

CALIFORNIA RED-LEGGED FROG REPORT

THIS PAGE LEFT BLANK INTENTIONALLY

**CALIFORNIA RED-LEGGED FROG (*RANA AURORA DRAYTONII*)
SURVEY RESULTS
FOR THE PXP PRODUCED WATER
RECLAMATION FACILITY
SAN LUIS OBISPO, CALIFORNIA**

Prepared for:

County of San Luis Obispo
Environmental and Resource Management Division
Department of Planning and Building
San Luis Obispo, California

Prepared By:

Padre Associates, Inc.
811 El Capitan Way, Suite 130
San Luis Obispo, California 93401

July 2007

Project No. 0702-0291

THIS PAGE LEFT BLANK INTENTIONALLY

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.....	1
2.0 CALIFORNIA RED-LEGGED FROG LITERATURE REVIEW.....	1
3.0 SURVEY METHODOLOGY.....	1
4.0 SURVEY SITE CHARACTERISTICS	2
4.1 PISMO CREEK	2
4.2 STOCK POND AND PROPOSED TEMPERING POND.....	2
5.0 SURVEY RESULTS.....	3
6.0 CALIFORNIA RED-LEGGED FROG PREDATOR CONTROL.....	4
7.0 CONCLUSION	4
8.0 REFERENCES.....	5

TABLES

TABLE 1. Survey Results for Pismo Creek

TABLE 2. Survey Results for the Stock Ponds

APPENDICES

APPENDIX A – Photo-documentation of the Survey Sites

APPENDIX B – Figure 1. Map of the Survey Sites

APPENDIX C – CRLF Survey Forms

APPENDIX D – Padre Staff Resumes

THIS PAGE LEFT BLANK INTENTIONALLY

1.0 INTRODUCTION

The following report documents recent California red-legged frog (CRLF) (*Rana aurora draytonii*) survey results for the Plains Exploration and Production Company (PXP) Arroyo Grande Oil Field Produced Water Reclamation Facility Subsequent Environmental Impact Report (SEIR) located in San Luis Obispo County, California. The surveys were conducted to determine the presence or absence of the federally-threatened CRLF and assess the potential impacts associated with the proposed installation of a permanent reclaimed water outfall structure at Pismo Creek and creation of the proposed tempering pond located within an existing stormwater collection basin.

All survey sites were selected based on the CRLF literature review (see below) and encompass proposed project impact areas that have the potential to affect aquatic habitats with the potential to contain CRLF.

2.0 CALIFORNIA RED-LEGGED FROG LITERATURE REVIEW

Prior to conducting CRLF field surveys, a literature review was conducted to investigate the historical presence of CRLF proximate to the proposed reclaimed water outfall structure at Pismo Creek and the proposed tempering pond. The literature review examined multiple sources of information including a query of the California Natural Diversity Database (CNDDDB 2007) and the Revised Hydrological, Water Quality, and Biological Characterization of Pismo Creek (Entrix 2006). The CNDDDB indicated that CRLF have recently been identified approximately 2.5 miles downstream of the subject project area in an unnamed tributary of Pismo Creek. Additionally, the Revised Hydrological, Water Quality, and Biological Characterization of Pismo Creek identified suitable habitat for CRLF, but did not indicate their presence (Entrix 2006).

3.0 SURVEY METHODOLOGY

All surveys were conducted in accordance to the USFWS Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog (USFWS 2005). When surveyors arrived at the site, attempts were made to identify CRLF vocalizations. Following auditory identification attempts, surveys were conducted by walking or boating transects of opportunity within all available CRLF habitat. The majority of the survey effort was focused on riparian areas that had the highest potential to contain CRLF. Surveys were conducted 500-feet up and downstream of the identified potential project impact area in Pismo Creek, within the proposed tempering pond, and in all nearby potential CRLF habitat areas including the existing stock pond located directly southeast of the proposed tempering pond. One or two biologists with prior experience with CRLF performed each respective survey. A thermometer (Traceable® Calibration Control Company) and a wind meter (Kestrel® 2000) were utilized to record weather data. Binoculars (Swift 10x42, Leica 10x42, and Audubon 10x42) and lights (Nite Lite® with < 100,000 candle power) were utilized to scan all available CRLF habitat, detect the species via eye-shine during night surveys, and to investigate potential CRLF refugium during the day.

4.0 SURVEY SITE CHARACTERISTICS

The following discussion details the respective survey site characteristics observed during the surveys. These characterizations include a physical description of the available aquatic habitat, dominant vegetation observed, and wildlife observed. Additionally, Figure 1 (Contained in Appendix B) provides the location of each survey site.

