

**CALIFORNIA RED-LEGGED FROG SITE ASSESSMENT
ST. VINCENT'S SCHOOL PROPERTY
SAN RAFAEL, MARIN COUNTY**

September 15, 2001

Prepared for:

*Shapell Industries of Northern California
P.O. Box 361169
Milpitas, CA 95035*

Prepared by:

*LSA Associates, Inc.
157 Park Place
Point Richmond, CA 94801
(510) 236-6810
LSA Project #SIN731*

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
PURPOSE OF ASSESSMENT	1
PROJECT LOCATION	1
SITE DESCRIPTION	1
VEGETATION	4
HYDROLOGY	4
METHODOLOGY	8
DISCUSSION	9
HABITATS	9
STATUS OF RED-LEGGED FROGS	10
CONCLUSION.....	12
REFERENCES	13
LITERATURE CITED	13

LIST OF FIGURES

	PAGE
Figure 1 - Project Location	2
Figure 2 - Project Vicinity	3
Figure 3 - Photographs.....	6

INTRODUCTION

PURPOSE OF ASSESSMENT

This report presents the results of an assessment of the status of the California red-legged frog (*Rana aurora draytonii*) and its habitat on and in the vicinity of the St. Vincent's School property located in San Rafael, Marin County, California. The site is located within the presumed historic range of the California red-legged frog and potential habitat for the species is located on the property.

This assessment follows the guidelines outlined in the U.S. Fish and Wildlife Service (USFWS) *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (USFWS 1997). This report discusses: 1) upland and aquatic habitats suitable for California red-legged frog located on the project site and within one mile of the project boundaries; and 2) the locations of red-legged frog observations reported on the project site and within five miles of the project boundaries.

PROJECT LOCATION

The St. Vincent's School property is located directly east of Highway 101 and south of Hamilton Field (Figures 1 and 2). The overall site is bisected by the old Northwestern Pacific (NWPRR) railroad right-of-way. Miller Creek parallels the southern boundary of the site, crossing over the site's southeastern corner. The overall property includes diked baylands that extend eastward to the San Pablo Bay shoreline. All areas east of the railroad tracks are not included in the study area for this report. Access to the site is provided by St. Vincent's Drive, from the Marinwood/St. Vincent's interchange on Highway 101. The property is in Township 2 North, Range 6 West, of the Novato 7.5-minute U.S.G.S. quadrangle. The project area has not been sectioned, as it was originally part of a Mexican land grant. The overall property covers a total of 881 acres.

The approximately 327 acre study area for this assessment includes all of the St. Vincent's School property west of the NWPRR right-of-way.

SITE DESCRIPTION

The St. Vincent's School property lies at the eastern end of the Gallinas Valley in eastern Marin County. The northern half of the study area lies on the southern slope of a small, steep ridgeline. The northern property boundary coincides with the crest of the ridgeline. This ridgeline represents the easternmost extent of Big Rock Ridge, a larger ridge that extends west from the property into central Marin County. The highest crest of the smaller ridgeline on the property is named Pacheco Hill. A smaller hill, distinct from the Pacheco Hill ridgeline, occurs just south of Pacheco Hill. This smaller hill is on the western edge of the property, adjacent to Highway 101.

St. Vincent's School is constructed on an even more gentle knoll in the eastern portion of the study area. The southern portion of the study area is composed of level fields within the historic floodplain of Miller Creek. Miller Creek itself flows just south of

Figure 1 - Project Location

Figure 2 - Project Vicinity

the southern property boundary except for a short reach of the creek which crosses over the southeastern corner of the property. Miller Creek is the primary watercourse draining the Gallinas Valley.

VEGETATION

Non-native grassland and oak woodland are the dominant plant communities on the hills and ridgeline. The level fields adjacent to Miller Creek are used for growing oat hay. Low-lying areas in the fields, as well as seeps on the slopes, support vegetation associated with wetlands. Woody riparian vegetation is present along Miller Creek. In addition to these natural communities, remnant orchards are present in the south-central portion of the site and ornamental shrubs and trees grow around the school campus and associated facilities.

