist, by limiting the duration of handling, and requiring the proper transport of these species. However, given the amount of habitat available and the short distance individuals should be relocated, it is expected that this effect will be negligible.

The implementation of the Conservation Measures, including preconstruction surveys, installation of “amphibian-friendly” barrier fencing, amphibian relocation, construction monitoring, construction personnel training, dry-weather work outside exclusion zones, and use

of qualified biologists during surveys and monitoring, minimize the adverse to adverse effects to California red-legged frogs and Central California tiger salamanders.

California Red-Legged Frog Critical Habitat

The project is within proposed Unit CCS-2. The proposed action is not expected to appreciably diminish the value of the critical habitat for the California red-legged frog, or prevent the proposed critical habitat from sustaining its role in the conservation and recovery of this species. The proposed project will temporarily affect 4.4 acres and permanently affect 0.23 acre of PCE 4 in designated critical habitat Unit CCS-2B. The temporarily disturbed areas will be reseeded and are expected to be returned to the existing conditions within the year following completion of the project. This temporal and permanent loss of PCE 4 will be minimized by the purchase of credits at the Mountain House Conservation Bank. Mountain House Conservation Bank is located within designated critical habitat Unit CCS-2B.

The project will not significantly interfere with the current capability of the proposed critical habitat to satisfy essential requirements of the species. Aquatic habitat for breeding (PCE 1) and nonbreeding activities (PCE 2) will continue to be provided by the adjacent stock ponds, while upland habitat immediately adjacent to the ponds that may be used for foraging (PCE 3) will also continue to be provided. Upland habitat that could be used for dispersal activities (PCE 4) will be temporarily affected, but at a time when overland movement by the California red-legged frog is least likely to occur.

San Joaquin Kit Fox

Activities associated with the construction of the proposed project may result in the entombment or crushing of San Joaquin kit foxes located in occupied dens within the pipeline construction corridor, construction area associated with Pump Station 3, and laydown and stockpiling area located adjacent to Pump Station 3.

San Joaquin kit foxes may fall into the trenches for the new turnout and pipeline if the trenches are left open overnight and be injured, killed, or taken by other predators.

The temporary or permanent loss of habitat would reduce the number of suitable refugia (i.e., dens) for the species in the area and potentially expose individuals to temporarily higher rate of predation or aggressive encounters with other predators. It would also reduce the number of prey species (e.g., California ground squirrel) in the area.

Construction activities associated with the proposed project would result in a temporary increase in vehicle traffic on the improved and unimproved roadways that lead to the project site (though a measureable increase in traffic is likely to occur only on Bruns Road, Kelso Road, and the unimproved road into the site). Consequently, San Joaquin kit foxes may experience roadway mortality during construction of the proposed project.

The implementation of the Conservation Measures, including preconstruction surveys, day time work hours, speed limits, construction monitoring, construction personnel training, and use of qualified biologists during surveys and monitoring, minimize the adverse to adverse effects to San Joaquin kit foxes.

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. The Service does not anticipate any future non-Federal actions to occur in the action area.

Conclusion

After reviewing the current status of the California red-legged frog, Central California tiger salamander, and San Joaquin kit fox, environmental baseline for the action area, the effects of the proposed action, and the cumulative effects on these species, it is the Service's biological opinion that the proposed BBID's Long Term Water Exchange Contract, as described herein, is not likely to jeopardize the continued existence of these species. We base this conclusion on the following: (1) the project is relatively small in size and has mainly temporary effects to habitat; (2) the implementation of the Conservation Measures will reduce the potential for take of the listed species; and (3) California red-legged frogs, California Central tiger salamanders and San Joaquin kit foxes should be able to continue to utilize the area after construction is complete. Although designated critical habitat for the California red-legged frog will be affected, none will be destroyed or adversely modified by the project.

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 harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral 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 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 this Incidental Take Statement.

The measures described below are nondiscretionary and must be implemented by the Reclamation so they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity that is covered by this Incidental Take Statement. If Reclamation: (1) fails to require the applicant to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document; and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Reclamation 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)].

Amount or Extent of Take

The Service anticipates that incidental take of the California red-legged frog will be difficult to detect because of their life history. Specifically, when California red-legged frogs are not in their breeding ponds, they may be difficult to locate due to their cryptic appearance and behavior; they may be located a distance from the breeding ponds; and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of these species also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Therefore, the Service anticipates that all California red-legged frogs inhabiting the 7.03-acre project footprint and the adjacent stock pond, adjacent surrounding uplands, and hydrologically connected areas will be subject to incidental take in the form of harassment and harm in the form of habitat modification, and capture. The Service anticipates that no more than one (1) California red-legged frog will be subject to incidental take in the form of death or injury as a result of construction-related activities. Upon implementation of the following Reasonable and Prudent Measures, incidental take of the California red-legged frog associated with BBID's Long Term Water Exchange Contract will become exempt from the prohibitions described under section 9 of the Act.

