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September 3, 2010

John Thompson
C/o Paraiso Resort LLC
PO Box 1925
Horsham, PA 19044.

RE: PARAISO SPRINGS 2010 CALIFORNIA RED-LEGGED FROG VISUAL SURVEY RESULTS

Dear John:

This letter-report presents the results of the 2010 visual surveys for California red-legged frog (CRF) (*Rana draytonii*) at the Paraiso Springs project site in Monterey County, CA (Figure 1).

Summary

A previous CRF habitat assessment in 2008 (Rana Creek Environmental Planning 2008) was considered incomplete, due to the insufficient number of visual surveys performed. The 2010 surveys together with the Rana Creek study complete the CRF assessment for the project site.

No CRF were observed during visual surveys from January through July. In addition, no CRF larvae were captured during concurrent CTS aquatic surveys performed on the site (Bryan Mori Biological Consulting services 2010). Pacific chorus frogs (*Pseudacris regilla*) were numerous and western toads (*Bufo boreas*) were fairly common. Although standing water was lacking during the final surveys in July, recently metamorphosed chorus frogs and western toads indicated the sufficient presence of surface water for successful reproduction for these species. Regardless of the negative results, the pond is likely not suitable as CRF breeding habitat due to its highly seasonal nature and low pH. No further CRF studies are recommended.

Methods

The visual surveys were performed following the U.S. Fish and Wildlife Service (USFWS) protocol - Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog August 2005.

Visual encounter surveys were performed using 10 x 40 power binoculars (Swarovski

SLC), with a hand held spotlight (Vulcan Streamlight) used for nocturnal surveys. The entire margin of pond was walked, occasionally stopping to scan ahead. All amphibians heard and seen were recorded in a field notebook. Habitat characteristics at the pond were recorded and photographed (Attachment A - Photos). Field data sheets are presented in Attachment B.

Although the protocol recommends up to eight visual surveys, nine total surveys were conducted at the pond - seven breeding season surveys and two non-breeding season surveys. The additional survey was performed as part of a separate but concurrent CTS study at the pond (Bryan Mori Biological Consulting Services 2010). The breeding season surveys consisted of four nocturnal surveys conducted on 27 January, 18 February, 7 April and 18 May, and three daytime surveys on 7 and 28 April and 18 May 2010. Non-breeding season surveys included daytime and nighttime surveys on 15 July. In addition to the visual surveys, the study was supplemented and strengthened with the CTS aquatic sampling.

Study Site

The aquatic habitat at the pond was deeper and broader in 2010 than in 2009 (Bryan Mori Biological Consulting services 2009). During this study, water at the west end of the pond was estimated to be 3 feet deep and consistently about 1.5 feet along the shoreline. The water level lowered gradually from January through April, but was noticeably shallower on 18 May. The water was tea-colored with water temperatures ranging from 58 ° - 62 ° F during the daytime surveys. As in past years, much of the pond was dominated by a dense patch of dead cattails. However, unlike previous years, notable new emergent vegetation was observed.

During the 2010 CRF surveys, chemical cleaning of the resort's pools was temporarily halted, preventing pool cleaning discharge from entering the settling pond. Presumably, the acidic conditions harmful to amphibians documented at the pond in 2008 (Rana Creek Environmental Planning 2008) are the result of pool cleaning chemicals. The halting of pool cleaning activities, together with the increase in surface water in the pond from above-normal rainfall in the 2009-10 winter period, likely moderated the pH level at the pond during this study.

Results

The pond contained suitable water levels throughout the breeding season survey period (January-May), but was limited to scattered, shallow puddles by the non-breeding season surveys in July (Attachment A: Photos 1-3).

No CRF were observed at the pond during this study; only Pacific chorus frogs and western toads were present at the pond. From January through May, numerous Pacific chorus frogs were heard during the nocturnal surveys, with a high of 27 adults observed on 18 February. By 18 May, recently metamorphosed chorus frogs were seen at the pond

(Attachment A: Photo 4). Western toads were first observed on 18 February, with up to 9 recorded on 7 April. Metamorph toads were not observed until the final survey on 15 July (Attachment A: Photo 5).

