

5.3.9 California Red-legged Frog (*Rana draytonii*)



California red-legged frog

Photo Credit: Ivan Parr

Status

- Federally Threatened
- State Species of Special Concern

Ecological Requirements

- RCIS Regions: All Terrestrial Regions
- RCIS Natural Communities: Freshwater Emergent. Wetland, Coastal Oak Woodland, Valley Oak Woodland, Annual Grassland (CDFW 2020)
- Breeding aquatic habitat: Aquatic habitats include freshwater streams, deep pools, and backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, and lagoons. The species frequently breeds in artificial impoundments such as stock ponds. Breeding adults are often associated with deep (greater than 2 feet), still, or slow-moving water and dense, shrubby riparian or emergent vegetation. Requires 11 to 20 weeks of permanent water for larval development (CDFW 2020, USFWS 2002).
- Upland habitat: If water is not available during summer months, will often disperse from breeding habitat. Suitable habitat includes spaces under rocks and organic debris, agricultural features, small mammal burrows, incised stream channels, and moist leaf litter (USFWS 2002).

- Dispersal: During the wet season, some individuals may disperse (up to two miles) through upland habitats to return to breeding sites (USFWS 2002).
- Susceptible to competition and predation from non-native species, as well as mortality from fungal diseases (Padgett-Flohr 2008, USFWS 2002)
- Threatened by incompatible land uses on private lands, incidental impacts of fire suppression practices, and mortality due to vehicle impacts and disease (USFWS 2002)
- Full species account available: *Recovery Plan for the California Red-legged Frog (Rana aurora draytonii)* (USFWS 2002)
- RCIS Conservation Target: High (federally listed, limited distribution of breeding habitat)

Associated Non-Focal Species

- Two-striped garter snake (*Thamnophis hammondi*)
- Western spadefoot (*Spea hammondi*)
- Jolon clarkia (*Clarkia jolonensis*)
- Coast live oak woodland (*Quercus agrifolia* Alliance)

Climate Change Vulnerability Assessment

California red-legged frog (CRLF) is at “neutral risk” from climate change across the state (Wright et al. 2013) (Table 5-12.). Most of the climatically suitable habitat in the RCIS area is likely to remain suitable in 2050 (Wright et al. 2013). Although current distribution and habitat suitability is likely to persist, climatic conditions are projected to change enough to reduce habitat suitability on average to make the California red-legged frog a high conservation priority (Wright et al. 2013). The magnitude of these projections in the RCIS area will likely vary based on local conditions.

Climate stressors that may impact the California red-legged frog include increased drought duration and severity as well as extreme precipitation events (USFWS 2002). Early drying of breeding habitat may lead to increased mortality for eggs and larvae, and reduced survival of adults (USFWS 2002). Decreased flows, coupled with agricultural and urban water demands, may result in increased water salinity (USFWS 2002). Climate change will also exacerbate other threats listed in Table 5-13.

Table 5-12. California Red-legged Frog Climate Vulnerability Ranking

Type of Analysis	Low Emissions (RCP4.5)	High Emissions (RCP8.5)
Point Ranking (distribution)	Slightly Reduced - Low	Slightly Reduced - Low
Area Ranking (habitat)	Neutral - Low	Neutral - Low

Source: Wright et al. 2013

The goals, objectives, and actions shown in Table 5-13. aim to protect, enhance, and restore present day suitable habitats for California red-legged frog, as well as habitats that may become suitable in the future because of projected climate changes. Actions also address population stability, such as monitoring for disease and sources of road mortality, which may allow individuals to move to newly suitable habitats in the future.

A summary of natural communities where this species occurs is presented in Chapter 4.

Figure 5-5 shows the range and modeled suitable habitat for the California red-legged frog.