4.1 PISMO CREEK

Available CRLF habitat in Pismo Creek predominately consists of a narrow strip of willow scrub which comprises the riparian corridor of the creek (Refer to Appendix A – Photo 1). Ruderal areas surround the willow scrub habitat and include roadsides and oil production activities. The channel width of Pismo Creek is approximately 20 feet and the maximum depth exceeds 5 feet. Vegetation observed in this habitat includes Arroyo willow (*Salix lasiolepis*), coast live oak (*Quercus agrifolia*), black cottonwood (*Populus balsamifera ssp. trichocarpa*), western sycamore (*Platanus racemosa*), poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), Himalayan blackberry (*Rubus discolor*), periwinkle (*Vinca major*), and German ivy (*Senecio mikanoides*). Wildlife observed at this site included crayfish (*Procambrina clarkii*), American bullfrog (*Rana catesbeiana*), Pacific treefrog (*Pseudacris regilla*), Pacific pond turtle (*Actinemys marmorata pallida*), speckled dace (*Rhinichthys osculus*), rainbow (steelhead) trout (*Oncorhynchus mykiss*), prickly sculpin (*Cottus asper*), mallard (*Anas platyrhynchos*), yellow warbler (*Dendroica petechia*), black-headed grosbeak (*Pheucticus melanocephalus*), Pacific slope flycatcher (*Empidonax difficilis*), golden eagle (*Aquila chrysaetos*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), lesser goldfinch (*Carduelis psaltria*), house finch (*Carpodacus mexicanus*), house wren (*Troglodytes aedon*), and beaver (*Castor canadensis*).

4.2 STOCK POND AND PROPOSED TEMPERING POND

Available CRLF habitat proximate to the stock pond predominately consists of a narrow strip of California bulrush (*Scripus californicus*) and Arroyo willow dominated wetland surrounding the perimeter of the stock pond (Refer to Appendix A – Photos 2 and 3). The stock pond has a 60-foot width and a 110-foot length, and is predominantly oblong in shape. Surface water was present in the stock pond during each survey. The depth of the pool was not estimated during the surveys. Emergent vegetation observed in this habitat includes California bulrush, Arroyo willow, and greater duckweed (*Lemna major*). The areas surrounding the stock pond consist of relatively undisturbed oak woodland habitat and annual grasslands. A limited number of dirt access roads transect this area. Wildlife observed at this site included Pacific tree frog, American bullfrog, largemouth bass (*Micropterus salmoides*), red-winged blackbird (*Agelaius phoeniceus*), mallard, American turkey (*Meleagris gallopavo*), and common snipe (*Gallinago gallinago*). The proposed tempering pond is dominated by California bulrush and broad-leaved cattails (*Typha latifolia*) and no surface water was present during the surveys. Therefore, this area was surveyed, but the majority of the survey effort was committed to the stock pond which had surface water.

5.0 SURVEY RESULTS

The following tables depict the results of the CRLF surveys conducted at the sites described above. As required in the USFWS protocol, if CRLF were identified, surveys would be ceased at the respective site and further survey effort would not be exerted (USFWS 2005). When CRLF are not detected a total of eight surveys (2 day and 6 night) must be conducted to determine CRLF absence. Padre Biologists did not observe CRLF; therefore, a total of eight surveys were conducted at each respective site (Table 1 and 2).

TABLE 1: Survey Results for Pismo Creek.

Survey Number	Survey Date Start Time	Survey Type	Air Temp. Water Temp.	Weather Conditions	CRLF Detected
1	Date: 4/13/07 Time: 1500	Day	Air: 72.4°F Water: 61.8°F	0% cloud cover, 5.2 mph E wind	No
2	Date: 4/18/07 Time: 2045	Night	Air: 51.0°F Water: 56.7°F	0% cloud cover, new moon, 2.7 mph S wind	No
3	Date: 4/25/07 Time: 2100	Night	Air: 57.0°F Water: 59.5°F	10% cloud cover, ½ waxing moon, 0.5 mph S wind	No
4	Date: 5/02/07 Time: 2130	Night	Air: 54.5°F Water: 60.1°F	0% cloud cover, full moon, 3 mph SW wind	No
5	Date: 5/09/07 Time: 2200	Night	Air: 52.3°F Water: 60.7°F	100% cloud cover, ½ waning moon, 0.5 mph NE wind	No
6	Date: 5/17/07 Time: 2115	Night	Air: 56.6°F Water: 60.6°F	0% cloud cover, new moon, 0 mph wind	No
7	Date: 7/03/07 Time: 1352	Day	Air: 84.4°F Water: 71.1°F	0% cloud cover, 3.4 mph E wind	No
8	Date: 7/03/07 Time: 2130	Night	Air: 61.0°F Water: 67.0°F	0% cloud cover, ½ waxing moon, 0 mph wind	No

TABLE 2: Survey Results for the Stock Pond and Proposed Tempering Pond.