California Natural Diversity Data Base

No CRF records were identified during the review of the California Natural Diversity Data Base (CNDDB) Paraiso Springs, Sycamore Flat, Palo Escrito Peak and Soledad quadrangles, which surround the project site.

Discussion

The negative results of the 2010 CRF visual surveys, together with the results of the Rana Creek 2008 study, strongly suggest that this species does not occur on the site. In addition, the absence of CRF larvae at the pond during the 2009 and 2010 CTS aquatic surveys reinforces this conclusion.

Regardless, of the negative results, the pond is unlikely to be a viable breeding site for CRF due to extremely low pH levels determined to be lethal to many species of the Family Ranidae (to which CRF belongs) recorded at the pond in 2008 (Rana Creek Environmental Planning 2008). The low pH is presumed to be the result of pool cleaning chemicals discharged into the settling pond (Bryan Mori Biological Consulting Services 2009). But these acidic conditions vary, depending on the amount rainfall and point in the season, and conditions suitable for amphibian reproduction do occur on occasion. For example, in 2009 during a separate CTS study, no amphibian larvae were captured and of the few chorus frog egg masses observed, many contained dead embryos (Bryan Mori Biological Consulting Services 2009). In 2010, however, both Pacific chorus frogs and western toads successfully reproduced at the pond, presumably due to the diluting effects on pH from the amount of rainfall and, more importantly, the temporary halt of pool cleaning discharge into the settling pond during the study (Bryan Mori Biological Consulting Services 2010). If present at the site, CRF adults, eggs or larvae would've been expected this year, especially when suitable water quality, for at least some amphibians, was present. Despite this, under current and projected pool cleaning practices, the water quality at the pond is expected to further degrade over time, with suitable breeding conditions for CRF unlikely to occur.

Aside form the pH, the pond is highly seasonal and, combined with the low rainfall patterns in the region, does not appear to provide sufficient water depths, even in above-normal years, and dries by June (Bryan Mori Biological Consulting Services 2009; Bryan Mori Biological Consulting Services 2008). While chorus frogs and toads are capable of reproducing in highly seasonal habitats, CRF larvae require a minimum ~3.5 months to transform after hatching. Their need for an extended period of suitable aquatic conditions is not likely to be met at the project site in most years.

Therefore, based on the pH of the pond and its seasonal nature, CRF are not expected on the project site. No further CRF studies seem warranted.

Please call me if you have any comments or questions regarding this report.

Sincerely,

Bryan Mori
Consulting Wildlife Biologist

Attachments: Figure 1; Photos; data sheets.

REFERENCES

Bryan Mori Biological Consulting Services. 2010. Paraiso Springs California Tiger Salamander 2010 Spring Survey Results. Prepared for John Thompson, Paraiso Hot Springs Resort.

_____. 2009. Paraiso Springs California Tiger Salamander 2009 Spring Survey Results. Prepared for John Thompson, Paraiso Hot Springs Resort.

_____. 2008. Paraiso Springs California Tiger Salamander 2008 Spring Survey Results. Prepared for Patrick Regan, Rana Creek Environmental Planning.

CNDDB. 2010. California Natural Diversity Data Base Rarefind Paraiso Springs, Sycamore Flat, Palo Escrito Creek and Soledad Quadrangles. Records of sensitive species and plant communities of California.

Freda, Joseph. 1986. The influence of acidic pond water on amphibians: a review. Water, Air and Soil Pollution Vol. 30, pp 439 – 450.

Rana Creek Environmental Planning. 2008. Habitat assessment for California tiger salamander and California red-legged frog. Prepared for John Thompson, Paraiso Hot Springs Resort.