The non-native grassland is dominated by upland grasses such as wild oats (*Avena* sp.) and soft chess (*Bromus hordaceus*). Native and non-native broad-leafed plants (forbs) grow intermixed in the grassland; species include hayfield tarweed (*Hemizonia congesta* ssp. *congesta*), turkey mullein (*Eremocarpus setigerus*), hairy cat's-ear (*Hypochoeris radicata*), filarees (*Erodium* spp.), Italian thistle (*Carduus pycnocephalus*), and yellow star-thistle (*Centaurea solstitialis*). Purple needlegrass (*Nassella pulchra*), a native bunchgrass, is the dominant plant on portions of the lower slopes of Pacheco Hill.

Coast live oak (*Quercus agrifolia*) and valley oak (*Q. lobata*) comprise a nearly 100 percent canopy cover on the upper portion of Pacheco Hill and the adjacent ridgeline. These two oak species are also present in low density on the hills in the western part of the site.

A well developed riparian corridor is present along Miller Creek and along an old channel north of Miller Creek in the southeastern portion of the site. Willows (*Salix* spp.), box-elder (*Acer negundo*), and occasional California buckeyes (*Aesculus californica*) provide a canopy with 25 to 95 percent closure. Himalayan black-berry (*Rubus discolor*) forms often impenetrable thickets in the understory. Plants in openings within the corridor

include hedgehog dogtail grass (*Cynosurus echinatus*), ripgut brome (*Bromus diandrus*), and Italian thistle.

Pear trees (*Pyrus* sp.) are present in the south-central portion, especially north of the entrance driveway. Vegetation in the immediate vicinity of the school consists of ornamental trees, including pines (*Pinus* sp.) and bluegum eucalyptus (*Eucalyptus globulus*). Large bluegum eucalyptus also line the roadway connecting the school with Highway 101 to the west.

HYDROLOGY

The northern property line coincides with the crest of the Pacheco Hill ridgeline, so the entire property slopes south towards Miller Creek. The upper slopes of the ridgeline are dissected by a series of short, ephemeral drainages no more than 1-2 feet in width. Three larger channels drain the lower slopes. These channels merge with a network of drainage ditches when they reach the level fields. The ditches are tributary to Miller Creek.

The Pacheco Hill ridgeline has a series of seeps at elevations of 80-100 feet. The seeps function seasonally, drying out by mid-summer. They are distinguished by communities of wetland plants growing in patches on the middle slopes of the hillside. A complex of small seeps is also present on the southern slope of the western hill (see Figure 3).

The top of the small hill adjacent to the north side of the H Building has been excavated to form an underground water reservoir. The reservoir has been abandoned and now ponds a shallow amount of water with emergent vegetation such as cattail (*Typha* sp.), bulrush (*Scirpus acutus*), and willows (*Salix* sp.).

Figure 3 - Photographs

2nd page of Figure 3

METHODOLOGY

Prior to conducting a field survey of the St. Vincent's School property, LSA searched the California Natural Diversity Data Base and reviewed in-house data for records of California red-legged frog in the vicinity of San Rafael and Novato.

LSA herpetologist, David Muth, surveyed the site in accordance with the protocol provided in the U. S. Fish and Wildlife Service's *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (February, 1997) on August 6, 2001. Aquatic habitats were surveyed by walking their extent during the daytime and with a headlamp during the night. The survey included visually searching for adult and sub-adult red-legged frogs, determining the suitability of these areas for California red-legged frog breeding, and determining their value as adult frog aestivation habitat or as dispersal habitat.

DISCUSSION

The site is within the historical range of the California red-legged frog (Jennings and Hayes 1994), however, there are no recent confirmed observations from any locations in northeastern Marin County.

