SECTION G
AMPHIBIAN DISTRIBUTION

INTRODUCTION

The Northern Russian River WAU was surveyed to determine the distribution of tailed frogs (*Ascaphus truei*), red-legged frogs (*Rana aurora* spp.), and southern torrent salamanders (*Rhyacotriton variegatus*) during 2003. This information is being collected throughout Mendocino Redwood Company's (MRC) ownership. Comprehensive amphibian distribution sampling was conducted in the Upper Ackerman Creek Planning Watershed in conjunction with this watershed analysis. The distribution of foothill yellow-legged frogs (*Rana boylii*) is well documented by MRC's salmonid distribution surveys. The foothill yellow-legged frog is widely distributed throughout Class I watercourses in the Northern Russian River WAU.

Amphibian distribution surveys conducted in the Upper Ackerman Creek Planning Watershed have detected only one of four amphibious 'Species of Special Concern' (as designated by the State of California): foothill yellow-legged frogs (*R. boylii*). These species are known to be struggling in most portions of their respective ranges in California. However, tailed frogs (*A. truei*), red-legged frogs (*R. aurora spp.*), and southern torrent salamanders (*R. variegatus*) were not observed in the Upper Ackerman Creek Planning Watershed. Other amphibian species detected during amphibian distribution surveys include: Pacific giant salamanders (*Dicamptodon tenebrosus*), black salamanders (*Aneides flavipunctatus*), rough-skinned newts (*Taricha granulosa*), California newts (*Taricha torosa*), red-bellied newts (*Taricha rivularis*), (Pacific tree frogs (*Hyla regilla*), and western toads (*Bufo boreas*).

METHODS

Tailed Frogs (*Ascaphus truei*)

Surveys were conducted during the most appropriate season, when larval life forms are known to be present (May-August). Sites or streams selected to be surveyed were chosen based on the following criteria: site should have at least 750-meters of flowing water present (observer judgment); preferably a 2nd or 3rd order watercourse; stream should be high gradient (greater than 3% average gradient); and approximately 70% of sites have northerly or easterly aspects (landscape level).

Occasionally some sites were selected which did not meet the criteria outlined above. Most often, if site selection criteria were not meet, surveys were conducted in larger main-stem watercourses due to a lack of flowing water in lower order tributaries. Lower order (2nd and 3rd) tributaries which did not have flowing water were noted as "Dry".

Upon arrival to the selected survey site, the site was flagged and labeled with a Site ID. The Site ID is the 2-letter planning watershed abbreviation plus a number, in order of survey completion starting with 1001[1]. For example, the first survey in Upper Ackerman Creek (code UU) Planning Watershed was UU-1001. Water temperature, pH, (EC) electrical conductivity and (TDS) total dissolved solids were measured at the time of the survey using a Hanna® HI 98129 water quality meter. If the water quality meter was not calibrated properly, or if low on batteries, the results were not included and denoted with "N/A".

[1] Number started with 1001 to ensure that the survey sites were not given the same identifier as stream segments identified in the Upper Ackerman Planning Watershed.

The selected stream was surveyed in an upstream direction, searching all potential habitats with the greatest effort expended in the "best" habitats. Surveys consist of looking for larvae attached to rocks on the stream bottom, using a glass bottomed viewing box to examine interstices, and turning over movable rocks while holding a dip-net downstream to catch dislodged larvae. The survey was considered complete after larval *A. truei* were observed, or after 30-minutes of search time elapsed (time constrained search, TCS). Several surveys were terminated due to a lack of habitat or flowing water upstream of the starting point. If the observer deemed the habitat to be suitable for *A. truei*, additional search time was spent.

Stream gradient was measured with a hand-held clinometer to the nearest 1%, from a section of the stream representative of the reach surveyed. Stream gradient measurements were then broken into classes as follows: 0-3%, 3-7%, 7-10%, 10-15%, 15-20%, 20-25%, 25-30%, 30-40%, and 40-50%. An embeddedness rating of streambed substrates was assessed within a representative riffle (observer judgment) by measuring the percentage of a stone lodged/cemented into the streambed. The overall rating of streambed substrate embeddedness was estimated as 0-25%, 25-50%, 50-75%, and 75-100% for each stream surveyed. Often the observer deemed the embeddedness rating to be variable throughout the watercourse surveyed. For example, low gradient riffles were highly embedded, while embeddedness in high gradient riffles was low. In these cases a greater range of ratings was presented (ie: 50-100% or 25-75%).