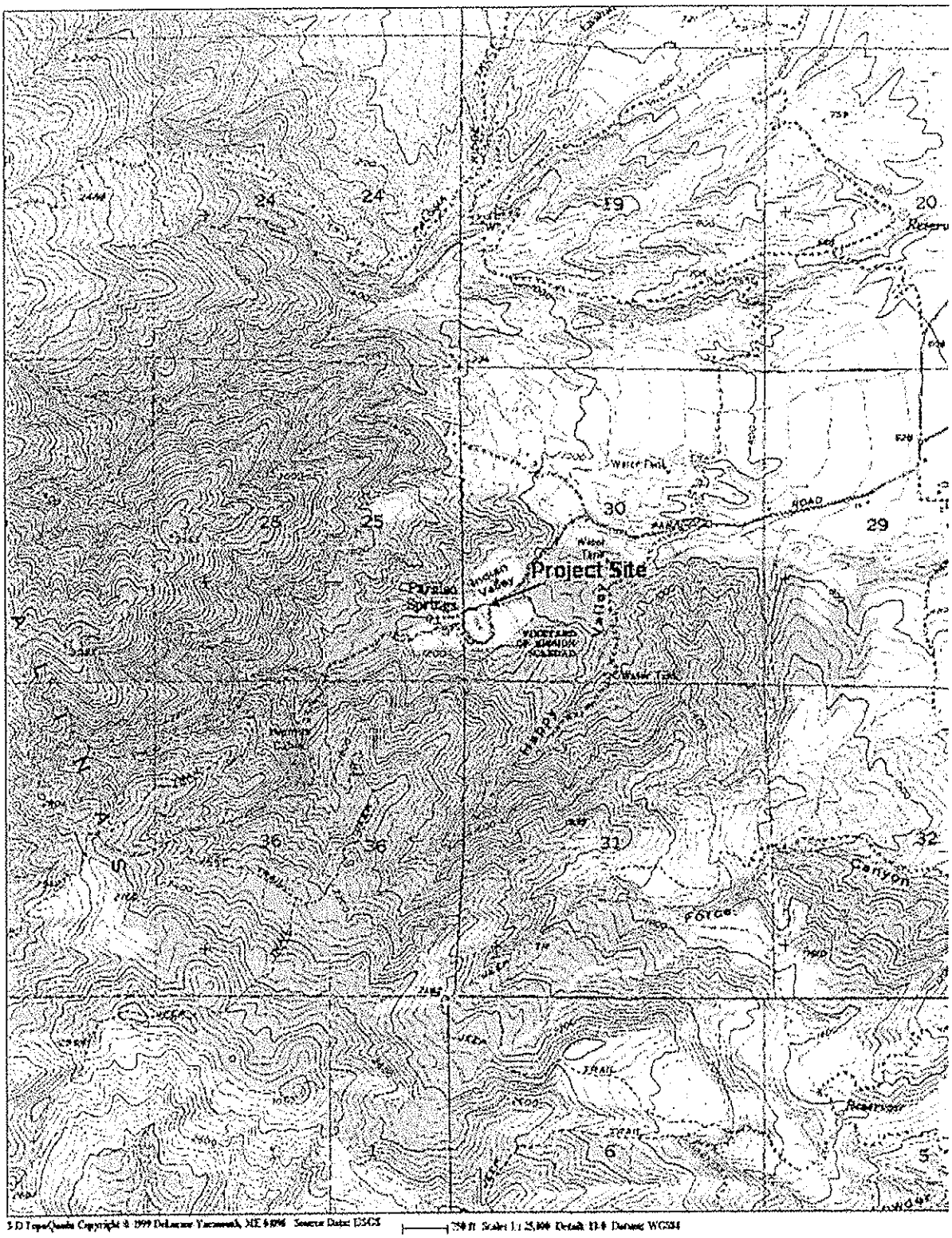

Figure 1. Paraiso Springs project site location.

ATTACHMENT A – PHOTOS

Photo 1. Southern margin of pond. Photo taken in April.