Survey Number	Survey Date Start Time	Survey Type	Air Temp. Water Temp.	Weather Conditions	CRLF Detected
1	Date: 4/13/07 Time: 1345	Day	Air: 74.7°F Water: 65.3°F	0% cloud cover, 6.1 mph NW wind	No
2	Date: 4/18/07 Time: 2200	Night	Air: 51.0°F Water: 61.7°F	0% cloud cover, new moon, 2.0	No

				mph S wind	
3	Date: 4/25/07 Time: 2020	Night	Air: 54.0°F Water: 63.0°F	15% cloud cover, ½ waxing moon, 3.5 mph S wind	No
4	Date: 5/02/07 Time: 2035	Night	Air: 55.5°F Water: 66.1°F	10% cloud cover, full moon, 1.7 mph SW wind	No
5	Date: 5/09/07 Time: 2100	Night	Air: 60.7°F Water: 67.3°F	100% cloud cover, full moon, ½ waning moon, 0 mph wind	No
6	Date: 5/17/07 Time: 2035	Night	Air: 52.9°F Water: 66.2°F	0% cloud cover, new moon, 1.6 mph W wind	No
7	Date: 7/03/07 Time: 1352	Day	Air: 81.4°F Water: 75.6°F	0% cloud cover, 4.6 mph E wind	No
8	Date: 7/03/07 Time: 2100	Night	Air: 60.3°F Water: 73.9°F	0% cloud cover, ½ waxing moon, 0 mph wind	No

6.0 CALIFORNIA RED-LEGGED FROG PREDATOR CONTROL

During the night surveys approximately 3 adult bullfrogs were eliminated from the Pismo Creek survey area (one bullfrog observed was dispatched on 4/18/07; 1 of 2 bullfrogs observed was dispatched on 5/02/07; and 1 of 2 bullfrogs observed was dispatched on 5/17/07). Prior to eradication, each frog was identified to species level. Following species identification, capture and subsequent dispatching was performed. Additionally, crayfish were observed in Pismo Creek and largemouth bass were observed in the stock pond near the proposed tempering pond.

7.0 CONCLUSION

CRLF were not observed at any of the surveyed sites. Although suitable habitat exists in both Pismo Creek and the existing stock ponds, the presence of bullfrogs in these areas may have assisted with the extirpation of CRLF from these locations. Correlations between the presence of bullfrogs and the absence of CRLF have been identified (Jennings and Hayes 1986); therefore, it is unlikely that CRLF will be identified in this area of Pismo Creek. Additionally, the southern stock pond maintains a population of largemouth bass. Scientific literature on the effects of largemouth bass on CRLF populations is nonexistent. Although the interactions of largemouth bass and CRLF populations remain obscure, researchers have identified negative effects to northern red-legged frogs (*Rana aurora aurora*) and CRLF in the presence of other centrarchids including smallmouth bass (*Micropterus dolomieu*) (Kiesecker and Blaustein 1998; Scott and Crossman 1973; Krise and Francis 1977; Adams et al. 2003).

8.0 REFERENCES

- Adams M. J., C. A. Pearl, and R.B. Bury. 2003. Indirect facilitation of an anuran invasion by non-native fishes. *Ecology Letters* 6: 343-351.
- California Natural Diversity Database (CNDDB). 2006. Rarefind 3 Query. California Department of Fish and Game. Sacramento, Ca.
- Entrix Inc. 2006. Revised hydrological, water quality, and biological characterization of Pismo Crook. Prepared for the Plains Exploration and Production Company Arroyo Grande Produced Water Reclamation Facility. San Luis Obispo, Ca.
- Hayes M.P., and M.R. Jennings. 1986. Decline of ranid frog species in western North America: are bullfrogs (*Rana catesbeiana*) responsible? *Journal of Herpetology* 20: 490-509.
- Kiesecker, J.M. and A.R. Blaustein. 1998. Effects of introduced bullfrogs and smallmouth bass on microhabitat use, growth, and survival of native red-legged frogs (*Rana aurora*). *Conservation Biology* 12(4): 776-787.
- Kruse, K.C., and M.G. Francis. 1977. A predation deterrent in the larvae of the bullfrog (*Rana catesbeiana*). *Transactions of the American Fisheries Society*. 106: 248-252.
- Scott, W.B., and E.J. Crossman. 1973. Freshwater fish of Canada. *Bulletin of the Fisheries Research Board of Canada* 184: 1-996.
- U.S. Fish and Wildlife Service (USFWS). 2005. Revised guidance on site assessments and field surveys for the California red-legged frog. U.S. Fish and Wildlife Service, Portland, Oregon. 26.

*

*

*

THIS PAGE LEFT BLANK INTENTIONALLY