The aspect of the stream was recorded from a map, and rounded to the nearest cardinal direction (N, S, W, and E). The percent of canopy cover shading the watercourse, or percentage of wetted channel covered by overhead canopy, was estimated for each of the survey sites. The percent of canopy cover was a visual estimate performed by the observer in increments of 5%. Survey sites which were dry may or may not have had aspect and canopy cover estimates taken.

Red-Legged Frogs (*Rana aurora aurora* and *Rana aurora draytonii*)

The Upper Ackerman Creek Planning Watershed was surveyed to determine the distribution of *R. aurora* potential breeding habitats, and to determine which breeding habitats were being utilized by the species at the time of the study. Potential breeding habitat was considered to be "pond" type habitat with sufficient water present to facilitate larval development of *R. aurora.*

Surveys for *R. aurora* were conducted in the late winter or early spring (from January 1 – May 1), when the species are known to be congregating at breeding sites to reproduce. Potential breeding sites were located via communications with MRC forestry staff, driving and walking roads, and examining aerial photographs. Several potential breeding sites were found by carefully listening to the calls of Pacific tree frogs (*Hyla regilla*) at night, and following the sounds of the calls to the water source.

Searches were performed at potential breeding sites using techniques aimed at detecting evidence of reproduction (tadpole or egg mass presence). The perimeter of the potential breeding site was walked, turning over movable objects and looking into the water for conspicuous *R. aurora* egg masses. Dip nets and seines were used to capture larval *R. aurora* and other amphibian species from the potential breeding site. Small vessels (kayaks, rafts, etc) were used to survey the entire wetted area of the potential breeding site. Vegetation growing on the bank which was hanging into the water was lifted out of the water to potentially reveal attached egg masses. Upon the first visit to a potential breeding site, branches and vegetation were placed along a portion of the pond's wetted perimeter to provide easily searchable attachment media for oviposition. Upon returning to the potential breeding site to perform another survey, the branches were lifted out of the water and examined for egg masses.

Potential Breeding Site Re-visits
When potential *R. aurora* breeding habitat was located, but no evidence of reproduction was present, the site was considered a "potential breeding site". Potential breeding sites were re-visited at least once every two weeks to account for variation in the timing of oviposition, and to increase the likelihood of detecting *R. aurora*. The amount of time spent searching a potential breeding site (seining, dip-netting, etc) was variable dependent upon the observer's discretion. Large potential breeding sites typically required more search time than smaller "puddle-like" sites. Potential breeding sites were also re-visited during dark hours (night) once every month. Nocturnal surveys utilized primarily "eyeshine" techniques to detect post-metamorphic red-legged frogs congregating around the site. Nocturnal surveys performed at potential breeding sites did not utilize seines as a sampling method, nor was water quality measured due to the safety hazard of working at night around deep ponds.

Water temperature, pH, total dissolved solids, and electrical conductivity were measured using a Hanna® HI 98129 water quality meter at the time of the survey. If the water quality meter was not calibrated properly, or if low on batteries, the results were not included and denoted with "N/A". The percent of canopy cover shading the site, or percentage of the water's surface covered by overhead canopy, was estimated at each site location. The percent of canopy cover was a subjective visual estimate performed by the observer in increments of 5%. The area of the potential breeding site was estimated by multiplying the length by the mean width of the site. Site elevations were determined by plotting UTM coordinates onto a map, where elevation was recorded in increments of 40 feet from topographic map contour lines.

