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# **Amphibian and Reptile Summary Report**

## **2019**

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**June 1, 2019**

Cover photo: Adult foothill yellow-legged frog. Photo by HRC Forest Sciences staff.

## **Humboldt Redwood Company (HRC) Project Description**

**Title:** Amphibian and Reptile Monitoring

**Purpose:** Habitat Conservation Plan monitoring

**Date Initiated:** March 1999

**Projected End Date:** ongoing

**Manager:** Sal Chinnici, Director, Forest Sciences

### **Executive Summary:**

The HRC HCP includes four covered amphibians (southern torrent salamander, tailed frog, yellow-legged frog, and red-legged frog) and one covered reptile (western pond turtle). The HCP's strategy for conserving and monitoring the covered amphibian and reptile species is a landscape approach to protecting habitat, assessment of habitat conditions through watershed analysis, and species surveys and population monitoring.

With this summary report covering the 2018-2019 monitoring period there was an emphasis on foothill yellow-legged frog work that coincided with their State Candidacy status. On 18 September, 2018 HRC was issued an Incidental Take Permit (ITP) by the California Department of Fish and Wildlife (CDFW) (ITP No. 2081-2018-039-01) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. The California Endangered Species Act (CESA) prohibits the take of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081; subdivisions (b) and (c) are met. (See Cal. Code Regs., tit. 14, § 783.4). As a result of this significant management change, for this summary report we have included our 2018 summary of activities under the ITP, as well as a brief report on foothill yellow-legged frog egg mass surveys that were conducted to assess baseline population conditions.

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# **2018 Foothill Yellow-legged Frog Annual Status Report**

**California Endangered Species Act  
Incidental Take Permit No.**

**2081-2018-039-01**

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**Encompassing Class I Watercourse Crossings:**

**Van Duzen River at Corbett Ranch  
Bear River at Nelson Creek  
Atwell Creek**

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# **Foothill Yellow-legged Frog Annual Status Report - 2018**

**Reviewed:**

**Director, Forest Sciences**



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**Sal Chinnici**

**Project Manager/ Primary Author**

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**Keith Lackey**

# TABLE OF CONTENTS

<a href="#">List of Tables</a> .....	4
<a href="#">Introduction</a> .....	5
<a href="#">Description of Covered Activities</a> .....	7
<a href="#">Incidental Take of Covered Species</a> .....	8
<a href="#">Project Location and Area Surveyed</a> .....	9
<a href="#">Class III Watercourse Crossings</a> .....	9
<a href="#">Class II Watercourse Crossings</a> .....	9
<a href="#">Class I Watercourse Crossings</a> .....	9
<a href="#">FYLF Take Minimization Effectiveness Assessment</a> .....	10



## LIST OF TABLES

<a href="#"><u>Table 1. 2018 FYLF Class I watercourse crossing mitigation locations and approximate project area surveyed since the effective date of the HRC FYLF ITP (7 September 2018)</u></a> .....	9
<a href="#"><u>Table 2. Summary of FYLF take minimization efforts conducted during 3 Class I watercourse crossing removals in October 2018</u></a> .....	10

## INTRODUCTION

Humboldt Redwood Company (HRC) owns and manages approximately 209,000 acres of redwood and Douglas-fir forestlands in Humboldt County, CA. The property is in a north-to-south band lying 5 to 50 miles inland from the Pacific Ocean and is generally accessible along U.S. Highway 101. The landscape is a diverse series of ridges uplifted as the oceanic plates collide with the North American continent, producing a mountainous terrain with elevations rising from 40 to 3,600 feet above sea level. Vegetation on HRC lands is primarily Coastal Redwood and Douglas-fir Mixed Conifer Forests (approximately 153,000 acres). Areas that lie inland farther from the influence of the marine climate, and holdings within the Bear and Mattole River drainages are dominated by Douglas-fir and Hardwood Mixed Evergreen Forest (estimated 46,000 acres).

Approximately 95% of the property is forested, with the remaining area covered by prairie, shrubs, and waterways (~10,000 acres). The geology underlying the ownership is composed of sedimentary rocks accreted to the active margin of the North American continent as the Gorda and San Juan de Fuca plates slip under the continent a short distance offshore. The bedrock is highly deformed and fractured creating a structurally weak mélange in the east made up of folded, faulted, and fractured hard sandstones and argillites in the south and west, and poorly consolidated young fine-grained silts, clays, and sands in the north and central portions of the property. The soils are typically well drained, shallow to moderately deep, and can provide nutrients to sustain long term forest growth.

