California Red-legged Frog (Rana draytonii) Site Assessment

Coho Instream Habitat Restoration in the San Geronimo Valley, Marin County, CA

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SUMMARY

The Coho Instream Habitat Restoration Project is located in the upland reaches of San Geronimo Creek and the lower reach of Woodacre Creek. Woodacre Creek is a tributary to San Geronimo Creek, which is the only undammed headwaters of the Lagunitas Creek Watershed that drains into Tomales Bay and encompasses more than 100mi^2. San Geronimo Creek is located in the eastern portion of the Lagunitas Creek Watershed. There are 6 project sites on three private land owners' properties within the San Geronimo Creek Watershed. The project sites are located in Township 2N, Range 7W, Sections 16 and 21 of the San Geronimo 7.5 Minute USGS Quadrangle. The purpose of this project is to create and restore instream habitat complexity thus increasing winter and summer refugia for endangered Central California Coast Coho salmon. This assessment presents the findings of an on-site habitat evaluation at the projected restoration sites to determine potential disturbance for the *Rana Draytonii* (hereafter RADR) according to the protocol outlined in the USFWS *Revised Guidelines and Field Surveys for the California Red-legged Frog*(US Fish and Wildlife Service 2005).

This site assessment contains a brief review of historical presence data within the project area, descriptions of both breeding and upland habitat that the RADR prefers, methods taken to assess habitat at the project sites, types of these habitats found in the project area, and results and recommendations based on these assessments.

No frogs were detected during this habitat assessment. Reports of red-legged frog occurrence are within 600 meters of the western-most site in Lagunitas, CA (Ettlinger pers comm. 2010) and within 7 km of the Eastern-most site (Woodacre Creek) at Devil's Gulch Fire Road (Museum of Vertebrate Zoology 2010).

Suitable breeding and dispersal habitat exist within the project area and it is SPAWN's recommendation that pre-construction surveys for RADR should be performed within two weeks of ground-breaking activity at all sites. Preferred surveys should take place at night to increase the likelihood of occurrence and within 2 days of construction to avoid RADR returning to the sites, if present, during construction.

INTRODUCTION AND REVIEW

A project of SPAWN, CA Department of Fish and Game (DFG), and Dragonfly Stream Enhancement, the Coho Instream Habitat Restoration Project will recreate and restore winter and summer, critical instream refugia in San Geronimo Creek. San Geronimo Creek is a heavily developed, undammed tributary and headwaters to the Lagunitas Creek Watershed. The Lagunitas Creek Watershed supports one of the largest remaining populations of the endangered Central California Coastal Evolutionarily Significant Unit (CCC ESU) of Pacific Coho Salmon, *Onchorhynchus kisutch*.

There are 6 project sites on 3 privately-owned properties in the San Geronimo Valley in West Marin County, CA proposed for this project. All sites are within the San Geronimo and Woodacre Creek channels which support the endangered Coho. Woodacre Creek is a main tributary to San Geronimo Creek. All six sites have been included in this assessment. All work to be performed will be within the stream channel and along the banks. Sites were chosen based on bank conditions, accessibility, and feasibility.

Treatments in the project sites include root wad, boulder, and log placements on stream banks and within the channel to increase habitat complexity, to provide refugia within the channel during seasonal variations in water velocity and depth, and to provide better bank stabilization and erosion control. Any potential habitat or vegetation damage on creek banks from large equipment being used in the sites will be avoided or mitigated with revegetation efforts. See Appendix A for pictures of existing conditions of each proposed site.

The California Red-legged Frog, *Rana draytonii*, is listed as Threatened under Section 10 of the Endangered Species Act and is regulated by the US Fish and Wildlife Service. Any activities within its distribution which could disturb its habitat or result in take of the species require a thorough assessment of possible occurrence on site as required by law.

RADR distribution and occurrence ranges from Mendocino County south along the coast into Mexico, some isolated populations located in the Western Sierra, and a disjunct, introduced population in Central Nevada (Fellers 2005). In Marin County, extensive research has been performed in the Point Reyes National Seashore vicinity by the US Geological Survey. Most recorded occurrences occur here or other public property (Golden Gate National Recreation Area or Marin Open Space) in Marin County. Very little private property (agricultural and residential), if any, has been adequately surveyed (Kleeman, pers. comm.).

RADR BREEDING, UPLAND, AND DISPERSAL HABITAT

Because metamorphosis for RADR usually occurs in 4 to 7 months, RADR typically breed in permanent to semi-permanent ponds, although slow-moving stream pools and some ephemeral pools can provide

suitable breeding habitat. Pools usually contain aquatic vegetation which provide protection and a substrate for which eggs are attached. Typically, RADR breeds during the wet season any time between November and April.

