

Summary

STATUS OF SENSITIVE SPECIES OF AMPHIBIANS AND REPTILES AT A REGION IN UPPER SANTA YNEZ RIVER WATERSHED, LOS PADRES NATIONAL FOREST, SANTA BARBARA COUNTY, CALIFORNIA

Survey Results From 1995

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1.0 Introduction

The California red-legged frog (*Rana aurora draytonii*) occurs in the coast ranges from Point Reyes National Seashore to Ventura County (Storer 1925, Altig and Dumas 1972, Stebbins 1985, Jennings and Hayes 1994), with almost all Central Valley, Sierra Nevada, and southern California populations now extirpated (Stebbins 1985, Jennings and Hayes 1994).

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Summary

At Alder and Fox Creeks, in the upper Santa Ynez River watershed, Santa Barbara County, California, natural stream flows have been altered by diversion into Jameson Lake, a reservoir on the Santa Ynez River. Amphibian and reptile species of special concern, specifically the California red-legged frog (*Rana aurora draytonii*), arroyo toad (*Bufo microscaphus californicus*), and southwestern pond turtle (*Clemmys marmorata pallida*), occur in this area. In summer 1995, I assisted LPNF wildlife crews in herpetofaunal surveys of the upper Santa Ynez River, Alder and Fox Creeks. California red-legged frogs and larvae were found in Santa Ynez River continuously from Juncal Campground to approximately one-half the distance from Juncal Campground to Fox Creek. Adult California red-legged frogs were also found in the Santa Ynez below Jameson Lake, and in a single pool located at the confluence of Alder Creek. Although the entirety of Alder Creek was not surveyed, California red-legged frogs were observed near the diversion. Arroyo toads were found at an oak terrace above the Santa Ynez River adjacent to the confluence of Fox Creek. The western pond turtle was observed in the Santa Ynez River east of Juncal Campground, below Jameson Dam, and at the confluence of Alder Creek.

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throughout Santa Barbara County (Storer 1925, McKeown 1974, Stebbins 1985). This taxon requires cool, semi-permanent or permanent water, and it is often found associated with deep pools bordered by willows and aquatic vegetation (Jennings 1988, Hayes and Jennings 1989, Jennings and Hayes 1990, Rathbun et al. 1993, Christopher 1996). The California red-legged frog has been proposed for listing as endangered under the Federal Endangered Species Act (Drewry 1994, Miller 1994). Factors which appear to be responsible for the decline of the California red-legged frog include overharvest for food in the late 1800's (Jennings and Hayes 1984, Jennings and Hayes 1985, Stebbins 1985), predation by introduced bullfrogs and fishes (Moyle 1973, Hayes and Jennings 1986, Hayes and Jennings 1988), loss of habitat due to urbanization and agriculture (Hayes and Jennings 1986, Hayes and Jennings 1988, Jennings et al. 1992), and alteration of habitat by flood control practices and creation of reservoirs, both of which result in conditions which are not only less suitable for California red-legged frogs but are favored by introduced aquatic predators (Hayes and Jennings 1986, Hayes and Jennings 1988, Jennings 1988, Jennings et al. 1992).

Historically, the arroyo toad (*Bufo microscaphus californicus*) was distributed from the Salinas River system south to Baja California, Mexico, at coastal drainages eastward to the desert slope (Myers 1930, Miller and Miller 1936, Tevis 1944, Sanders 1950, Patton and Myers 1992). This species favors foothill canyons and intermountain valleys with perennial streams (Sweet 1992). Arroyo toads are often associated with open sand or gravel flats near streams, old flood channels, pools with shallow margins, bars connected to shoreline, and oak woodlands on terraces above streams (Sweet 1992).

Breeding pools have sparse marginal vegetative cover, are shallow, have sand or gravel substrate, and low current velocities (Sweet 1992). The arroyo toad is considered endangered under the Federal Endangered Species Act

(Brown 1994). Factors which have apparently contributed to the decline of the arroyo toad include urban development, placer mining, off-road vehicle use, introduction of predators, cattle grazing, excessive human use at campgrounds, creation of reservoirs, and artificial stream flow regulation (Sweet 1993).