The Service anticipates that incidental take of the Central California tiger salamander will be difficult to detect because when this amphibian is not in their breeding ponds, or foraging, migrating, or conducting other surface activity, it inhabits the burrows of ground squirrels or other rodents; the burrows may be located a distance from the breeding ponds; the migrations occur on a limited period during rainy nights in the fall, winter, or spring; and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers, random environmental events, changes in water regime at their breeding ponds, or additional environmental disturbances. Therefore, the Service anticipates that all Central California tiger salamanders inhabiting the 7.03-acre project footprint and the adjacent stock pond, adjacent surrounding uplands, and hydrologically connected areas will be subject to incidental take in the form of harassment and harm in the form of habitat modification, and capture. The Service anticipates that no more than one (1) Central California tiger salamander will be subject to incidental take in the form of death or injury as a result construction-related activities. Upon implementation of the following Reasonable and Prudent Measures, incidental take of the Central California tiger salamander associated with BBID's Long Term Water Exchange Contract including restoration will become exempt from the prohibitions described under section 9 of the Act.

The Service expects that incidental take of the San Joaquin kit fox will be difficult to detect or quantify because this mammal inhabits dens or burrows when it is not foraging, mating, or conducting other surface activity; the animal may range over a large territory; it is primarily active at night, it is a highly intelligent animal that often is extremely shy around humans, and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be difficult to quantify due to seasonal fluctuations in their numbers. Therefore, the Service is estimating that all of the San Joaquin kit foxes inhabiting or utilizing areas 7.03-acre project footprint and the uplands adjacent to the stock pond will be subject to incidental take in the form of harm and harassment. Upon implementation of the Reasonable and Prudent Measures, incidental take of the San Joaquin kit fox associated with BBID's Long Term Water Exchange Contract in the form of harassment and harm in the form of

habitat modification caused by the project will become exempt from the prohibitions described under section 9 of the Act. Lethal incidental take of the San Joaquin kit fox is not exempt from the prohibitions described under section 9 of the Act.

Effect of the Take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to result in jeopardy to the California red-legged frog, Central California tiger salamander, and San Joaquin kit fox.

Reasonable and Prudent Measures

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize the effects of BBID's Long Term Water Exchange Contract on the California red-legged frog, Central California tiger salamander, and San Joaquin kit fox:

1. BBID shall minimize adverse effects to listed species.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Reclamation shall ensure the applicant complies with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

The following Terms and Conditions implement the Reasonable and Prudent Measure:

- a. Reclamation through BBID shall fully implement the proposed project, including the Conservation Measures as described in this biological opinion.
- b. Reclamation through BBID shall make the Terms and Conditions in this biological opinion a required term in all contracts for the project that is issued by them to all contractors.
- c. The Reclamation through BBID shall provide the Resident Engineer or their designee with a copy of this biological opinion, and the Resident Engineer or their designee shall be responsible for implementing the conservation measures and Terms and Conditions of this biological opinion and shall be the point of contact for the project. The Resident Engineer or their designee shall maintain a copy of this biological opinion onsite whenever construction is taking place. Their name and telephone number shall be provided to the Service at least thirty (30) calendar days prior to groundbreaking at the project. Prior to ground breaking, the Resident Engineer must submit a letter to the Service verifying that they possess a copy of this biological opinion and have read the Terms and Conditions.
- d. If requested, during or upon completion of construction activities, the on-site biologist, Reclamation, and/or BBID's representative shall accompany the Service on an inspection of the project site to review project effects to the listed species and their habitats.

- e. Reclamation through BBID shall adhere to the Reporting Requirements.
- f. Reclamation through BBID will develop a listed species relocation plan to be reviewed and approved by the Service and CDFW. The plan will include biologically appropriate relocation sites, measures to minimize effects to the species, and reporting to the Service and CDFW.
- g. Pesticides shall not be used in the action area.
- h. Listed-species preconstruction survey reports shall be submitted to the Service and CDFW prior to the commencement of construction.
- i. If work occurs in the winter months, Service and CDFW-approved monitors shall be on-site for all work activities.
- j. Water conveyance infrastructure (outside of what is analyzed in this biological opinion or water as part of this water contract shall not be constructed or delivered to BBID's Raw Water Service Area 2 until compliance with the Act is obtained, as appropriate, through informal consultation and/or incidental take exemption under section 7 (formal consultation) or 10 of the Act.

Reporting Requirements

The Service must be notified within one (1) working day of the finding of any injured and/or dead California red-legged frog, Central California tiger salamander, and/or Alameda whipsnake, or any unanticipated damage to its habitat associated with the proposed project. Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist or the Lindsay Wildlife Museum. Notification must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. Dead individuals must be sealed in a 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, and the bag containing the specimen frozen in a freezer located in a secure site. The Service contact person is the Coast Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Division of Law Enforcement, 2800 Cottage Way, Room W-2928, Sacramento, California 95825, at (916) 414-6660. The CDFW contact is the Bay Delta Region at (707) 944-5500.

