Humboldt Redwood™

Amphibian and Reptile Annual Report

2014

June 1, 2014

Cover photo: Coastal Giant Salamander near Cummings Creek, Van Duzen River. Photo by HRC Forest Science 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, Forest Science Manager

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 report covering the 2013-2014 monitoring period we are transitioning from an annual property-wide monitoring effort to a focus on upcoming watershed analysis revisitation. Therefore, this report discusses the status and results of occupancy surveys conducted during the reporting period in the Freshwater and Van Duzen Watershed Analysis Units. No further changes in the monitoring strategy are recommended at this time.

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INTRODUCTION

The purpose of this annual report is to provide the results of surveys and monitoring of the covered amphibian and reptile species of the Humboldt Redwood Company (HRC) Habitat Conservation Plan (HCP). This report covers the period 1 June 2013 to 1 June 2014.

Surveys and habitat assessments for the covered species have been ongoing through implementation of HCP monitoring strategies. Sections of the HCP addressing amphibians and reptiles include: 6.3.2.1, 6.3.5.2.4, and 6.10. These HCP sections discuss the process by which both watershed analysis and effectiveness monitoring address the covered species' habitat needs.

Records of species occurrence have been gathered from incidental observations recorded during Timber Harvesting Plan (THP) surveys, historical records, and wildlife and monitoring surveys, including protocol surveys of Class I and Class II waters (streams, watercourses, seeps, springs, lakes, ponds, and wetlands). The methods and protocols used to survey for the five covered species were developed cooperatively between the Wildlife Agencies and HRC, and are described briefly in the following sections.

With this report covering the 2013-2014 monitoring period we are transitioning from an annual property-wide monitoring effort to a focus on upcoming watershed analysis revisitation units. Therefore, this report discusses the status and results of occupancy surveys conducted during the reporting period in the Freshwater and Van Duzen Watershed Analysis Units (WAU). The Elk River – Salmon Creek WAU revisitation is in draft form for review. The Freshwater WAU is scheduled for 2014 – 2015, which will be followed by the Van Duzen River WAU in 2015.

COVERED SPECIES

SOUTHERN TORRENT SALAMANDER AND TAILED FROG

Introduction

The southern torrent salamander (*Rhyacotriton variegatus*) and tailed frog (*Ascaphus truei*) are treated jointly in this report and in survey protocols due to their preference for headwater habitats and high gradient streams. Briefly, the tailed frog and southern torrent salamander protocol was intended to fulfill the needs of distributional surveys for these two species. The goal of this protocol is to determine the approximate distribution in WAUs using an area-constrained search of Class II watercourses, seeps, and springs.

Following the initial baseline distributional surveys, it was recognized that, in some cases, the vigorous sampling techniques could potentially negatively impact sub-populations. As a result we have moved to an occupancy level survey, using similar techniques but terminating the survey once the focus species has been found, or continuing to survey the entire reach if no specimens are located. This technique will allow us to monitor the persistence of sub-populations within WAUs without risking potentially significant damage.

Figure 1. Southern Torrent Salamander.

Figure 2. Tailed Frog.

Methods

The survey protocol for tailed frogs and southern torrent salamanders uses an area-constrained search method of Class II waters. The protocol has been appended to previous reports. The suggested sampling period for torrent salamanders is after the first winter rains (e.g., November) through May, depending on weather and watercourse conditions. For tailed frogs the suggested sampling period is March through June, again depending on weather and watercourse conditions. Based on results of surveys to date, it appears that the survey season for both species may be extended when favorable water conditions exist.

The protocol surveys have been used to build a distributional map for the two species. In order to monitor the persistence of subpopulations of these species and continue to inform the watershed analysis revisitation process, occupancy surveys of previously located sites will be conducted using an abbreviated protocol in which the survey is considered complete once an individual of the target species is located. During the reporting period 2013-2014, the Freshwater Creek and Van Duzen River occupancy monitoring sites were visited.