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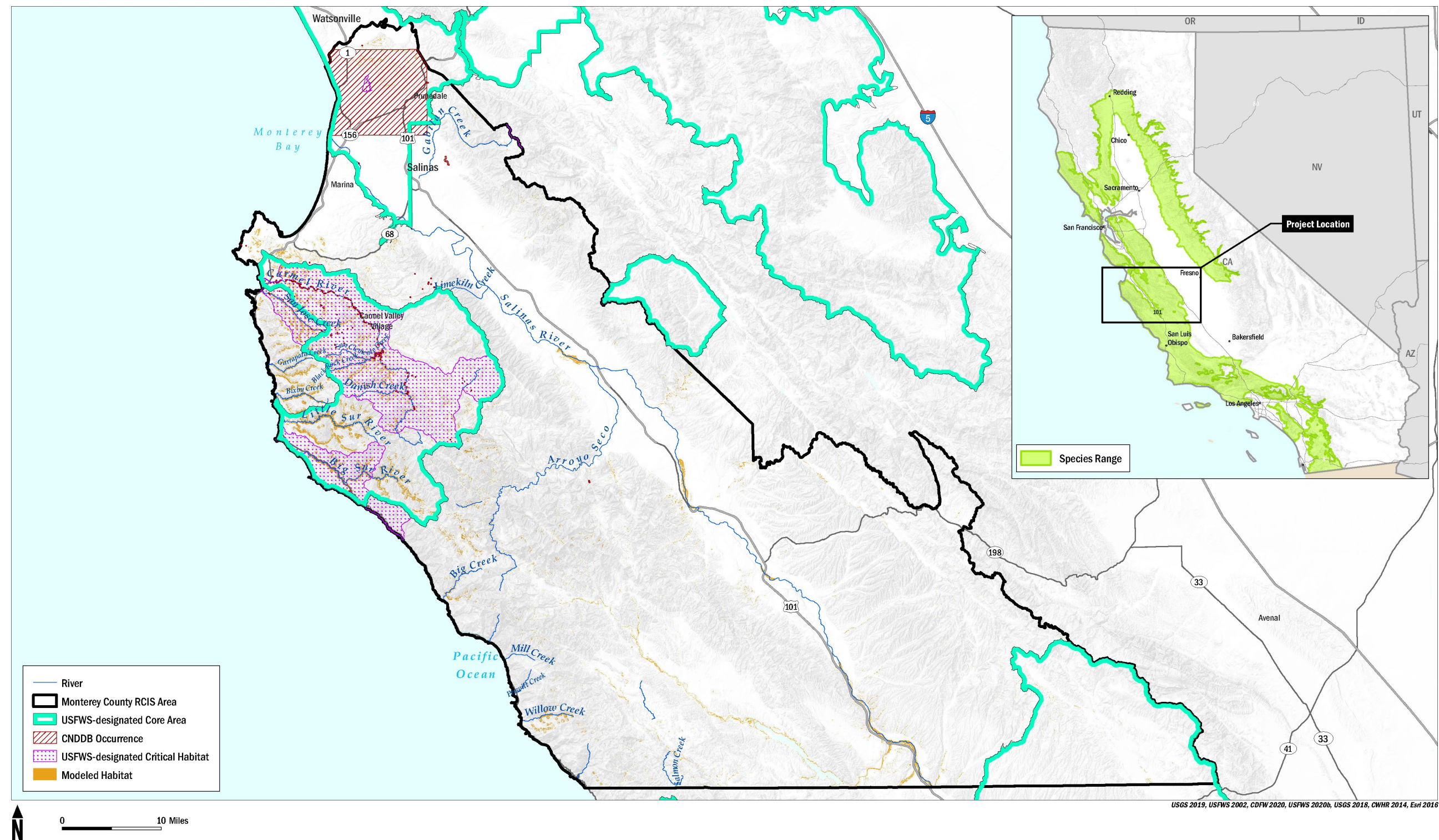


FIGURE 5-5
California Red-legged Frog

Figure 5-5. California Red-legged Frog Range and Modeled Habitat

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California Red-legged Frog Conservation Priorities, Goals, Objectives, and Actions

All RC and Amphibian goals, objectives, and actions apply to California-red legged frog. Water 1.1.1, 1.1.3, 1.1.5, 1.1.6, 1.1.7, 1.1.8, Water Objective 1.2 apply. Table 5-13. summarizes the specific goals, objectives, and actions for this species.