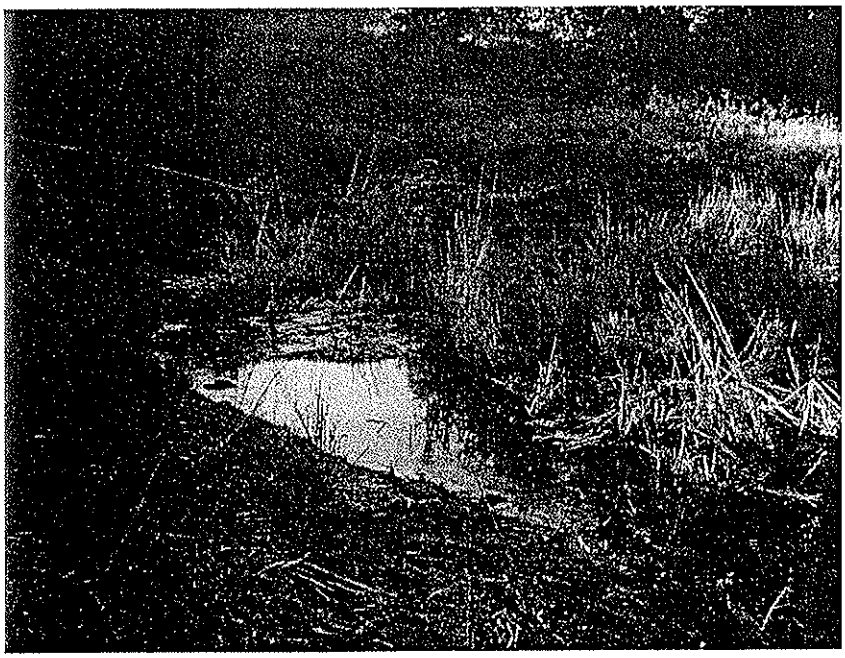

Photo 2. Deep end of pond. Photo taken in April.

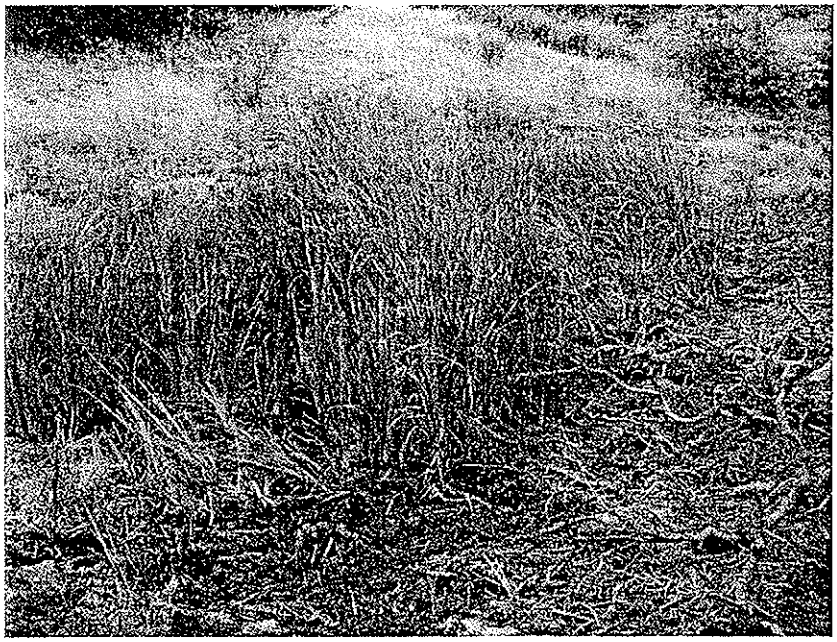

Photo 3. Pond in July. Note new growth of cattails.

Photo 4. Metamorph chorus frog on 15 July.