Results and Discussion: Southern Torrent Salamander

During the period covered by this report a total of 33 occupancy surveys were conducted at 11 known or historic southern torrent salamander sites in the Freshwater and Van Duzen WAUs between 13 December 2013 and 22 May 2014 (Table 1). Occupancy by southern torrent salamanders was confirmed at 7 of the 11 sites for an occupancy rate of 0.64, compared to occupancy at 8 of the 11 sites (occupancy rate of 0.73), and the property-wide occupancy rate of 0.81 for the 2012 – 2013 report.

During the 2012 - 2013 season, sites 1 and 177 were occupied by RHVA, and were not occupied during this reporting period. Conversely, site 6 was not occupied last season but was occupied during this season's surveys. No changes in belt habitat conditions (e.g. habitat type, gradient, substrate, or canopy) were noted between years. Similarly, there were no changes in RMZ prescriptions between survey periods. Surveys in both seasons were conducted during preferred sampling periods. However, low rainfall and thus low flow conditions may have negatively affected the 2013 – 2014 survey. For example, sites 1 and 177 in Freshwater had little or no water on this season's surveys in the previously occupied belts.

Other covered species found at the STS locations included tailed frogs (two sites, both of which are included in the tailed frog sites discussed below. In addition, coastal giant salamanders (*Dicamptodon tenebrosus*) were observed at three of the sites.

Surveys were distributed by WAU as follows: Freshwater Creek (n = 8) and Van Duzen River (n = 3).

Habitat characteristics (see Table 2 for habitat codes) for the 7 occupied belts can be summarized as follows:

- Habitat type: cascade/falls habitat (57.1%), followed by high gradient riffle (42.9%).
- Belt gradient: range 17 - 90%, mean 35.5%.
- Belt substrate: 100% of the sites were of competent rock.
- Belt embeddedness was moderate overall, consisting only of class 2 (26-50% embeddedness).
- Belt canopy was high overall, with a range of 50.0 – 95.5% (mean 81.8%).

The southern torrent salamander surveys were conducted during the suggested sampling period and under mostly good conditions, with lower rainfall resulting in flow conditions beneficial to surveys. While site occupancy was relatively high, some of the historic sites had not been visited for 10 years or more, and surveying some of what are very small stream reaches can possibly lead to false negatives.

Table 1. Southern Torrent Salamander (RHVA) Survey Summary.

WAU	Date	Site ID	Occupied ?	Belt Habitat	Belt Gradient	Belt Substrate	Belt Embed	Belt Canopy	Species ID
Van Duzen	13-Dec-13	20	Yes	C/F	33.0%	C	2	50.0%	RHVA
Freshwater	23-Jan-14	6	Yes	HGR	23.0%	C	2	95.5%	RHVA
Freshwater	23-Jan-14	6	No	C/F	30.0%	C	2	0.0%	
Freshwater	23-Jan-14	3	Yes	C/F	42.0%	C	2	95.5%	RHVA
Freshwater	23-Jan-14	3	No	C/F	35.0%	C	2	0.0%	
Freshwater	23-Jan-14	201	No	C/F	50.0%	C	2	97.0%	
Freshwater	23-Jan-14	201	No	HGR	25.0%	C	2	94.0%	
Freshwater	23-Jan-14	201	No	HGR	25.0%	C	2	95.5%	
Freshwater	23-Jan-14	201	No	C/F	40.0%	C	2	92.5%	
Freshwater	23-Jan-14	177	No	C/F	55.0%	C	2	92.5%	
Freshwater	23-Jan-14	177	No	C/F	45.0%	C	2	94.0%	
Freshwater	23-Jan-14	177	No	C/F	60.0%	C	2	91.0%	
Freshwater	23-Jan-14	177	No	C/F	50.0%	C	2	94.0%	
Freshwater	24-Jan-14	182	Yes	HGR	17.0%	C	2	92.5%	RHVA
Freshwater	24-Jan-14	182	No	C/F	20.0%	C	1	95.5%	
Freshwater	24-Jan-14	180	No	HGR	5.0%	C	2	97.0%	
Freshwater	24-Jan-14	180	No	SP	10.0%	C	3	98.5%	
Freshwater	24-Jan-14	180	No	C/F	45.0%	C	3	85.0%	DITE
Freshwater	24-Jan-14	180	No	C/F	20.0%	C	2	82.0%	DITE
Freshwater	24-Jan-14	180	Yes	C/F	20.0%	C	2	82.0%	RHVA
Freshwater	24-Jan-14	192	No	C/F	35.0%	C	3	98.5%	
Freshwater	24-Jan-14	192	No	C/F	60.0%	I	3	89.5%	
Freshwater	24-Jan-14	192	No	C/F	40.0%	C	3	95.5%	
Freshwater	24-Jan-14	192	No	C/F	40.0%	C	3	95.5%	