HABITATS

St. Vincent's School Property

The majority of the St. Vincent's School property consists of upland habitats not suitable to support California red-legged frog. Potential red-legged frog habitat on the site are Miller Creek, the southern most drainage ditch, two centrally located seeps, and the abandoned reservoir.

The segment of Miller Creek that crosses the property has a cobble or sand bed with no significant pool areas. Portions of the sandy banks support a narrow band of dense riparian vegetation dominated by Himalaya blackberry (*Rubus discolor*). The blackberry is too dense to penetrate and it could not be determined if additional refugia are available. The remaining bank area has a cover of upland herbaceous plants. This section of the creek dries during the summer and fall and was dry during this survey. This reach of Miller Creek provides suitable low value habitat for adult red-legged frogs when flowing water is present and could serve as a migration corridor, although downstream habitats are brackish wetland and diked saltmarsh which are unsuitable for red-legged frog use.

The southern most drainage ditch carries water most of the year drying by mid to late summer. While most of the emergent vegetation is heavily grazed by cattle on the site, upstream sections of this ditch are dominated by cattail (*Typha* sp.). There are also numerous burrows in the ditch banks. Only a 25-foot upstream section of this ditch held water at the time of the site visit. The water was 1 to 3-inches deep and numerous metamorph bullfrog were observed. The other ditches appeared to be too ephemeral to support habitat for ranid frogs.

Two seeps appear to support a late season surface water regime. These seeps are located in the central drainage north of the entrance road. The first seep is located upstream of the orchard. At the time of this survey most of the surface water had dried and the seep could only be located by the presence of dense Himalaya blackberry that surrounded it. The seep appears to support marginal seasonal habitat for adult and young red-legged frogs. The second seep is located at the head of this drainage in the saddle area. This spring was previously dug out to provide a water source for cattle. Past improvements have fallen apart and a shallowly pooled area remains.

The abandoned reservoir ponds water long enough to form a marsh like habitat. Cattails, bulrush and a few small willows survive on deposits of soil that have fallen in. The roof that at one time covered the reservoir has collapsed and forms islands and retreats. Water was pooled to a depth of about 2-feet at the time of the site visit. Several dozen adult and sub-adult bullfrog, as well as numerous larvae, were observed in the reservoir. This feature provides excellent habitat for red-legged frog, however the presence of large numbers of bullfrog is very likely to preclude this species.

St. Vincent's School Property Vicinity

Portions of the Pacheco Creek and Miller Creek drainage systems occur within one mile of the project site. Creek segments, pools, and stockponds in these two drainage systems provide habitats suitable for California red-legged frog. However, these drainage systems as well as those of Arroyo San Jose and Novato Creek to the north, were intensely surveyed for this species during 1996 and 1997 with negative results (LSA 1997; Tetrattech,1996; D. Muth, personal communication).

STATUS OF RED-LEGGED FROGS

St. Vincent's School Property

No red-legged frogs were observed during the surveys of the St. Vincent's School property. No records of this species from the site could be located.

St. Vincent's School Property Vicinity

No recent or historical records of California red-legged frog in northeastern Marin County appear to exist. The following excerpt from LSA's report *Red-legged Frog Survey: Hamilton Army Airfield* (1997) presents the results of the red-legged frog records search for northeastern Marin County:

Prior Records at Hamilton Army Airfield and Vicinity. LSA conducted an intensive search for records of California red-legged frogs in the Novato area, but found no records for the HAAF site or the surrounding area, within 5 miles. California red-legged frogs are known to occur in Marin County, but all records listed by the Natural Diversity Data Base (1997) are from the Pacific side of the county. Based on LSA's search, the red-legged frog observation closest to HAAF was from the Tolay Creek area, north of Highway 37 and east of Lakeville Road (S. Bacchini, personal communication). This observation was about 6 miles northeast of HAAF. Surveys of Arroyo San Antonio and Pacheco Creek in the GSA portion of Hamilton Air Force Base during 1996 did not locate any California red-legged frogs (Tetra Tech, Inc. and Swaim 1996). These surveys followed the standard U.S. Fish and Wildlife Service (USFWS) protocol. No red-legged frogs were observed in surveys of Novato Creek conducted in spring, 1996 by Gary Fellers (Kathleen Freal, personal communication).