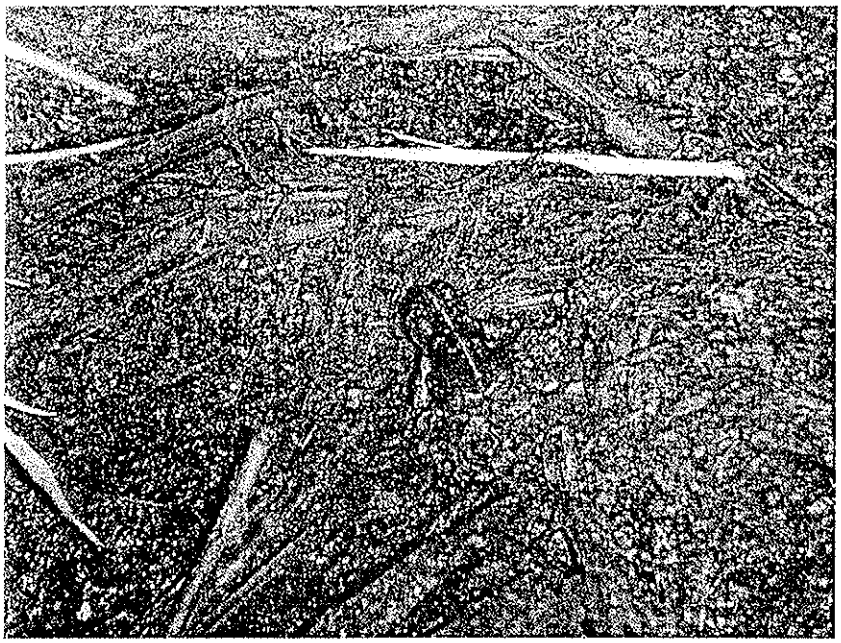

Photo 5. Metamorph western toad on 15 July.

ATTACHMENT B – DATA SHEETS

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ (FWS Field Office) (date) (biologist)

Date of Survey: 01/27/2010 (mm/dd/yyyy) Survey Biologist: Mori (Last name) Bryan (first name)

Survey Biologist: _____ (Last name) (first name)

Site Location: Paraiso Springs, Monterey Co.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____
Brief description of proposed action: Proposed renovation of hot springs resort.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): (1) 2 3 4 5 6 7 8

Begin Time: 650 PM End Time: 815 PM

Cloud cover: 50% Precipitation: none

Air Temperature: 52°F Water Temperature: —

Wind Speed: 0 Visibility Conditions: good

Moon phase: waxing Humidity: —

Description of weather conditions: cool, calm, night with 3/4 moon visible.

Brand name and model of light used to conduct surveys: Vulcan Streamlight

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: 10x40 Swarovski

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	13	O	adult		100

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: none obs.

Other notes, observations, comments, *etc.*
Hyla chorusing loudly upon arrival. Only one pair obs in copulation. Most frogs heard but not seen. Also looked at swale leading into pond, but no surface water obs.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____ (FWS Field Office) (date) (biologist)

Date of Survey: 02/18/2010 (mm/dd/yyyy) Survey Biologist: Mori (Last name) Bryan (first name)

Survey Biologist: _____ (Last name) (first name)

Site Location: Paraiso Springs, Monterey County, (County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____

Brief description of proposed action: Proposed development of Hot Springs resort.

Type of Survey (circle one): DAY (NIGHT) BREEDING (NON-BREEDING)

Survey number (circle one): 1 (2) 3 4 5 6 7 8

Begin Time: 700 PM End Time: 800 PM

Cloud cover: 100% Precipitation: None

Air Temperature: 55° + F Water Temperature: —

Wind Speed: 0 Visibility Conditions: ∞

Moon phase: waxing Humidity: _____

Description of weather conditions: calm, cool (mild), complete cloud cover.

Brand name and model of light used to conduct surveys: streamlight

Were binoculars used for the surveys (circle one)? (YES) NO

Brand, model, and power of binoculars: Swarovski 10 x 40

Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	27	O	adult		ID
WETO	2	O	adult		ID

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: none obs.