WAU	Date	Site ID	Occupied ?	Belt Habitat	Belt Gradient	Belt Substrate	Belt Embed	Belt Canopy	Species ID
Freshwater	27-Jan-14	1	No	LGR	5.0%	C	3	39.5%	ASTR
Freshwater	27-Jan-14	1	No	HGR	20.0%	C	2	47.0%	ASTR
Freshwater	27-Jan-14	1	No	C/F	25.0%	C	2	95.5%	ASTR
Freshwater	27-Jan-14	1	No	C/F	25.0%	C	2	95.5%	DITE
Freshwater	27-Jan-14	1	No	HGR	20.0%	C	2	85.0%	ASTR
Van Duzen	06-Feb-14	19	No	LGR	15.0%	C	3	73.0%	DITE
Van Duzen	06-Feb-14	19	Yes	C/F	90.0%	C	2	85.0%	RHVA
Van Duzen	06-Feb-14	19	No	C/F	90.0%	C	2	85.0%	ASTR
Van Duzen	22-May-14	1148	Yes	HGR	55.0%	C	2	91.0%	RHVA

Table 2. Habitat codes for southern torrent salamander and tailed frog survey summaries.

Parameter	Explanation	
Habitat Code	**P**=Pool	**HGR**=High Gradient Riffle
	R=Run	**C/F**=Cascade/Falls
	LGR=Low Gradient Riffle	**SP**=Step Pool
Substrate C/I	Competent (**C**) hard and does not break in the hand it is competent.	
	Incompetent (**I**) Readily crumbles or has plasticity it is incompetent.	
Embeddedness (1-4)	**1**=0-25%,	**3**=51-75%
	2=26-50%	**4**=76-100%
Species ID	**RHVA** = southern torrent salamander	**DITE** = coastal giant salamander
	ASTR = tailed frog	**RABO** = foothill yellow-legged frog
	ANFL = black salamander	**BAAT** = California slender salamander

Results and Discussion: Tailed Frog

During the period covered by this report a total of 23 occupancy surveys were conducted at 7 known or historic tailed frog sites in the Freshwater and Van Duzen WAUs between 16 July and 14 August 2013 (Table 3). This survey period was not optimal for determining tailed frog occupancy, but sites were surveyed concurrently with the torrent salamander surveys discussed above, and when personnel were available. Surveys were distributed by WAU as follows: Freshwater Creek (n = 11), and Van Duzen River (n = 12).

Occupancy by tailed frogs was confirmed at 5 of the 7 sites in these two WAUs, for an occupancy rate of 0.71, compared to an occupancy rate of 0.30 for all WAUs included in the 2012 - 2013 survey period (Bear/Mattole, ERSC, Freshwater, Lower Eel, Upper Eel, Van Duzen, and Yager/Lawrence). For the 2012 - 2013 surveys, the occupancy rate was 1.00 for the two sites (3, 19) that were surveyed in Freshwater and Van Duzen. ASTR were also observed at sites 3 and 19 on the RHVA surveys in 2013 – 2014.

Similar to the RHVA surveys, no changes in belt habitat conditions (e.g. habitat type, gradient, substrate, or canopy) were noted between years, and there were no changes in RMZ prescriptions between survey periods. However, surveys done during this season were completed much later and outside the preferred sampling period, during July and August. We found that the conditions during this period were good for observing ASTR tadpoles attached to rocks. These findings suggest that flexibility in survey timing may be needed during years with variation in rainfall and stream flow.