Conservation Priorities

- Acquire and protect habitat in USFWS core areas (Elkhorn Slough, Carmel River–Santa Lucia, and Gabilan Range) to encourage habitat connectivity between occupied and suitable but unoccupied habitat (USFWS 2002) (RC Objective 1.1).
- Control non-native species in Fort Hunter Ligget (San Antonio and Nacimiento drainages) (USFWS 2002) to promote population sustainability for all life stages of the species (CRLF 1.2.1).
- Increase the amount of California red-legged frog breeding habitat in creeks through creation of more plunge pools and slow-water habitats by incorporating these features in restoration designs in breeding habitat in creeks, as well as creation of artificial ponds in areas with suitable upland habitat. Promote natural water flow regimes and vegetative cover in streams and creeks (USFWS 2002) (CRLF 1.3.1).

Table 5-13. California Red-legged Frog Goals, Objectives, and Actions

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1: Promote persistence of California red-legged frog populations in the RCIS area through protection, restoration, and enhancement of habitat.	CRLF Objective 1.1: Protect known occurrences and allow expansion by protecting 8,200 acres of suitable habitat. Measure progress toward achieving this objective by the number of breeding creeks and ponds, acres of adjacent upland habitat, and associated/equivalent acres protected.	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation • Climate change 	<ul style="list-style-type: none"> • Other focal/non-focal species • Biodiversity • Climate change resilience 	RC Objective 1.1 (Protection) actions
CRLF Goal 1:	CRLF Objective 1.1:	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation 	<ul style="list-style-type: none"> • Other focal/non-focal species • Water quality 	CRLF 1.1.1: Support local zoning regulations that prevent incompatible uses of occupied and unoccupied suitable breeding and upland habitat (USFWS 2002).

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1:	<p>CRLF Objective 1.2: Enhance occupied, suitable, and U.S. Fish and Wildlife Service - designated critical habitat for California red-legged frog throughout the RCIS area, especially in U.S. Fish and Wildlife Service core areas (Elkhorn Slough, Carmel River–Santa Lucia, and Gabilan Range) (USFWS 2002). Measure progress toward achieving this objective by acres of breeding, dispersal, and upland habitat and adjacent/equivalent acres enhanced and occupied by California red-legged frog.</p>	<ul style="list-style-type: none"> • Non-native species 	<ul style="list-style-type: none"> • Non-native invasive species • Other focal/non-focal species • Biodiversity 	<p>CRLF 1.2.1: Remove non-native invasive species at sites where they are known to occur by making changes to pond hydrology or by temporarily draining ponds. Areas that may benefit include Fort Hunter Liggett (San Antonio and Nacimiento drainages) (USFWS 2002).</p>

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1:	CRLF Objective 1.2:	<ul style="list-style-type: none"> • Wildfire • Climate change 	<ul style="list-style-type: none"> • Fire management • Other focal/non-focal species • Biodiversity • Climate change resilience 	CRLF 1.2.2: Develop and implement fire management guidelines that promote California red-legged frog habitat and populations (USFWS 2002).
CRLF Goal 1:	CRLF Objective 1.2:	<ul style="list-style-type: none"> • Increased salinity and saltwater intrusion • Climate change 	<ul style="list-style-type: none"> • Climate change resilience • Other focal/non-focal species • Biodiversity • Water quality 	CRLF 1.2.3: Improve management of breeding habitat to prevent sea water inundation by restoring natural hydrology to coastal sloughs (USFWS 2002).

