5.3.12 Foothill Yellow-legged Frog (Southwest/South Coast Clade) (*Rana boylii*)

Foothill yellow-legged frog
Photo Credit: Ivan Parr

Status

- California Endangered
- State Species of Special Concern

Ecological Requirements

- RCIS Regions: Gabilan Range and Pinnacles National Park, Outer Coast Range
- RCIS Natural Communities: Riverine, Riparian (CDFW 2000b, 2019)
- Occupies a diverse range of ephemeral and permanent streams, rivers, and adjacent terrestrial stream margins various vegetation types, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, mixed chaparral, and wet meadows (Hayes et al. 2016)
- Prefers partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats (CDFW 2020; Hayes et al. 2016)
- Breeding and rearing habitat: Gently flowing, low-gradient stream sections with variable substrates predominantly composed of cobble and boulder (Hayes et al. 2016)

- Rarely encountered far from permanent water (CDFW 2000b); however, the entire watershed/stream network is used.
- Information lacking on threats such as fire management and livestock grazing (Hayes et al. 2016)
- Threats include water development and modifications, predators, pathogens, nitrates, and other contaminants
- Full species account available: Foothill yellow-legged frog conservation assessment in California (Hayes et al. 2016)
- RCIS Conservation Target: Highest (very rare clade in RCIS area, limited distribution of breeding habitat)

Associated Non-Focal Species

- Least Bell's vireo (*Vireo bellii pusillus*)
- Little willow flycatcher (*Empidonax traillii brewsteri*)

Climate Change Vulnerability Assessment

Foothill yellow-legged frog (FYLF) is estimated to be at "neutral risk" from climate change across the state (Wright et al. 2013) (Table 5-18.), based on the likely persistence of current populations through 2050 and the amount of currently climatically suitable habitat likely to remain suitable. Projections indicate that in 2050 most of the currently climatically suitable habitat in the RCIS area is likely to remain suitable. Despite these projections, increased frequencies in extreme weather may have negative impacts (Hayes et al. 2016). Extended droughts and changes to precipitation patterns may lead to further changes to flow regimes (Hayes et al. 2016). Changes in air and water temperatures may lead to increases in disease prevalence and virulence and to decreased prey availability (Hayes et al. 2016).

Table 5-18. Foothill Yellow-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 5-19. aim to protect, enhance, and restore present day suitable habitats for foothill yellow-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 research into potential threats, 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 5-8 shows the range and modeled habitat for the foothill yellow-legged frog.

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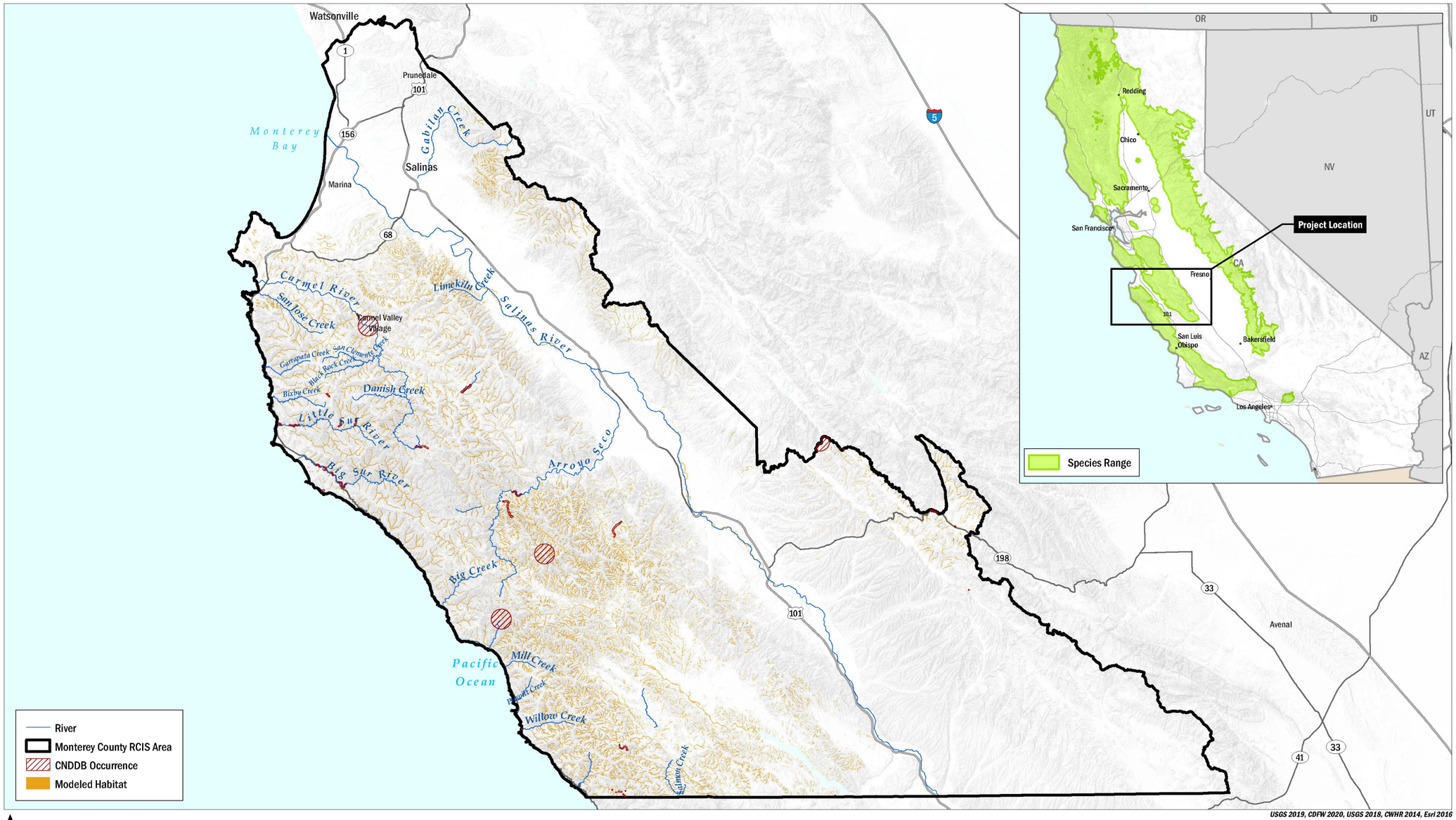