The southwestern pond turtle (*Clemmys marmorata pallida*) ranges from Monterey to Baja California, Mexico, from sea level to approximately 1450 m elevation (Stebbins 1985, Jennings and Hayes 1994). In Santa Barbara County, it is moderately common in streams, ponds, lakes, reservoirs, and freshwater sloughs (McKeown 1974). It favors areas with aquatic vegetation, rocky or muddy substrate, and logs or mats of vegetation for basking (Stebbins 1985, Holland 1991). Southwestern pond turtles require a long, wide (0.5 km) corridor of riparian habitat for reproduction (Rathbun et al. 1992, 1993) and for overwintering sites (Jennings et al. 1992). The southwestern pond turtle is listed federally as a Category 2 Candidate (Drewry 1994). This species has been threatened by human exploitation for food (see Jennings et al. 1992), habitat alteration by water diversions, creation of reservoirs, channelization for flood control, urbanization, grazing, drought (Brattstrom 1988, Jennings et al. 1992), predation by introduced bullfrogs and fishes (Moyle 1973, Jennings et al. 1992, Jennings and Hayes 1994), accidental catch by fishermen (Jennings and Hayes 1994, personal observation), and vehicular traffic during overland movements (Jennings et al. 1992, Jennings and Hayes 1994).

2.0 Objectives

At Alder and Fox Creeks, in the upper Santa Ynez River watershed, natural stream flows have been altered by diversion into Jameson Lake, a reservoir on the Santa Ynez River. Amphibian and reptile species of special

concern, specifically the California red-legged frog, arroyo toad, and southwestern pond turtle, occur in this area. Dependent upon freshwater resources, these species may be affected by alteration of natural flow regimes. Los Padres National Forest (LPNF) wildlife biologists have undertaken a long-term program of monitoring sensitive amphibian and reptile species within forest boundaries. In July and August 1995, I assisted LPNF wildlife crews in herpetofaunal surveys of the upper Santa Ynez River, Alder and Fox Creeks. This report details the findings of three day and three night surveys in this region.

3.0 Methods

Each site was surveyed once during daylight and subsequently resurveyed at night. Daylight surveys revealed southwestern pond turtles and amphibian larvae. Dip nets were used to capture larvae for identification. Recently-metamorphosed California red-legged frogs are readily visible during day surveys late-July through August. Night surveys were performed using high-powered lights (Wheat Cap Lamp, Koehler Manufacturing, Marlborough, Massachusetts) to detect eyeshine of adult amphibians. Southwestern pond turtles are often spotted underwater with lamps.

A minimum of two people conducted each survey. Data recorded at the beginning and end of each survey were the time, and estimates of weather parameters including air temperature, water temperature, cloud cover and wind speed. Each reptile and amphibian observed was noted with the time of sighting, lifestage, and location of sighting. Parameters describing microhabitat use for each animal were also recorded. These included dominant types of aquatic and bank vegetation, substrate, flow (pool, riffle,

glide, etc.), maximum water depth within 0.5 meter of animal, width of active stream channel, width of wetted stream channel, pool length, and canopy cover. Microhabitat data is not analyzed herein, but raw data has been provided to the LPNF.

4.0 Results

Areas surveyed are shown in Figure 1. Numbers of amphibian and reptile species observed at each site are presented in Table 1, with the survey time and number of observers provided to aid in comparisons between sites. In addition to surveys listed in Table 1, three searches were performed by LPNF personnel in which I did not take part. A night survey of Fox Creek from the confluence of Santa Ynez River to the waterfall by Kathy Fry and James Gorham revealed no sensitive amphibians and reptiles. Day searches of an unnamed tributary to Santa Ynez River opposite of Juncal Campground (surveyed by Kathy Fry), and Santa Ynez River below Jameson Lake (surveyed by Nancy Sandburg), both revealed no sensitive herpetofauna.

California red-legged frogs and larvae were found in Santa Ynez River continuously from Juncal Campground to approximately one-half the distance from Juncal Campground to Fox Creek (Figure 1). Adult California red-legged frogs were also found in the Santa Ynez below Jameson Lake, and in a single pool located at the confluence of Alder Creek. Although the entirety of Alder Creek was not surveyed, California red-legged frogs were observed near the diversion. Arroyo toads were found at an oak terrace above the Santa Ynez River adjacent to the confluence of Fox Creek. The western pond turtle was observed in the Santa Ynez River east of Juncal Campground, below Jameson Dam, and at the confluence of Alder Creek.

Other amphibian and reptile species encountered were pacific chorus frog (*Pseudacris regilla*), California chorus frog (*P. cadaverina*), western toad (*Bufo boreas*), bullfrog (*Rana catesbeiana*), western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis melanoleucus*). Bullfrogs were present only in the pool immediately below Jameson Dam, in the Santa Ynez River immediately above Jameson Lake, and were heard calling from Jameson Lake.