Each site identified was given a Site ID, and a "pond name" was determined. The Site ID is the 2-letter planning watershed abbreviation plus a number over 1100. For example, sites surveyed in the Upper Ackerman Creek Planning Watershed (code UU) were denoted as UU-1100, UU-1101, and so on. Site ID numbers began at 1100 to distinguish *R. aurora* potential breeding habitats from other amphibian survey sites sampled and from stream segment numbers identified in this watershed analysis. The pond name assigned to each potential breeding site was indicative of the geographical area, or of the characteristics of the site. Pond names were assigned to facilitate data interactions, improve communications regarding these sites, and to help promote the importance of these features.

If evidence of *R. aurora* reproduction was present (tadpoles or egg masses), then the site was considered a documented breeding site. Documented breeding sites were not re-visited.

Southern Torrent Salamanders (*Rhyacotriton variegatus*)
Each site surveyed was flagged and labeled with a Site ID. The Site ID is the 2-letter planning watershed abbreviation plus a number over 1200, in order of survey completion. For example, the first survey in the Upper Ackerman Creek (code UU) Planning Watershed was UU-1200. Water temperature and pH was measured using a Hanna® HI 98129 water quality meter (when possible) at the time of the survey. Due to the shallow seeping nature of water flows in these habitats, often pH was difficult to measure without altering the streambed and was denoted as "NA" when not measured.

Survey sites were selected according to the following criteria: site must retain water perennially and have interstitial spaces that provides for inter-gravel water flow (not mud, sand, or silt dominated channels). The selected stream or seep was surveyed in an upstream direction, searching all potential habitats with the greatest effort expended in the "best" habitats. Best habitats are considered riffles dominated by cobble substrates, splash zones near waterfalls or

plunge pools; and any higher gradient movable substrates within the wetted width. Surveys consist of turning over movable rocks and examining interstitial spaces for organisms. During high flows a dip-net was also used to catch dislodged organisms after turning over rocks. The survey was considered complete after the first individual was observed, or after 30-minutes of search time elapsed (time constrained search, TCS). Several surveys were terminated due to a lack of habitat or flowing water upstream of the starting point. Species detected were classified by life stage (larval 'L', sub-adult 'SA', and adult 'A').

Stream gradient was measured with a hand-held clinometer to the nearest 1%, from a stream segment deemed to be representative of the reach surveyed. Stream gradient measurements were then broken into classes as follows: 0-3%, 3-7%, 7-10%, 10-15%, 15-20%, 20-25%, 25-30%, 30-40%, and 40-50%. An embeddedness rating of streambed substrates was assessed within a representative riffle (observer judgment) by measuring the percentage of a stone lodged/cemented into the streambed. The overall streambed substrate embeddedness was estimated as 0-25%, 25-50%, 50-75%, and 75-100% for each site surveyed. Often the observer deemed the embeddedness rating to be variable throughout the watercourse surveyed. For example, low gradient riffles were highly embedded, while embeddedness in high gradient riffles was low. In these cases a greater range of ratings was presented (ie: 50-100% or 25-75%).

The aspect of the stream was recorded from a map, and rounded to the nearest cardinal direction (N, S, W, and E). The percent of canopy cover shading the watercourse, or percentage of wetted channel covered by overhead canopy, was estimated for the reach of watercourse surveyed. The percent of canopy cover was a visual estimate performed by the observer in increments of 5%. Survey sites which were dry may or may not have had aspect and canopy cover estimates taken.

Foothill Yellow-Legged Frogs (*Rana boylii*)

Foothill yellow-legged frogs prefer larger watercourses, and often are found co-existing with fish. Surveys conducted to determine the distribution of salmonids have documented the distribution of foothill yellow-legged frogs quite well in the Northern Russian River WAU.

A hierarchical framework was used to select the initial locations of salmonid distribution survey sites in each stream. Major streams were broken into lower, middle and upper reaches. Smaller streams were divided into lower and upper reaches. One site is surveyed in each reach, resulting in 3 sites in larger streams, and 2 sites in smaller streams. Additional sites are added directly downstream and upstream of potential migration barriers to determine which species these barriers are impacting.

A survey site contains a minimum of two consecutive habitat sequences (pool-riffle sequences) and has a minimum length of ninety feet. The survey method used to determine the aquatic species present is single pass electrofishing or snorkeling. The effort put forth at each survey site is not sufficient to delineate the absence of a species. If future research develops reasonable methods to determine the probability that a species is absent, these methods will be incorporated into future distribution surveys.