Other species found at the tailed frog locations included coastal giant salamanders (n = 4), and yellow-legged frog (n = 1).

Given the very small sample size, habitat characteristics for the 5 occupied belts can be summarized as follows:

- Habitat type: one was in cascade/falls habitat, one in high gradient riffle, and 3 in low gradient riffle.
- Belt gradient: range 0.5% - 45%, mean 17.6%.
- Belt substrate: all of the 7 sites were of competent rock.
- Belt embeddedness: the majority (60%) of belts were of class 2 (26 - 50% embeddedness).
- Belt canopy had a range of 53.0 – 97.0% (mean 82.3%).

The tailed frog surveys were not conducted during the suggested sampling period (typically March through June) but were opportunistically done in conjunction with torrent salamander surveys at or near the tailed frog sites, and when staff was available. All positive detections were of ASTR larvae or tadpoles, with their distinctive tail marking and habit of using the suction-like mouthparts to forage on stream cobble. This would be expected, given the timing of the surveys and the location of the detections primarily in the low gradient riffles in areas with competent rock.

Table 3. Tailed Frog (ASTR) Survey Summary.

WAU	Date	Site ID	Animals	Belt Habitat	Belt Gradient	Belt Substrate	Belt Embed	Belt Canopy	Species ID
Freshwater	16-Jul-13	165	No	LGR	3.0%	C	2	82.0%	
Freshwater	16-Jul-13	165	Yes	LGR	0.5%	C	2	53.0%	ASTR
Freshwater	16-Jul-13	175	Yes	LGR	2.0%	C	2	88.0%	ASTR
Freshwater	16-Jul-13	175	No	LGR	2.0%	C	2	88.0%	DITE
Van Duzen	31-Jul-13	144	No	HGR	25.0%	C	1	80.5%	DITE
Van Duzen	31-Jul-13	144	No	HGR	25.0%	C	2	88.0%	DITE
Van Duzen	31-Jul-13	144	No	SP	55.0%	C	1	85.0%	DITE
Van Duzen	31-Jul-13	144	No	HGR	20.0%	C	2	85.0%	DITE
Van Duzen	31-Jul-13	144	Yes	LGR	5.0%	C	1	77.5%	ASTR
Van Duzen	01-Aug-13	1114	No	LGR	3.0%	C	2	89.5%	
Van Duzen	01-Aug-13	1114	No	LGR	0.5%	C	2	98.5%	
Van Duzen	01-Aug-13	1114	Yes	HGR	27.0%	C	1	97.0%	ASTR
Freshwater	06-Aug-13	170	Yes	C/F	45.0%	C	2	53.0%	ASTR
Freshwater	13-Aug-13	179	No	LGR	1.0%	C	2	89.5%	DITE
Freshwater	13-Aug-13	179	No	HGR	15.0%	C	2	92.5%	DITE
Freshwater	13-Aug-13	179	No	LGR	5.0%	C	1	65.5%	DITE
Freshwater	13-Aug-13	179	No	LGR	3.0%	C	2	70.0%	
Freshwater	13-Aug-13	179	No	C/F	85.0%	C	1	85.0%	DITE
Freshwater	13-Aug-13	179	No	C/F	60.0%	C	1	85.0%	DITE

WAU	Date	Site ID	Animals	Belt Habitat	Belt Gradient	Belt Substrate	Belt Embed	Belt Canopy	Species ID
Van Duzen	14-Aug-13	146	No	LGR	2.0%	I	3	59.0%	RABO
Van Duzen	14-Aug-13	146	No	LGR	2.0%	I	3	81.0%	RABO
Van Duzen	14-Aug-13	146	No	LGR	2.0%	I	3	100.0%	DITE
Van Duzen	14-Aug-13	146	No	LGR	2.0%	I	3	100.0%	

FOOTHILL YELLOW-LEGGED FROG

Introduction

There are currently no foothill yellow-legged frog (RABO) monitoring sites in the Freshwater Creek or Van Duzen River WAUs, hence no there are no surveys to report during this time period. However, RABO were detected at ASTR survey site 146 on Blue Slide Creek (Table 3, above), in a low gradient reach that flows directly into the Van Duzen River. There were 10 or more individuals observed low in the reach, near the confluence with the river. There are known sites, especially on the Van Duzen River, that could be incorporated in future survey years.