5.0 Discussion

The discovery of arroyo toads at Santa Ynez River near Fox Creek was interesting since the nearest population is known from Santa Ynez River 0.25 miles east of the confluence with Agua Caliente (Sam Sweet, personal communication), a distance of approximately 3 air miles. The small number of individuals found at Fox Creek and the absence of larvae suggest that this population is probably not large.

Reproduction of California red-legged frogs was in evidence at only one site, Santa Ynez River upstream from Juncal Campground. Curiously, no metamorphosed or larval California red-legged frogs were found at the Santa Ynez site below Jameson Lake, despite the presence of a relatively large adult population and seemingly structurally-suitable breeding pools. Larval and juvenile California red-legged frogs were absent from Alder Creek also in 1994 (Christopher 1994). Individuals observed at Alder Creek were large adults, and further study should address the apparent reproductive failure at this site. The absence of California red-legged frogs at Fox Creek may be attributed to the relative scarcity of large, deep pools.

Western pond turtles observed were mainly large adults, with the exception of one pre- or young-adult seen at Santa Ynez River below Jameson

Lake. It is recommended that the status of western pond turtles be addressed by a trapping program to aid in the study of population demography and a more comprehensive distribution analysis.

Jameson Lake appears to be a source of bullfrogs in this area. Since bullfrogs prefer slow-water habitats with dense emergent vegetation and relatively high water temperatures (Moyle 1973, Bury and Luckenbach 1976, Stebbins 1985, Crawshaw et al. 1992, see also Bury and Whelan 1984), bullfrog reproduction may be most successful in the lake, with emigration to adjacent areas. Since bullfrogs are known predators of anurans (Storer 1922, Frost 1935, Cohen and Howard 1958, Stewart and Sandison 1972, Moyle 1973, Licht 1973, Walters 1975, Cecil and Just 1979, Corse and Metter 1980, Hammerson 1982, Stumple 1992, Leonard et al. 1993) and turtles (Moyle 1973, Jennings and Hayes 1994), it is suspected that this introduced species may be threatening native populations of herpetofauna (Dumas 1966, Licht 1973, Moyle 1973, Bury and Luckenbach 1976, Green 1978, Vitt and Ohmart 1978, Hammerson 1982, Hayes and Jennings 1988, Kupferberg 1993, Leonard et al. 1993, Jennings and Hayes 1994).

6.0 Recommendations

Alteration of the natural flow regime of Alder and Fox Creeks may result in decreased water availability in late summer and subsequent failure of California red-legged frog reproduction. However, water availability should be sufficient to maintain breeding populations of California red-legged frogs in the upper one-third of these streams, but no evidence of reproduction has been found. There may be some additional factor contributing to the apparent lack of reproduction, such as high water velocities during breeding season. It is possible that Alder Creek is supplied by frogs which have

emigrated from downstream breeding sites. In addition, these same sites may be or are used by western pond turtles and arroyo toads. Because the area below the Alder Creek diversion was observed to experience total or partial drying in the summer months, larval survival of red-legged frogs and arroyo toads may be impeded. Further study should address the hydrological impact of stream flow diversion on lower Alder Creek, and the Santa Ynez River below Alder Creek.

Introduced aquatic predators, especially the bullfrog, should be considered a threat to native herpetofauna. Non-native predatory fishes which may occur in Jameson Lake were not observed in the Santa Ynez River or Alder and Fox Creeks, and are not considered as serious a threat. Identification of a program to remove bullfrogs should be addressed.