Prior to initiating surveys water quality is measured using a Horiba™ U-10 Water Quality Checker. Measurements taken are water temperature (°C), conductivity (microS/cc), dissolved oxygen (mg/L), and pH. Air temperature is measured with a pocket thermometer and water visibility is estimated. Stream discharge is estimated or measured with a Swoffer™ Model 2100 flow meter. The actual physical parameters measured at each site vary depending on equipment availability. Horiba™ U-10 Water Quality Checkers were not used prior to the surveys in 2000.

Diving (snorkeling) is used to assess species presence when stream conditions are considered adequate or when elevated stream temperatures have the potential to adversely impact the health of the animals being electrofished. The basic survey unit for diving consists of a minimum of two pools, however if riffles are deep enough to allow underwater observation these units are sampled.

AMPHIBIAN DISTRIBUTION RESULTS and DISCUSSION

The Northern Russian River WAU is comprised of four planning watersheds of which one was surveyed for aquatic species distribution (Upper Ackerman Creek). The results of amphibian distribution surveys are discussed for the Upper Ackerman Planning Watershed in the Northern Russian River WAU Map G-1 illustrate the documented distribution of foothill yellow-legged frogs and locations of amphibian sampling sites in the Northern Russian River WAU.

The species encountered while performing amphibian distribution surveys were recorded. These species are listed in Table G-1. While conducting surveys certain animals may escape from the observer, or may be difficult or impossible to identify in the field. In these cases, an abbreviation reflecting a broad family or genus of species is used to classify an animal to lowest taxonomic level possible. Tarichid newts were especially difficult to identify in the field and thus were often categorized as "NEW", an unidentified tarichid newt.

Table G-1: Scientific and common names for species observed, including abbreviation.

Abbreviation	Common Name	Scientific Name
STH	Steelhead/Rainbow Trout	*Oncorhynchus mykiss*
RCH	California Roach	*Lavinia symmetricus*
CRY	Crayfish	*Pacifascticus spp.*
YLF	Yellow-Legged Frog	*Rana boylii*
BUFO	Western Toad	*Bufo boreas*
PTF	Pacific Tree Frog	*Hyla regilla*
BKS	Black Salamander	*Aneides flavipunctatus*
PGS	Pacific Giant Salamander	*Dicamptodon tenebrosus*
NEW	Unidentified Newt	*Tarichid spp.*
CNT	Cailfornia Newt	*Taricha torosa*
RSN	Rough-Skinned Newt	*Taricha granulosa*
RBN	Red-Bellied Newt	*Taricha rivularis*
CAUD	Unidentified Salamander	unidentified caudate
NWP	Northwestern Pond Turtle	*Clemmys marmorata*
CRSG	California Red-Sided Garter Snake	*Thamnophis s. infernalis*
WAGS	Western Aquatic Garter Snake	*Thamnophis couchii*

Upper Ackerman Creek Planning Watershed

Tailed Frogs *(Ascaphus truei)*

Surveys were conducted at 10 sites throughout the planning watershed (Table G-1) and *A. truei* were not observed. A majority of the low order watercourses were dry or lacked the flows necessary to support this species life cycle. Water temperatures greatly exceeded the preferred range of *A. truei* at nearly every site surveyed within this planning watershed.

Table G-2: Results from 2003 *A. truei* surveys conducted in the Upper Ackerman Creek planning watershed (114.31014), Mendocino County, CA.