Other notes, observations, comments, *etc.*
Hyla chorusing loudly upon arrival. 4 pairs in copulation obs. No egg masses obs. no larvae obs. Mosquito larvae abundant.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Survey: 04/07/2010 (mm/dd/yyyy) Survey Biologist: Mori (last name) Bryan (first name)

Survey Biologist: _____ (last name) _____ (first name)

Site Location: Paraiso Springs, Monterey County
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S)

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____
Brief description of proposed action:
Develop hot springs into resort,

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 (3) 4 5 6 7 8

Begin Time: 545 PM End Time: 645 PM

Cloud cover: Ø Precipitation: Ø

Air Temperature: 68°F Water Temperature: 60°F

Wind Speed: Ø Visibility Conditions: ∞

Moon phase: NA Humidity: _____

Description of weather conditions: clear, calm, mild.

Brand name and model of light used to conduct surveys: N/A

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: SWAROVSKI 10 x 40

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AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	?	H	adult/larvae		100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None obs.

Other notes, observations, comments, etc

Surveyed around pond margin prior to aquatic sampling for CTS larvae. No frogs observed, but Hyla heard calling on occasion.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Survey: 04/07/2010 (mm/dd/yyyy) Survey Biologist: MORI (Last name) BRYAN (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: Paraiso Springs, Monterey Co.
(County, General location name, UTM Coordinates or Lat/Long, or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____
Brief description of proposed action: Develop hot springs into resort.

Type of Survey (circle one): DAY (NIGHT) BREEDING (NON-BREEDING)

Survey number (circle one): 1 2 3 (4) 5 6 7 8

Begin Time: 2015 End Time: 2050

Cloud cover: Ø Precipitation: Ø

Air Temperature: 55°F Water Temperature: 100°F

Wind Speed: 0-5 NW Visibility Conditions: ∞

Moon phase: Waning Gibbous Humidity: _____

Description of weather conditions: clear, calm, cool.

Brand name and model of light used to conduct surveys: Streamlight

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: SWAROVSKI 10x40

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California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	9+	O/H	Adults		100%
WETO	9	O	Adults		100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: None obs.

Other notes, observations, comments, *etc.*

Hyla tadpoles obs earlier in day during aquatic sampling.

Hyla & WETO pairs in copulation; no WETO obs during daytime survey. Many Hyla heard chorusing, but not seen.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by: _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Survey: 5/18/10 (mm/dd/yyyy)

Survey Biologist: Mori (Last name) Bryan (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: Paraiso Springs, Monterey Co.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____

Brief description of proposed action: Development @ hot springs resort

Type of Survey (circle one): (DAY) NIGHT

(BREEDING) NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 705 pm

End Time: 805 pm

Cloud cover: 0

Precipitation: none

Air Temperature: 62° F

Water Temperature: 58 °F

Wind Speed: calm

Visibility Conditions: clear

Moon phase: NA

Humidity: NA

Description of weather conditions: cool, calm, clear

Brand name and model of light used to conduct surveys: _____

Were binoculars used for the surveys (circle one)? (YES) NO

Brand, model, and power of binoculars: 10x40 Steiner SLC

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Appendix E.

California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	?	O/H	adults & morphs	—	100%
Bufo (weto)	1	H	adult	—	100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: No predators obs.

Other notes, observations, comments, *etc.*

Several adults Hyla heard calling at start of survey; one Hyla adult obs and one Hyla morph obs. At the end of survey one weto (toad) adult heard peeping.
CTS larval surveys concurrent
No CRF obs.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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Appendix E.

California Red-legged Frog Survey Data Sheet

Survey results reviewed by ______ (FWS Field Office) ______ (date) ______ (biologist)

Date of Survey: 5/18/10 (mm/dd/yyyy)

Survey Biologist: Mori (Last name) Bryan (first name)

Survey Biologist: ______ (Last name) ______ (first name)

Site Location: ______
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: ______

Brief description of proposed action: Develop hot springs resort.