The foothill yellow-legged frog is a species that inhabits open, sunny, low gradient reaches of streams and rivers. It is not a species that is diagnostic of closed canopy and cold water temperatures. Therefore it would be expected to occur in large numbers along the Van Duzen River, and the lower reaches of Freshwater Creek, primarily off of HRC lands.

Figure 3. Foothill Yellow-leggged Frog.

Methods

Survey and monitoring techniques for this species are also area-constrained searches, concentrating on surveying river and stream reaches for eggs, tadpoles, and adults. As with the surveys for the headwaters species, an occupancy level survey was implemented for foothill yellow-legged frogs, using similar

techniques but terminating the survey once the target species has been found, or continuing to survey the entire reach if no specimens are located.

Survey sites were visually searched for the presence or absence of foothill yellow-legged frogs, using a 400-meter reach as the survey site. Surveys are concentrated during a period when the larger tadpoles, recent metamorphs, and adults are relatively easy to locate by searching the slow water edges of the wetted channel. Occupancy is established when an adult, juvenile, tadpole, or eggs are found at the survey site.

Results and Discussion

There are no results to discuss for the foothill yellow-legged frog for this reporting period.

NORTHERN RED-LEGGED FROG

Introduction

Current survey efforts for the northern red-legged frog (*Rana aurora aurora*) have been focused on attempting to determine if known breeding sites within the WAUs continue to be occupied. There are currently 39 breeding sites distributed throughout HRC lands. Monitored breeding sites for this report are in the Freshwater (n = 6) and Van Duzen (n = 4) WAUs.

Figure 4. Northern Red-legged Frog.

Methods

For this survey period we continued to use the abbreviated survey method and form developed for the occupancy-level surveys. Known breeding sites are inspected for evidence of adults, juveniles, and egg masses. During the 2011 - 2012 survey period we began the occupancy surveys, which was continued with the 2012 – 2013 reporting period. For the 2013 – 2014 period we visited the 10 sites in the

Freshwater and Van Duzen WAUs between October 2013 and May 2014 using the occupancy level survey (Table 4).

Results and Discussion

HRC pond sites generally fall into one of three categories: 1) relatively small in size, resulting from heavy equipment use during past logging operations and the building of associated logging roads, 2) roadside settling basins used to prevent sediment from getting into rivers and streams, and 3) naturally occurring ponds and wetlands in low-lying areas.

Forty of 132 total known pond sites (30%) have been known to support red-legged frog breeding during past surveys (by observation of egg masses). During the 2012 – 2013 season we were able to visit 39 of the known sites at least once. During the 2013 – 2014 reporting period we focused on the 10 pond sites located in the Freshwater and Van Duzen WAUs.

There were a total of 13 surveys conducted to 8 monitoring sites in the Freshwater and Van Duzen WAUs during this reporting period, compared to 27 surveys during the 2011 – 2012 season on the survey of all WAUs. Three of the 8 surveyed sites were occupied by red-legged frogs for an occupancy rate of 0.375, compared to the rate of 0.49 for all sites last season. Although surveys were generally conducted during the preferred period for observing adults, juveniles, or egg masses of this species, low rainfall levels throughout the region resulted in pond conditions that were not optimal for RAAU breeding. Four sites had low level water levels, or were dry, when visited this season.

HRC surveys have indicated that red-legged frogs within the study area deposited eggs from October through February, considerably earlier than suggested in the literature for other regions of the West Coast (Storm 1960, Brown 1975, Licht 1969). Sites with ponded water were often heavily utilized for egg deposition, while pools that we observed within watercourses were not utilized. Egg masses were generally deposited in shallow water, or the shallow regions of larger ponds, allowing for easy observation and enumeration of egg masses in most cases. In addition, egg masses also persisted for extensive periods of time, (e.g., four to six weeks), allowing for flexibility in a sampling schedule. For all of these reasons the red-legged frog is the easiest of our covered species to monitor.