Site ID	Date	Aspect	% Canopy	% Embedded	Stream Gradient	Water Temp °C	pH	EC / TDS	OTF Present	Other Species Present	Search Time (minutes)
UU 1001	26-Jun-03	E	40	50-75	0-3%	13.9	7.44	155/77		YLF, PGS, RSN	35
UU 1002	7-Jul-03	E	50	0-25	0-3%	13.6	8.15	167/83		YLF, PTF, PGS	35
UU 1003	7-Jul-03	E	70	25-50	0-3%	16.4	7.96	161/79		YLF, PGS, STH	30
UU 1004	7-Jul-03	N	45	50-75	3-7%	15.8	8.04	244/121		PGS, RSN	35
UU 1005	8-Jul-03	N	20	50-75	0-3%	18	7.67	256/127		YLF, PTF, PGS	35
UU 1006	8-Jul-03	E	10	25-50	0-3%	20.9	7.67	243/122		YLF, BUFO, NEW, RSN, STH, RCH	30
UU 1007	8-Jul-03	N	5	50-75	0-3%	23	8.18	362/181		YLF, PTF, BUFO, NEW	30
UU 1008	9-Jul-03	N	50	25-50	7-10%	16.8	8.22	259/130		PGS	35
UU 1009	9-Jul-03	N	65	0-25	10-15%	18.1	8.03	181/91		YLF, PGS	30
UU 1010	9-Jul-03	N	60	0-25	3-7%	16.8	7.97	186/93		YLF, PGS	35

Red-Legged Frogs *(Rana aurora aurora and Rana aurora draytonii)*

Eight potential breeding sites were identified (Map 15); UU-1101; UU-1102; UU-1103; UU-1104; UU-1105; UU-1106; UU-1107; and UU-1108. Potential breeding habitat was highly abundant (1 site per 443 acres). *R. aurora* was not detected at any of the sites identified, and there have not been any incidental observations of *R. aurora* in this planning watershed during previous studies.

Site UU-1101 "5-Mile Bark Dump Pond #1"

Site UU-1101 is a manmade pond. The site had a surface area of approximately 3,200 ft^2 with a maximum depth of over 4 feet at high water. Canopy cover was 0%, and the elevation was approximately 1,280 feet above sea level. Results from surveys conducted at this site are located in Table G-3.

Table G-3: Results of surveys conducted at Site UU-1101 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 473923 4336395).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
25-Feb-03	Day	10	7.49	282/141	0.75	PTF	40 min
11-Mar-03	Day					PTF	40 min
26-Mar-03	Day	17.3	7.55	279/139	2	PTF, CNT, CAUD	25 min
26-Mar-03	Night					PTF, CNT	25 min
10-Apr-03	Day	20.5	8.12	295/148	3	PTF, CNT	30 min
22-Apr-03	Day	16.8	7.36	278/139	2	PTF, NEW	30 min
29-Apr-03	Night					PTF	30 min

Site UU-1102 "5-Mile Bark Dump Pond #2"

Site UU-102 is a manmade pond. The site had a surface area of approximately 2,400 ft^2 with a maximum depth of over 4 feet at high water. Canopy cover was 10%, and the elevation was approximately 1,200 feet above sea level. Results from surveys conducted at this site are located in Table G-4.

Table G-4: Results of surveys conducted at Site UU-1102 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 473971 4336182).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
26-Feb-03	Day	9.8	7.51	459/230	1		35 min
11-Mar-03	Day					CNT	20 min
26-Mar-03	Day	17.5	8.22	387/194	0.5	PTF, CNT	20 min
26-Mar-03	Night					PTF, CNT	20 min
10-Apr-03	Day	19.8	7.76	411/204	2	PTF, CNT	25min
22-Apr-03	Day	15.7	7.4	411/205	2	PTF	25 min
29-Apr-03	Night					PTF, RBN, NEW, NWP	30 min

Site UU-1103 "5-Mile Bark Dump Pond #3"

Site UU-103 is a manmade pond. The site had a surface area of approximately 300 ft^2 with a maximum depth of over 2 feet at high water. Canopy cover was 0%, and the elevation was approximately 1,280 feet above sea level. Results from surveys conducted at this site are located in Table G-5.