HRC forestlands contain suitable habitat for the foothill yellow-legged frog (*Rana boylei*), and the species is widespread and locally abundant. The FYLF has been designated as a candidate for State listing as a threatened or endangered species under CESA. At the 21 June 2017 Fish and Game Commission meeting addressing a listing petition, the Commission voted to accept the petition, advancing the foothill yellow-legged frog toward candidacy, and upon the adoption of findings on 27 June 2017, FYLF became eligible for take prohibitions under the CESA. The FYLF is also currently a CDFW Species of Special Concern in California but is not listed under the federal ESA.

Subsequent to the FYLF being designated a candidate as a candidate species, HRC applied for an Incidental Take Permit (ITP), and on 18 September 2018 HRC was issued an ITP by the CDFW (ITP No. 2081-2018-039-01) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, Title 14, section 783.0 et seq. CESA prohibits the take of any species

of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in Fish and Game Code section 2081; subdivisions (b) and (c) are met. (See Cal. Code Regs., tit. 14, § 783.4).

## **DESCRIPTION OF COVERED ACTIVITIES**

HRC intends to conduct forest management and conservation activities (timber harvest and regeneration, site preparation, planting, vegetation management, thinning, and fire suppression) and associated operations (e.g. road construction, maintenance, improvement, and closure) on its lands in Humboldt County, California. These activities are conducted according to the conservation measures and other requirements of the HRC Habitat Conservation Plan (HCP), the California Board of Forestry Forest Practice Rules (FPRs), a Master Agreement Timber Harvesting Operation Lake and Streambed Alteration Agreement (MATO), an Option (a) Sustained Yield document filed with the California Department of Forestry and Fire Protection (CAL FIRE), and Waste Discharge Requirements authorized by the North Coast Regional Water Quality Control Board.

## **INCIDENTAL TAKE OF COVERED SPECIES**

There are 17 covered species under the HRC HCP, including birds, mammals, fish, amphibians, and a reptile. The FYLF is one of the federally covered, but currently unlisted species, and is a state candidate for listing as described above. Covered Activities and their resulting impacts are expected to result in the incidental take of individuals of the covered species. Incidental take of these species in the form of mortality may occur as a result of Covered Activities such as crushing individuals with heavy equipment during watercourse crossing construction, log hauling or tree felling. The Covered Species is at risk of being pulled into intakes during Class I watercourse and II watercourse drafting operations. Take may also occur during the pursuit and capture of the Covered Species during relocation efforts associated with watercourse crossings.

FYLF Incidental Take Permit (ITP) No. 2081-2018-039-01 (effective as of 7 September 2018) authorized the take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, CDFW authorizes HRC, its employees, contractors, and agents to take Covered Species, incidentally, in carrying out the Covered Activities, subject to the limitations described within the HRC ITP.

# PROJECT LOCATION AND AREA SURVEYED

## Class III Watercourse Crossings

FYLF mitigation efforts were conducted by HCP Roads Department staff and/or RPFs, trained by qualified biologists, at 154 Class III watercourse crossings in 2018. Of these crossings, zero (0) FYLFs were observed within the project locations.

## Class II Watercourse Crossings

FYLF mitigation efforts were conducted by HCP Roads Department staff and/or RPFs, trained by qualified biologists, at 69 Class II watercourse crossings in 2018. Of these crossings, zero (0) FYLFs were observed within the project locations.

## Class I Watercourse Crossings

FYLF mitigation efforts were conducted by designated qualified biologists, HCP Roads Department staff, and/or RPFs at four (4) Class I watercourse crossings on HRC lands in 2018. Of those crossings, three (3) were found to be occupied by FYLF (Table 1). Project locations were collected on-site with a hand-held GPS unit and the area surveyed was determined by calculating the square footage of the surveyed habitat then converting those values to acres.

**Table 1. 2018 FYLF Class I watercourse crossing mitigation locations and approximate project area surveyed since the effective date of the HRC FYLF ITP (7 September 2018)**

<b>Site Name</b>	<b>Approximate Project Location</b>	<b>Approximate Area Surveyed</b>
Van Duzen River at Corbett Ranch	-124.006, 40.508	0.28 acres
Bear River at Nelson Creek	-124.082, 40.389	0.21 acres
Atwell Creek	-124.156, 40.486	0.14 acres