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1:	CRLF Objective 1.2:	<ul style="list-style-type: none"> • Flood control infrastructure (e.g., channelization, vegetation management) 	<ul style="list-style-type: none"> • Other focal/non-focal species • Water quality • Water recharge 	CRLF 1.2.4: Improve management of flood control infrastructure to reduce negative impacts, such as channelization and vegetation management, on California red-legged frog breeding and dispersal habitat.
CRLF Goal 1:	CRLF Objective 1.2:	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation 	<ul style="list-style-type: none"> • Other focal/non-focal species • Biodiversity 	CRLF 1.2.5: Manage upland vegetation structure and density to support California red-legged frogs.
CRLF Goal 1:	CRLF Objective 1.2:	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation 	<ul style="list-style-type: none"> • Other focal/non-focal species • Biodiversity • Water quality • Water recharge 	CRLF 1.2.6: Manage aquatic pond vegetation to support California red-legged frogs.

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1:	CRLF Objective 1.3: Restore occupied, suitable, or U.S. Fish and Wildlife Service - designated critical habitat for California red-legged frog and create new habitat. Measure progress toward achieving this objective by acres of restored or created habitat and adjacent/equivalent acres, and by the number of breeding ponds restored or created.	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation • Climate change 	<ul style="list-style-type: none"> • Water quality • Water recharge • Other focal/non-focal species • Biodiversity • Climate change resilience 	CRLF 1.3.1: Increase the amount of California red-legged frog breeding habitat in creeks through creation of more plunge pools and slow-water habitats, by incorporating these features in restoration designs in breeding habitat in creeks, as well as by creation of artificial ponds in areas with suitable upland habitat. Promote natural water flow regimes and vegetative cover in streams and creeks (USFWS 2002).

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 1:	CRLF Objective 1.3:	<ul style="list-style-type: none"> • Habitat loss, degradation, fragmentation • Climate change 	<ul style="list-style-type: none"> • Other focal/non-focal species • Biodiversity • Climate change resilience 	CRLF 1.3.2: At Fort Ord, restore and manage East Garrison Pond, and at least one additional aquatic feature, totaling at least 2 acres (FORA 2018).
CRLF Goal 2: Support stability and recovery of California red-legged frog populations in the RCIS area through measures to reduce direct mortality.	CRLF Objective 2.1: Reduce vehicle-related mortality factors. Measure progress toward achieving this objective by the reduction of vehicle-related California red-legged frog deaths detected, compared to present day.	<ul style="list-style-type: none"> • Vehicle-impact mortality • Habitat loss, degradation, fragmentation • Climate change 	<ul style="list-style-type: none"> • Other focal/non-focal species • Connectivity • Biodiversity • Climate change resilience 	CRLF 2.1.1: Install infrastructure to promote wildlife movement through roadways (e.g., wildlife tunnels, overpasses), to reduce road mortality in transportation corridors with high numbers of vehicle-related California red-legged frog mortality. Focus on areas adjacent to known breeding locations and protected habitats.

Goal	Objective	Threats	Co-Benefits	Action
CRLF Goal 2:	CRLF Objective 2.2: Reduce pathogen-related mortality. Measure progress toward achieving this objective by the reduction of disease-related California red-legged frog deaths detected, compared to present day (USFWS 2002).	<ul style="list-style-type: none"> • Disease • Climate change 	<ul style="list-style-type: none"> • Other focal/ non-focal species • Biodiversity • Climate change resilience 	CRLF 2.2.1: Monitor for diseases that affect California red-legged frog populations and implement management actions to reduce their transmission and impact on the species.
CRLF Goal 2:	CRLF Objective 2.2:	<ul style="list-style-type: none"> • Disease • Climate change 	<ul style="list-style-type: none"> • Other focal/ non-focal species • Biodiversity • Climate change resilience 	CRLF 2.2.2: Sterilize all equipment entering known or suitable California red-legged frog breeding habitat, to prevent introduction of disease.
CRLF Goal 2:	CRLF Objective 2.2:	<ul style="list-style-type: none"> • Disease • Climate change 	<ul style="list-style-type: none"> • Other focal/ non-focal species • Biodiversity • Climate change resilience 	CRLF 2.2.3: Monitor known and potential breeding habitats for presence of pathogens, through traditional and environmental DNA (eDNA) methods.

Sources: CDFW 2015, 2020; USFWS 2002; FORA 2018