Table G-5: Results of surveys conducted at Site UU-1103 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 473915 4336149).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
25-Feb-03	Day	10.6	7.42	90/45	1.5	PTF, YLF	25 min
11-Mar-03	Day					PTF, CNT	20 min
26-Mar-03	Day	19.8	8.99	90/45	2	PTF, YLF, CNT	20 min
26-Mar-03	Night					PTF, CNT	20 min
10-Apr-03	Day	23.9	9.15	112/56	0.5	PTF, CNT	20 min
22-Apr-03	Day	17.2	6.68	139/69	0.25	PTF, CNT	20 min
29-Apr-03	Night					PTF	20 min

Site UU-1104"5-Mile Bark Dump Pond #4"

Site UU-1104 is a manmade pond. The site had a surface area of approximately 3,200 ft^2 with a maximum depth of over 6 feet at high water. Canopy cover was 0%, and the elevation was approximately 1,240 feet above sea level. Results from surveys conducted at this site are located in Table G-6.

Table G-6: Results of surveys conducted at Site UU-1104 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 473891 4336127).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
26-Feb-03	Day	11.8	8.06	414/206	5	PTF, RBN, CNT, NEW	35 min
11-Mar-03	Day	18.1	9.23	363/182	6	PTF, NEW, CAUD, WAGS	35 min
26-Mar-03	Day	17.5	7.8	434/217	6	PTF, CNT	20 min
26-Mar-03	Night					PTF	20 min
10-Apr-03	Day	20.8	8.55	409/203	2.5	PTF, CNT, CRSG	25min
22-Apr-03	Day	17.2	7.66	466/232	2	PTF, CNT	35min
29-Apr-03	Night					PTF	25 min

Site UU-1105 "5-Mile Bark Dump Pond #5"

Site UU-1105 is a manmade pond. The site had a surface area of approximately 1,200 ft^2 with a maximum depth of over 3 feet at high water. Canopy cover was 0%, and the elevation was approximately 1,280 feet above sea level. Results from surveys conducted at this site are located in Table G-7.

Table G-7: Results of surveys conducted at Site UU-1105 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 473754 4336057).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
26-Feb-03	Day	10.5	8.36	814/407	2.5	PTF	30 min
11-Mar-03	Day					PTF, CNT, CAUD	20 min
26-Mar-03	Day	18	8.62	606/293	2.5	PTF, CNT, CAUD	20 min
26-Mar-03	Night					PTF	20 min
10-Apr-03	Day	20.8	8.66	699/348	2.5	PTF, CNT	25min
22-Apr-03	Day	16.4	8.49	710/354	0.5	PTF, CNT	25 min
29-Apr-03	Night					PTF	25 min

Site UU-1106 "5-Mile Bark Dump Pond #6"

Site UU-1106 is a flooded natural depression (possibly caused by cows). The site had a surface area of approximately 225 ft^2 with a maximum depth of over 2 feet at high water. Canopy cover was 5%, and the elevation was approximately 1,160 feet above sea level. Results from surveys conducted at this site are located in Table G-8.

Table G-8: Results of surveys conducted at Site UU-1106 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 474058 4336394).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
26-Feb-03	Day	10	8.55	359/179	1	PTF	20 min
11-Mar-03	Day					PTF	15 min
26-Mar-03	Day	14.7	8.24	368/184	0.5	PTF, YLF	15 min
26-Mar-03	Night					PTF, CNT	15 min
10-Apr-03	Day	21	8.3	379/189	0.5	PTF, YLF	15 min
22-Apr-03	Day	15.4	8.12	371/185	0.25	PTF	15 min
29-Apr-03	Night						15 min

Site UU-1107 "8-Mile Pond #7"

Site UU-1107 is a manmade pond. The site had a surface area of approximately 216 ft^2 with a maximum depth of over 2 feet at high water. Canopy cover was 35%, and the elevation was approximately 1,280 feet above sea level. Results from surveys conducted at this site are located in Table G-9.

Table G-9: Results of surveys conducted at Site UU-1107 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 470522 4337915).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
3-Apr-03	Day	9.7	6.12	144/73	2	NEW	25 min
17-Apr-03	Day	12.4	6.25	133/66	2	CNT	15 min
29-Apr-03	Night					CNT	20 min

Site UU-1108 "8-Mile Pond #8"

Site UU-1108 was a flooded grassy depression. The site had a surface area of approximately 375 ft^2 with a maximum depth of over 1.5 feet at high water. Canopy cover was 65%, and the elevation was approximately 1,480 feet above sea level. Results from surveys conducted at this site are located in Table G-10.