LSA's data search included a review of recent wildlife surveys within the southern Novato area (EIP 1986, Rich and Associates 1988, EIP 1993, and Tetra Tech 1996). LSA also obtained verbal summaries of recent surveys (noted above) of Novato Creek (conducted by Gary Fellers of the National Park Service) and of the Tolay Creek watershed in Sonoma County (conducted by Sam Bacchini of Harlan Bartholomew Associates). LSA also reviewed relevant documents prepared by Wright and Wright (1949); Jennings (1993); Jennings and Hayes (1994); Jennings, Hayes, and Holland (1994); USWFS (1994); and USFWS (1996).

None of these information sources reported any observations of red-legged frogs within 5 miles of HAAF. The map of California red-legged frog localities by Jennings and Hayes (1994) shows a museum record from eastern central Marin County, but according to Mark Jennings (personal communication), the museum record was not from the Novato area. Dr Jennings reviewed his own data base and could not locate any records of red-legged frog in the Novato area. An EIR prepared by EIP (1993) stated that red-legged frogs had been reliably reported to be in Pacheco Pond. David Mullen (personal communication), who conducted the field surveys for this EIR, stated that these frogs were reported by security staff, with no supporting details, and the frogs could easily have been Pacific treefrog or bullfrog. A red-legged frog observation in Miller Creek mentioned in the report by Tetra Tech, Inc. and Swaim (1996) was found to be erroneous. According to Steve Foreman (personal communication), the field observation was made by a person not familiar with red-legged frog identification, and the location was rechecked by RMI biologists, who found only bullfrogs.

To search for additional records, LSA contacted the following biologists: Mark Jennings (California Academy of Sciences), John M. Brode (California Department of Fish and Game), Bill Cox (California Department of Fish and Game), Mike Westphal (USFWS), David Mullen (private consultant), David Cook (California State University, Sonoma), Karen Swaim (private consultant), and LSA staff (David Muth, Malcolm Sproul). None of these biologists was aware of any red-legged frog observations (personal or otherwise) for the Novato area.

Since this survey was conducted, LSA has been made aware of two recent unverified observations of red-legged frogs from the southwestern side of Burdell Mountain. We have not been able to confirm these observations, however, they are from an area greater than five miles from the St. Vincent's School property (approximately 7 miles to the northwest).

There has also been the discovery of a new population of red-legged frogs from the tip of the Tiburon Peninsula. This population was first reported in 1997. It is located approximately 12 ½ miles from St. Vincent's to the south-southeast.

CONCLUSION

The St. Vincent's School property provides habitats that could be used by California red-legged frogs if the species is present. Extensive surveys of the St. Vincent's School vicinity during 1996 and 1997 indicate the species is currently absent from this area. All potential habitat areas on the St. Vincent's property, except the abandoned reservoir, appear to dry during the late summer. The reservoir and ditch support large breeding populations of bullfrog that reduce any value of these habitats for red-legged frogs. It is unlikely that red-legged frogs reside in the potential habitat areas on the St. Vincent's School property.

REFERENCES

LITERATURE CITED

CNDDDB, 2001, Search of Novato, Petaluma, San Rafael and surrounding quadrangles.

Jennings, M.R. and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. The California Dept. of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA. Contract No. 8023.

LSA, Associates, Inc. 1997. Red-legged Frog Survey: Hamilton Army Airbase. Report prepared for the U. S. Army Corps of Engineers.

Tetra Tech, Inc. and Swaim Biological Consulting. 1996. California Red-legged Frog Spring and Summer Surveys for Department of Defense Housing Facility. Report prepared for U. S. Navy, Engineering Field Activity West. August 1996.

U. S. Fish and Wildlife Service, 1997, *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* dated February, 1997