Transportation Agency for Monterey County
Monterey County Regional Conservation Investment Strategy

FIGURE 5-8
Foothill Yellow-legged Frog (Southwest/South Coast Clade)

Figure 5-8. Foothill Yellow-legged Frog (Southwest/South Coast Clade) Range and Modeled Habitat

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Foothill Yellow-legged Frog Conservation Priorities, Goals, Objectives, and Actions

RC and Amphibian goals, objectives, and actions apply to foothill yellow-legged frog. Water Objective 1.1, Water Objective 1.2 apply. Table 5-19. summarizes specific goals, objectives, and actions for the species.

Conservation Priorities

- Because this species relies on permanent water, prioritize acquiring, protecting, and enhancing the quality of aquatic, riparian, and adjacent upland habitat in the Coast and Gabilan Ranges, near known occurrences on tributaries to the Carmel River, San Antonio River, and Arroyo Seco (RC Objective 1.1).

Table 5-19. Foothill Yellow-legged Frog Goals, Objectives, and Actions

Goal	Objective	Threats	Co-Benefits	Action
FYLF Goal 1. Promote persistence of foothill yellow-legged frog populations in the RCIS area through protection, restoration, and enhancement of habitat.	FYLF Objective 1.1: Protect known occurrences and allow expansion by protecting 45,000 acres of suitable habitat. Measure progress toward achieving this objective by the number of known locations, acres of adjacent habitat, and associated/equivalent acres protected.	• Habitat loss, degradation, fragmentation • Climate change	• Other focal/ non-focal species • Biodiversity • Climate change resilience	RC Objective 1.1 (Protection) actions

Goal	Objective	Threats	Co-Benefits	Action
FYLF Goal 1.	FYLF Objective 1.2: Enhance occupied and suitable foothill yellow-legged frog habitat throughout the RCIS area. Measure progress toward achieving this objective in the acres of aquatic habitat, adjacent upland habitat, and adjacent/equivalent acres enhanced and occupied by foothill yellow-legged frog.	• Vegetation management activities	• Other focal/ non-focal species • Biodiversity • Fire management	FYLF 1.2.1: Investigate impacts of potential threats where information is lacking, such as fire management and livestock grazing, and identify and implement adjustments to management of these practices where needed (Hayes et al. 2016).
FYLF Goal 1	FYLF Objective 1.2	• Amphibian Objective 1.1 (Enhancement) threats	• Other focal/ non-focal species • Biodiversity • Climate change resilience • Water quality	Amphibian Objective 1.1 (Enhancement) actions

Goal	Objective	Threats	Co-Benefits	Action
FYLF Goal 1	FYLF Objective 1.3: Restore occupied and/or suitable habitat for foothill yellow-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.	• Amphibian Objective 1.2 (Restoration) threats	• Other focal/ non-focal species • Biodiversity • Climate change resilience	Amphibian Objective 1.2 (Restoration) actions
FYLF Goal 2: Support stability and recovery of foothill yellow-legged frog populations in the RCIS area through measures to reduce direct mortality.	FYLF Objective 2.2: Reduce pathogen-related mortality. Measure progress toward achieving this objective by the reduction of disease-related foothill yellow-legged frog deaths detected, compared to present day.	• Disease • Climate change	• Other focal/ non-focal species • Biodiversity • Climate change resilience	FYLF 2.2.1: Monitor for diseases that affect foothill yellow-legged frog populations and implement management actions to reduce their transmission and impact on the species.
FYLF Goal 2:	FYLF Objective 2.2:	• Disease • Climate change	• Other focal/ non-focal species • Biodiversity • Climate change resilience	FYLF 2.2.2: Sterilize all equipment entering known or suitable California red-legged frog breeding habitat, to prevent introduction of disease.

Goal	Objective	Threats	Co-Benefits	Action
FYLF Goal 2:	FYLF Objective 2.2:	• Disease • Climate change	• Other focal/ non-focal species • Biodiversity • Climate change resilience	FYLF 2.2.3: Monitor known and potential breeding habitats for presence of pathogens, through traditional and environmental DNA (eDNA) methods.

Sources: CDFW 2000b, 2015, 2019; Hayes et al. 2016