Table G-10: Results of surveys conducted at Site UU-1108 within the Upper Ackerman Creek Planning Watershed, Mendocino County, California (UTM 470317 4337508).

Date	Day or Night	Temp (°C)	pH	uS/ppm	VIS (ft)	Species Present	Search Time
3-Apr-03	Day	8.4	6.82	142/71	1.5	PTF	35 min
17-Apr-03	Day	12.1	7.24	150/75	1.5	PTF, RSN	35 min
29-Apr-03	Night					PTF, NEW	30 min

Southern Torrent Salamanders *(Rhyacotriton variegatus)*

Surveys were conducted at 10 sites and *R. variegatus* was not observed (Table G-11).

Table G-11: Results from 2003 *R. variegatus* surveys conducted in the Upper Ackerman Creek planning watershed (114.31014), Mendocino County, CA.

Site ID	Date	Aspect	% Canopy	% Embedded	Stream Gradient	Habitat Type	Water Temp(°C)	pH	STS Present	Other Species Present
UU 2000	22-Dec-03	NE	50	50-75	30	P	9.0	7.17		YLF(SA)
UU 2001	22-Dec-03	NE	75	50-75	55	T	9.6	7.95		PGS(L,P)
UU 2002	5-Jan-04	NE	70	75-100	10	T	8.7	6.57		
UU 2003	5-Jan-04	E	80	75-100	50	T	7.8	7.32		
UU 2004	5-Jan-04	NW	85	50-75	45	T	8.2	7.88		PGS(L),BLK(A,SA)
UU 2005	5-Jan-04	E	80	50-75	45	T	9.3	7.88		PGS(L)
UU 2006	9-Jan-04	NE	60	75-100	30	T	8.0	7.50		
UU 2007	9-Jan-04	N	80	50-75	35	T	10.3	7.88		PGS(P)
UU 2008	9-Jan-04	E	40	50-75	25	T	10.0	7.24		YLF(A),RBN(A)
UU 2009	9-Jan-04	SE	85	50-75	25	T	9.4	7.65		YLF(A,SA)

Key to Habitat Types: (W) = Watercourse (S) = Seep or Spring (P) = Soil Pipe
Key to Life Stages: (L) = Larval (SA) = Sub-Adult (A) = Adult

Foothill Yellow-Legged Frogs *(Rana boylii)*

Foothill yellow-legged frogs have been documented to occur throughout the entirety of the main-stem of Upper Ackerman Creek Planning Watershed. Foothill yellow-legged frogs have also been documented in Alder Creek and several smaller Class II streams (Map G-1). Future surveys focused towards estimating the abundance of foothill yellow-legged frog egg masses in the Upper Ackerman Creek Planning Watershed will determine the spatial extent of the species breeding grounds

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Northern Russian River WAU Amphibian Distribution

Appendix G

Northern Russian River Watershed Analysis Unit

Map G-1
Amphibian Distribution

This map illustrates the documented distribution of foothill yellow-legged frogs, locations of potential red-legged frog breeding sites, and the locations of surveys conducted for tailed frogs and southern torrent salamanders in the Northern Russian River WAU. Sites were surveyed by MRC in 2003 in conjunction with this watershed analysis. Foothill yellow-legged frog distribution is based upon information from both amphibian distribution surveys and salmonid distribution surveys.

UU1205
UU1204
UU1202
UU1203
UU1201
UU1200
UU1108
UU1107
UU1001
UU1003
UU1004
UU1101
UU1104
UU1103
UU1102
UU1105
UU1106
UU1007
UU1008
UU1009
UU1010
UU1206
UU1208
UU1207

Yellow-legged Frog Distribution

Amphibian Distribution Survey Sites
- Tailed Frog
- Red-legged Frog
- Southern Torrent Salamander
- -- Yellow highlight denotes species presence at survey site

- MRC Ownership
- Planning Watershed Boundary
- Northern Russian River Watershed Analysis Unit Boundary

Flow Class
- Class I
- Class II
- Class III

0 1/2 1 Mile

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