Table 4. Northern Red-legged Frog (RAAU) Survey Summary 2013 - 2014.

Site	WAU	Survey Date	Water Source	Formation	OCC. By RAAU	Species ID
1	Freshwater	12/3/13	Stream	Basin	No	
1	Freshwater	1/13/14	Stream	Basin	No	
1	Freshwater	3/19/14	Stream	Basin	Yes	RAAU, AMGR
2	Freshwater	5/22/14	Rain Pooling	Equipment	No	
40	Van Duzen	5/27/14	Rain Pooling	Natural pond	Yes	RAAU, HYRE
52	Van Duzen	12/13/13	Rain Pooling	Natural pond	No	
52	Van Duzen	2/12/14	Rain Pooling	Natural pond	No	
54	Freshwater	12/4/13	Spring	Equipment	No	
67	Freshwater	5/22/14	Rain Pooling	Equipment	No	
90	Van Duzen	5/29/14	Rain Pooling	Natural pond	No	
133	Freshwater	10/1/13	Spring	Ditch	No	
133	Freshwater	12/4/13	Spring	Ditch	Yes	RAAU
133	Freshwater	1/13/14	Spring	Ditch	Yes	RAAU

WESTERN POND TURTLE

Introduction

The only covered reptile under the HRC HCP is the western pond turtle (*Emys marmorata*). The distribution of this species on HRC lands has been relatively poorly understood in comparison to the other covered species, but locations of pond turtles are accumulating since the implementation of HCP monitoring programs.

Figure 5. Western Pond Turtle.

Methods

The goal of the baseline surveys for pond turtles was to determine the distribution of this species on HRC lands, using techniques of observing potential habitat (e.g., Holland 1994). The sampling season for pond turtles is the summer period, or specifically June through September. We have noted that turtles can be observed both earlier and later in the season here on the north coast of California when flow conditions permit.

Methods include using visual searches (i.e., walking surveys), snorkel-surveys, and floating surveys of suitable watercourses looking for basking adults (Figure 6). Turtles can often be seen using the same basking structures over multiple years. When conducting floating surveys, surveyors stop floating above areas of potential habitat to walk the area and scan for animals. In 2004 the monitoring group (Wildlife Agencies and PALCO representatives) used floating and walking surveys on portions of the Eel and Van Duzen River drainages. Following those surveys, revisions were made to the draft protocol to reflect the group's observations on survey technique.

Since the survey techniques for pond turtles are not invasive or destructive, no changes to methods were necessary to transition to occupancy level surveys. A total of 18 sites currently make up the pond turtle sample. Two sites are in the Van Duzen WAU. There are currently no monitoring sites in the Freshwater WAU. The Van Duzen WAU sites were visited during May 2014 to check for occupancy (Table 5).

Figure 6. Basking pond turtle on Lower Yager Creek.

Table 5. Western Pond Turtle (EMMA) Survey Summary 2011– 2014.

Site ID	Focus Species	WAU	Baseline Survey	2011-2012 Occ?	2012-2013 Occ?	2013-2014 Occ. Survey	2013-2014 Occ?
963	EMMA	Van Duzen	2002	Yes	Yes	Yes	Yes
1081	EMMA	Van Duzen	2003	Yes	No	Yes	Yes

Results and Discussion

During the 2013 - 2014 survey period both pond turtle sites in the Van Duzen WAU were visited at least once (Table 5 above). Both of the sites were occupied this season, for an occupancy rate of 1.00, compared to 0.44 for the 18 surveyed sites of last season. Site 1081 was unoccupied during last year's surveys, but was occupied this season.

The 2012 – 2013 season included a drier fall. Some pond sites had largely become dewatered, and other sites were visited during overcast conditions when it is unlikely to observe basking turtles. Again, additional visits (greater survey effort) may have eliminated at least a portion of what were likely false negatives during last season's surveys. Both Van Duzen WAU sites were visited this spring (2014) when flow conditions were very good for observing pond turtles (clear water, relatively low flows).