Type of Survey (circle one): DAY (NIGHT) | BREEDING (NON-BREEDING)

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 845 | End Time: 945

Cloud cover: Ø | Precipitation: none

Air Temperature: 57°F | Water Temperature: 58°F

Wind Speed: Ø | Visibility Conditions: Clear

Moon phase: 1/4 waxing | Humidity: —

Description of weather conditions: clear, cold, starry night w/ 1/4 moon to the east.

Brand name and model of light used to conduct surveys: generic flashlight

Were binoculars used for the surveys (circle one)? YES (NO)

Brand, model, and power of binoculars: 10 x 40 Swarovski SLC

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Appendix E.
California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
WPTO (TOTO)	4	O	adults		100%
Hyla	8+	O/H	adults/morphs		100%

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: no predators obs.

Other notes, observations, comments, *etc.*
Hyla adults chorusing prior to visual survey and during, but most not seen. 2 morphs and 6 ad Hyla seen i 4 toad ad obs.
CTS aquatic sampling earlier in day;
No CRF.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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Appendix E.
California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Survey: 7/15/10 (mm/dd/yyyy) Survey Biologist: Mori (Last name) Bryan (first name)

Survey Biologist: _____ (Last name) _____ (first name)

Site Location: Paraiso Springs, Monterey County
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____
Brief description of proposed action:
Develop hot springs resort.

Type of Survey (circle one): (DAY) / NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 723 pm End Time: 820 pm

Cloud cover: clear Precipitation: none

Air Temperature: 78°F Water Temperature: no water present

Wind Speed: ∅ Visibility Conditions: clear

Moon phase: — Humidity: —

Description of weather conditions: warm late afternoon low; calm.

Brand name and model of light used to conduct surveys: —

Were binoculars used for the surveys (circle one)? (YES) NO
Brand, model, and power of binoculars: 10x40 Swarovski SLC

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California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification
Hyla	10	O	morphs		
Uveto	6	O	Morphs		

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: no predators obs.

Other notes, observations, comments, *etc.*

Pond almost completely lacking water except for a few scattered puddles and water logged cattail mats. No adult frogs or toads seen or heard. Morph frogs & toads mostly under veg cover.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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California Red-legged Frog Survey Data Sheet

Survey results reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Survey: 7/15/10 (mm/dd/yyyy) Survey Biologist: Mori (last name) Bryan (first name)

Survey Biologist: _____ (last name) _____ (first name)

Site Location: Paraiso Springs, Monterey County
(County, General location name, UTM Coordinates or Lat/Long. or T-R-S).

ATTACH A MAP (include habitat types, important features, and species locations)

Proposed project name: _____
Brief description of proposed action:
Develop hot springs resort.

Type of Survey (circle one): DAY NIGHT BREEDING NON-BREEDING

Survey number (circle one): 1 2 3 4 5 6 7 8

Begin Time: 920 End Time: 1015

Cloud cover: 0 Precipitation: none

Air Temperature: 61°F Water Temperature: no water

Wind Speed: 0 Visibility Conditions: clear

Moon phase: crescent waxing Humidity: —

Description of weather conditions: pleasant night, calm, quiet comfortable.

Brand name and model of light used to conduct surveys: Generic flashlight

Were binoculars used for the surveys (circle one)? YES NO
Brand, model, and power of binoculars: 10x40 Swarovski SLC

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California Red-legged Frog Survey Data Sheet

AMPHIBIAN OBSERVATIONS

Species	# of indiv.	Observed (O) Heard (H)	Life Stages	Size Class	Certainty of Identification

Describe potential threats to California red-legged frogs observed, including non-native and native predators such as fish, bullfrogs, and raccoons: none obs.

Other notes, observations, comments, *etc.*
No Hyla or Bufo adults or morphs observed.
One meadow vole seen among cattails. Although
morphed frogs and toads observed during dayflight
surveys, morphs all under cover at night.
Final survey and no CRF obs.

Necessary Attachments:

4. All field notes and other supporting documents
5. Site photographs
6. Maps with important habitat features and species locations

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