# FYLF TAKE MINIMIZATION EFFECTIVENESS ASSESSMENT

Take minimization measures were conducted at three (3) Class I watercourse crossings in October 2018 in accordance to Section 7.1 of Incidental Take Permit No. 2081-2018-039-01. Table 2 summarizes the capture and relocation efforts conducted by designated qualified biologists before any Covered Activities began. This table does not include summaries of the FYLF mitigation efforts conducted upon the installations of the watercourse crossings in June 2018, as the Incidental Take Permit was not effective until 7 September 2018. However, mitigation efforts at the time of the crossing installations at the Van Duzen at Corbett Ranch and Bear River at Nelson Creek were consistent with those outlined in the final ITP. The watercourse crossing installation at Atwell Creek occurred prior to the HRC HCP when FYLF mitigation was not yet applicable. With zero observed mortality at all 3 locations, it was determined that the mitigation measures outlined in the HRC FYLF ITP were effective in minimizing take during the Covered Activities in 2018.

**Table 2. Summary of FYLF take minimization efforts conducted during 3 Class I watercourse crossing removals in October 2018**

<b>Site Name</b>	<b>Total # Egg Masses</b>	<b>Total # Juveniles</b>	<b>Total # Adults</b>	<b>Total # Mortality</b>	<b>Total # Passes</b>
Van Duzen River at Corbett Ranch (10/12/2018)	0	7	1	0	10
Bear River at Nelson Creek (10/18/2019)	0	0	1	0	3
Atwell Creek (10/4/2018)	0	0	1	0	3

# Foothill Yellow-legged Frog Egg Mass Survey Summary

## Introduction

During the spring of 2018 we initiated a foothill yellow-legged frog egg mass survey following methods used by Green Diamond Resource Company (GDRCo) since 2008 (GDRCo 2018). Surveys of FYLF egg masses are thought to equate to a minimum estimate of female FYLF that deposited the eggs along the reach (Wheeler and Welsh 2008). Thus, egg mass surveys are a good monitoring technique that can provide an index of population density (breeding females). Whether or not the California Fish and Game Commission determines that FYLF listing is warranted or not, HRC will consider continuing limited egg mass surveys as part of long-term monitoring.

## Methods

On May 29 and 30, 2018 we conducted egg mass surveys on a reach of the mainstem Eel River from the Three Mile Bridge to the Dinner Creek Bar, and on mainstem Yager Creek from the Road 3 Bridge to 550 meters upstream (Figures 1 and 2). A visual encounter survey method was employed during these one-day surveys in which surveyors walked the cobble/gravel bars searching for egg masses. When surveyors encountered egg masses, they recorded which bank of the river they were on (right bank vs. left bank, looking downstream), GPS coordinates of egg masses, species code (as Western Toad (*Anaxyrus boreas*) egg strings are also encountered), number of egg masses in a given area and egg development stage. Egg development stage also accounts for egg condition based on whether the egg masses are stranded or desiccated. Start time, end time, start location, end location, weather conditions, air temperature and water temperature were also recorded.

## Results

The mainstem Eel River reach from the Three Mile Bridge to the Dinner Creek Bar is a 1.25 km reach. 26 FYLF egg masses were counted on the May 29, 2018 survey, for a result of 20.8 egg masses per km. The mainstem Yager Creek reach from the Road 3 Bridge to 550 meters upstream is a 0.55 km reach, on which 27 egg masses were counted, resulting in 49.1 egg masses per km. On the Eel River reach 50% of the egg masses were hatched or partially hatched, while on the Yager Creek reach 74% of the egg masses were hatched or partially hatched. The balance of the egg masses on both reaches were unhatched. No egg masses were found to be stranded out of the water and desiccated.

## Discussion

The survey of the Eel River reach, although covering more than a km, could be considered an incomplete survey as the river's depth and velocity at this time last year prevented us from completely surveying both banks. This could potentially have resulted in a lower number of egg masses on the survey. The conditions on the Yager Creek survey were more favorable for a complete survey as the creek's flow was low enough to easily cover both banks. However, the percentage of egg masses which had hatched or partially hatched was high (74%), indicating that we may have missed the height of egg mass density for this reach.

Our results for the Eel River and Yager Creek (20.8 and 49.1 egg masses per km, respectively) were somewhat comparable to the densities reported by van Hattem (2017, reported in GDRCo 2018) for a



reach of the Mad River downstream from the GDRCo reach (38.8 – 73.1 egg masses per km), although the densities reported for the GDRCo reach of the Mad River have been much higher (10-year survey average of 257.8 egg masses per km). If HRC monitoring is continued in future years it would be best to attempt to capture the peak of the breeding season by spot-checking the survey reach prior to conducting the survey as GDRCo has done (GDRCo 2018).