Habitat does not appear to be a limiting factor (i.e. pools and basking logs or boulders). Given the relatively small sample, new pond turtle sites (e.g. site 58, added last season) will continue to be added when found, and used as baseline sites.

WATERSHED ANALYSIS

The goal of watershed analysis for each WAU relative to the covered amphibians and reptile is to answer the list of critical questions concerning distribution, habitat, and possible impacts of land management on the species; by using known location data, identifying locations of potential habitat for the species, and utilizing available habitat information. Answering the critical questions for each WAU requires information on: species distribution, habitat needs for species life history requirements, location of degraded habitats and potential habitats, sediment levels, loss or creation of wetlands and ponds, and water temperatures.

There are eight WAUs covering HRC lands:

- Freshwater
- Van Duzen
- Lower Eel/Eel Delta
- Elk River/Salmon Creek
- Upper Eel/Larabee Creek
- Bear River
- Yager Creek
- North Fork Mattole

The initial round of watershed analyses has been completed for all eight WAUs, and watershed analysis revisitation is currently in progress for the Elk River/Salmon Creek WAU (draft report in review). The Freshwater and Van Duzen WAUs are next in line for the revisitation process.

Each watershed analysis report contains an amphibian/reptile module. Results from each module are considered during the watershed analysis synthesis, and through prescription development, to minimize, and if necessary, mitigate management effects on the covered amphibians and reptile.

In general, the results of the amphibian and reptile modules have shown that the covered species are present in the WAUs, and that there are occurrences of degraded habitat, potential habitat, and good occupied habitat. Site-specific prescriptions for Class I, II, and III waters have been developed in keeping with the habitat needs of the covered species. The individual watershed analysis reports are on file at HRC and available upon request.

The draft Elk River WAU revisit (HRC 2014) provides the following information:

"HRC completes annual monitoring of covered species habitat and presence as described under the Aquatic Conservation Plan (ACP) in the HCP. These covered species include southern torrent

salamander (Rhyacotriton variegatus), tailed frog (Ascaphus truei), northern red-legged frog (Rana aurora aurora), foothill yellow-legged frog (Rana boylii), and northwestern pond turtle (Emys marmorata). Distribution of covered species continues to be fairly widespread in suitable habitat. The ERSC WAU continues to host quality habitat for southern torrent salamanders, northern red-legged frogs, and tailed frog. Monitoring efforts have not focused on habitats preferred by yellow legged frogs or western pond turtles, which are more limited in the ERSC WAU.

All information gathered since the initial Watershed Analysis supports those earlier findings. HRC surveys have indicated that red-legged frogs within the property-wide study area deposit their eggs from October through February which is considerably earlier that suggested in literature for other regions of the West Coast (Storm 1960, Brown 1975, Licht 1969). Property-wide monitoring has also found that ponded waters were often heavily utilized for egg deposition (one site with over 320 egg masses), while pools observed within watercourses were not utilized.

At this time, all monitoring suggests that prescriptions intended to protect watercourses by minimizing water temperature increases, minimize sediment input and encourage LWD recruitment continue to provide good habitat for amphibians and reptiles within the ERSC WAU."

SUMMARY AND RECOMMENDATIONS

For the 2013 - 2014 survey period survey efforts were focused on occupancy level surveys in the Frreshwater and Van Duzen WAUs to support future watershed analysis revisits, site-specific watershed analysis questions, and on classification of waters for THPs. Survey effort by species is reflected by the number of occupied sites, as discussed above. A total of 71 individual surveys were conducted. Survey effort was distributed as follows: southern torrent salamander (n = 33), tailed frog (n = 23), northern red=legged frog (n = 13), and western pond turtle (n = 2). There are no foothill yellow-legged frog monitoring sites in the Freshwater and Van Duzen WAUs.

Distribution of covered species continues to be fairly widespread in suitable habitat. Watershed analysis has aided in finding areas of good habitat to be maintained, as well as areas of habitat that can be improved or restored. During ensuing survey seasons, occupied amphibian/reptile habitat will continue to be monitored over time to develop an index of occupancy. No further changes in the monitoring strategy are recommended at this time.

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