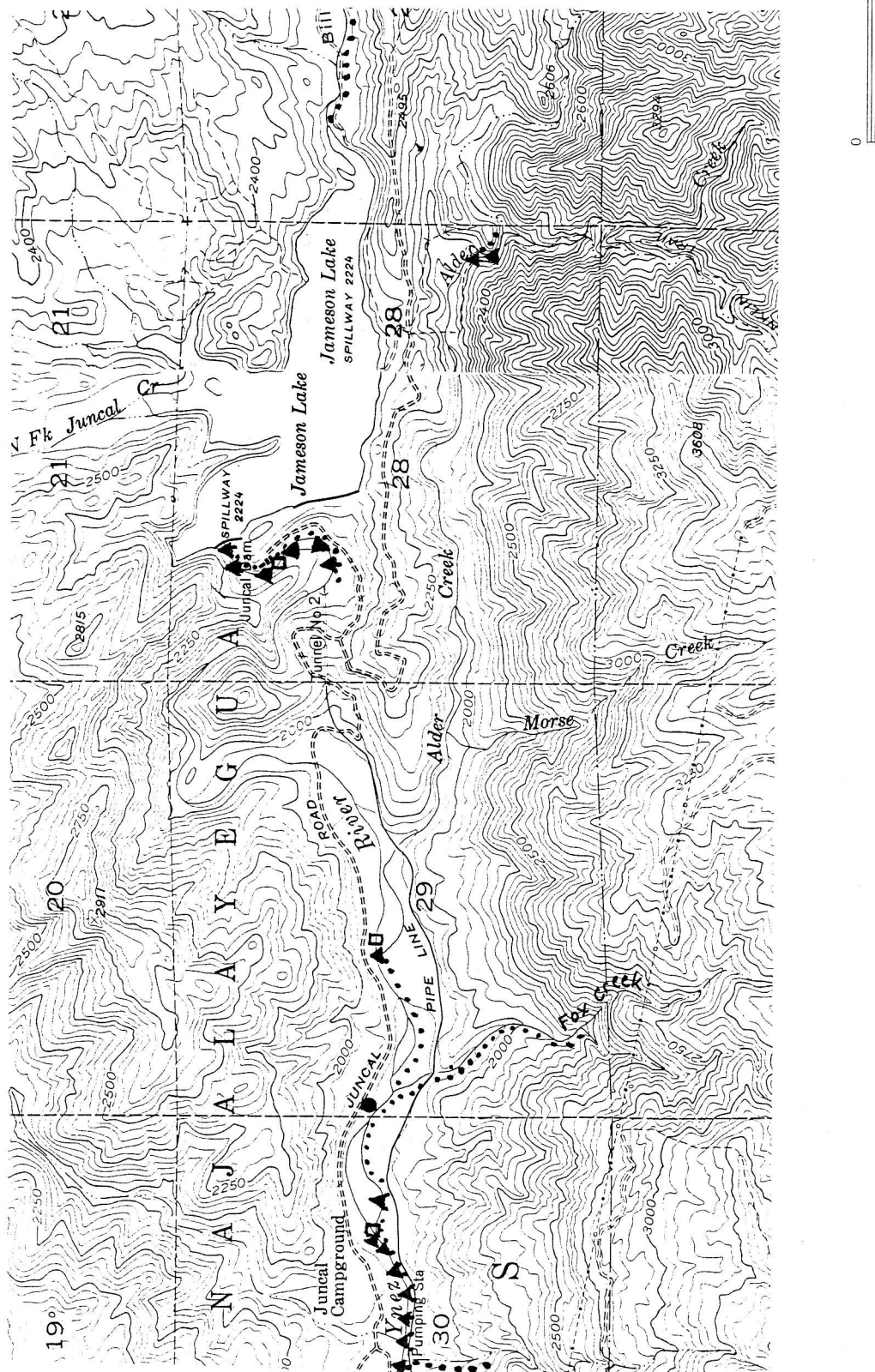


Figure 1. Map of areas surveyed and point sightings of sensitive species of amphibians and reptiles during summer 1995 at upper Santa Ynez River basin, Los Padres National Forest, California. Adapted from U.S.G.S. 7.5' quadrangles.

Table 1. Amount of survey time, type of survey, number of observers, and number of sensitive amphibians and reptiles observed at each site surveyed in the upper Santa Ynez River system in July and August, 1995.

Site	Survey time (minutes)	Day or night survey	Number of observers	Number of red-legged frogs (tads)	Number of arroyo toads	Number of pond turtles
Santa Ynez from Fox Cr. to Alder Cr.	50	Day	3	0 (0)	0	0
Alder Cr. at diversion	30	Night	3	2 (0)	0	0
Santa Ynez at Alder Cr.	10	Night	3	1 (0)	0	2
Santa Ynez at Fox Cr.	85	Night	3	0 (0)	2	0
Fox Cr. upper	55	Night	3	0 (0)	0	0
Santa Ynez at Alder Cr.	15	Day	4	0 (0)	0	0
Santa Ynez from Juncal to Fox Cr.	85	Day	4	0 (0)	0	0
Santa Ynez from Juncal to Fox Cr.	160	Night	2	21 (53)	0	1
Santa Ynez above Jameson Lake	20	Day	4	0 (0)	0	0
Santa Ynez below Jameson Lake	170	Night	2	15 (0)	0	1

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