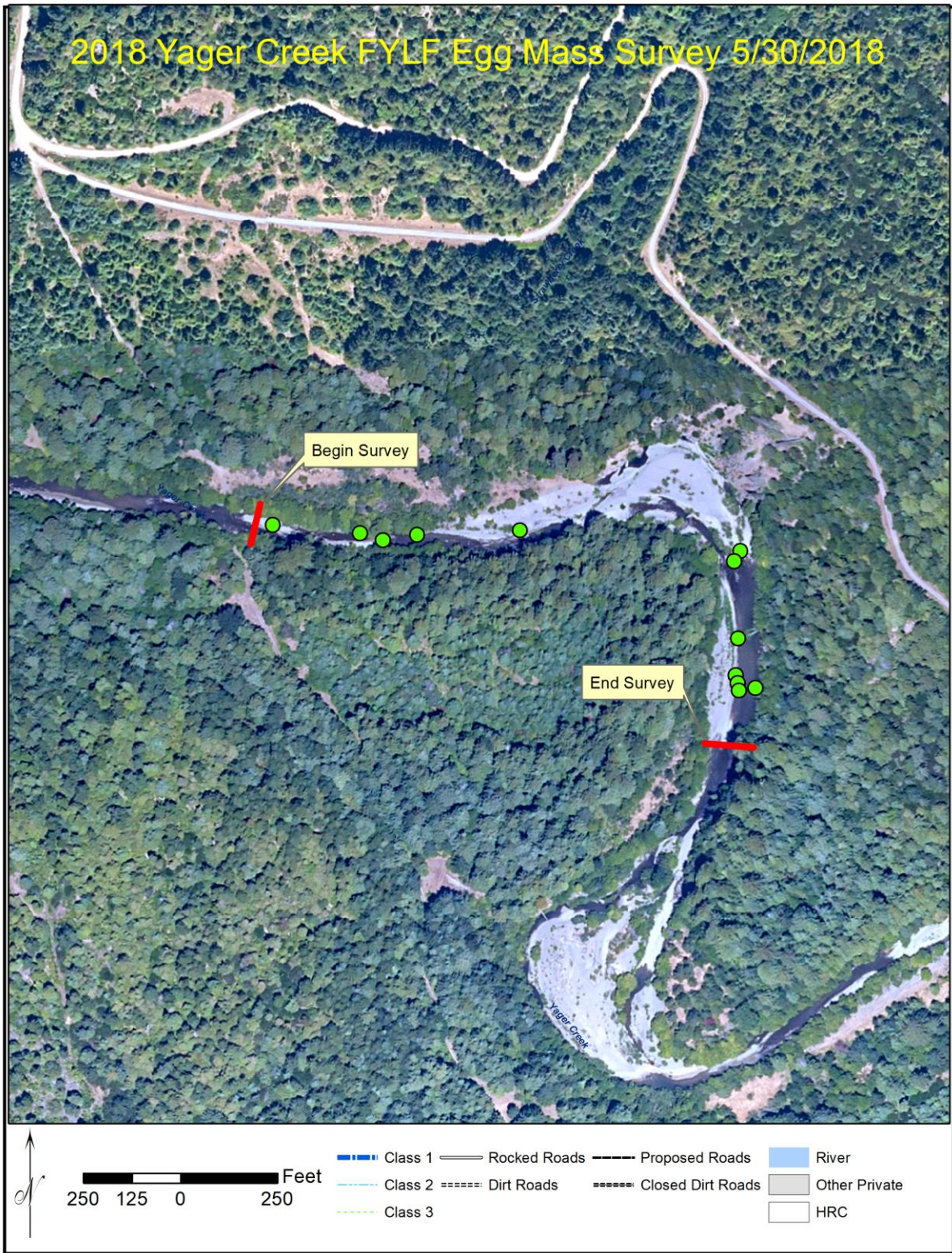
### **Literature Cited**

GDRCo. (Green Diamond Resource Company). 2018. Mad River Foothill Yellow-legged Frog Egg Mass Survey Summary. Progress report to the California Department of Fish and Wildlife pursuant to the requirements of Scientific Collecting Permit Entity # 6348. January 2018.

Wheeler, C.A., and H.H. Welsh, Jr. 2008. Mating Strategy and Breeding Patterson of the Foothill Yellow-legged Frog (*Rana boylei*). *Herpetological Conservation and Biology* 3(2):128-142.



**Figure 1.** Reach of mainstem Eel River surveyed for FYLF egg masses in 2018 (egg mass locations are shown as green dots).



**Figure 2.** Reach of mainstem Yager Creek surveyed for FYLF egg masses in 2018 (egg mass locations are shown as green dots).