BBID shall submit a post-construction compliance report prepared by the Service-approved biologist to the Sacramento Fish and Wildlife Office within thirty (30) calendar days of the date of the completion of construction activity. This report shall detail (i) dates that construction occurred; (ii) pertinent information concerning the success of the project in meeting the Conservation Measures; (iii) an explanation of failure to meet such measures, if any; (iv) known project effects on listed species, if any; (v) occurrences of incidental take of listed species, if any; (vi) documentation of employee environmental education; and (vii) other pertinent information.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Endangered Species Act directs Federal agencies to utilize their authorities to further the purposes of the Endangered Species Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information or data bases. The Service recommends the following actions:

1. Reclamation should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California red-legged Frog* (Service 2002).
2. Reclamation should assist the Service in developing and implementing recovery actions identified in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service 1998).
3. Sightings of any listed or sensitive animal species should be reported to the CNDDDB of the CDFW. A copy of the reporting form and a topographic map clearly marked with the location the animals were observed also should be provided to the Service.

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 proposed BBID's Long Term Water Exchange Contract. As provided in 50 CFR §402.16, reinitiating of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have any questions regarding this response, please contact Ryan Olah, Coast Bay/Forest Foothills Division Chief (Ryan_Olah@fws.gov) at the letterhead address or telephone (916) 414-6600.

Attachments

cc

Marcia Grefsrud, California Department of Fish and Wildlife, Napa, California

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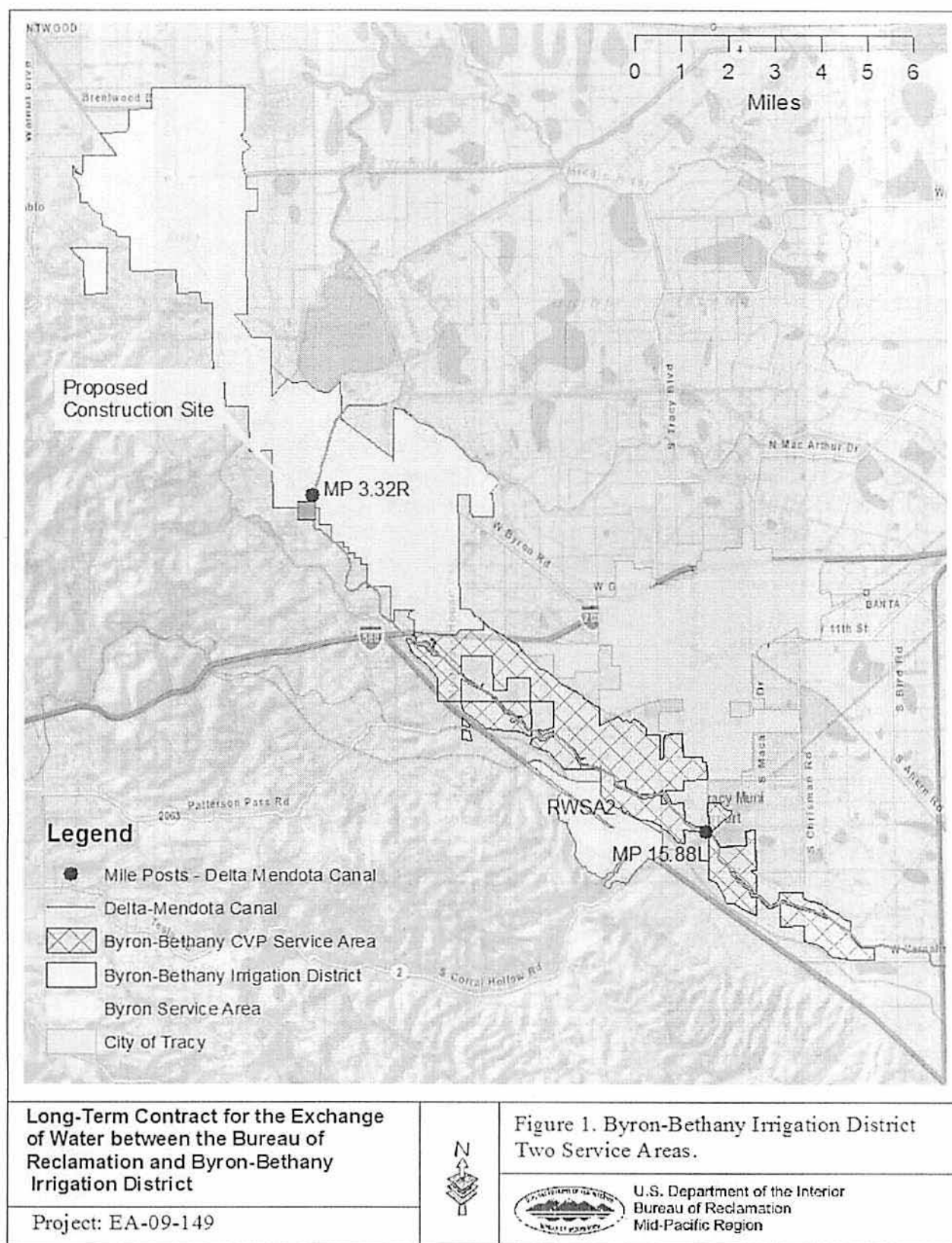


Figure 1



Figure 2