Soon after breeding season ends, some RADR disperse to upland areas which can vary in distance. Stebbins 2003 reports that over land movements of over two miles have been recorded. According to Fellers and Kleeman 2007, non-breeding habitat (which includes upland and dispersal habitat) consists of three characteristics: 1) sufficient moisture to prevent desiccation, 2) sufficient cover, and 3) protection from predators. Examples of this type of habitat can include a variety of thick vegetation along a riparian corridor, piles of wood or vegetation, and seeps or drainages along roads or in upland forests. RADR can use upland and riparian habitat for purposes such as migration, dispersal, aestivation, and foraging. Stream corridors tend to be an ideal area for providing these conditions, making it a favored dispersal method.

METHODS

All surveys were performed on April 27th, 2011 and were performed by a qualified biologist. Pictures were taken at all sites and, if habitat was found, notes were taken on type of habitat and location. Each project site was visually surveyed in a zigzag transect for potential RADR habitat and presence of frogs. Surveys included all submerged habitat and adjacent land within 100 meters (if feasible) of the project site. Submerged habitat was surveyed for tadpole and egg mass presence as well. This also included 100 meters upstream and downstream of the proposed placements. All land adjacent to the stream and sites is residential property. Those areas within the 100 meters that were behind fences or other property barriers and were not going to be disturbed during the work were not surveyed.

Project areas and sites were labeled as follows:

1. San Geronimo Golf Course Area: Sites 1A-Placement 1, 2A-Placement 2, and 3A-Placement 3

2. White Area and site

3. TIRN or Lagunitas Area: Site 1 upstream, Site 2 downstream

Historical and current occurrence information was attained using UC Berkeley Mapper run by UC at Berkeley and AmphibiaWeb; personal communication between Patrick Kleeman, USGS Supervisory Ecologist at Point Reyes Station; California Natural Diversity Database; and literature sources.

RESULTS

RADR Habitat within the Project Areas

Land use throughout most of the area is classified as residential, commercial, or developed. Adjacent upland habitat includes Conifer and Hardwood Forests consisting of dominant species such as Coastal Redwood (*Sequoia sempervirens*), Douglas Fir (*Pseudotsuga menziesii*), Valley Oak (*Quercus lobata*) and Big-leaf Maple (*Acer macrophyllum*). Disturbances to the areas include roads, golf course maintenance, and residential development. Potential upland and dispersal habitat for RADR exists within all the projected areas, however. These areas are all located within and adjacent to the annual creek, where adequate moisture and cover could supply the frog with protection from desiccation and predators. There are also piles of woody debris and areas of thick vegetation and duff within 100 meters of all the project areas (Lagunitas, San Geronimo, and Woodacre).

Potential breeding habitat was also observed during the assessment in 3 of the 6 sites. These sites include the White (Woodacre) and sites 2 and 3A at the San Geronimo Golf Course on San Geronimo Creek. All three of these sites contained pools with slow flowing to stagnant water and some submerged vegetation or woody debris where the females could potentially deposit an egg mass. Breeding on sites 2 and 3A on the golf course is, however, unlikely due to a significant *Rana catesbiana* (Eastern Bullfrog) population (pers observation) throughout the ponds on the Golf Course. Another limitation to successful breeding in these areas is due to variation in flow during winter storms which would potentially wash out egg masses. No RADR occurrence has been reported or documented within the areas surveyed. The closest recorded occurrences are: 1) Lagunitas Creek, just downstream of the confluence with San Geronimo Creek (Ettlinger pers comm. 2010), which is less than 600 meters from the Lagunitas sites; 2) Kent Lake with Latitude: 38° 0' 9.926" N, and Longitude: 122° 42' 30.969" W, which is within 1.5 miles of the Lagunitas project sites; and 3) off of Devil's Gulch Fire Rd with Latitude: 38° 3' 3.834" N, and Longitude: 122° 43' 19.102" W, which is within two miles of a project site.

Project area summaries are reported below:

1. San Geronimo Golf Course Area

All sites are within 100 meters of each other. All sites contain potential non-breeding season habitat which include dense vegetation on adjacent banks, exposed large tree roots, and piled woody debris. Site placements 2 and 3 (See Fig 1) have potential breeding habitat that contain slow to no flow pools with submerged vegetation and/or woody debris that could act as an attachment substrate. No RADR adults, juveniles, tadpoles or egg masses were spotted during this survey. There is an established Rana catesbiana (RACA), or Eastern Bullfrog, population in ponds on the golf course adjacent and upland of the sites. The nearest pond to the project site is within 200 meters.

2. White Area and Site

The White site on Woodacre Creek is a cut bank with a slow to backwater flow pool. Dense vegetation and piles of woody debris exist within 50 meters of the site. Woody debris is also submerged within the pool, making this habitat also a potential breeding area (Fig 2). No RADR adults, juveniles, tadpoles or egg masses were spotted during this survey.

3. TIRN or Lagunitas Area

The Lagunitas area sites are within 100 meters of each other in stream types classified as riffles and runs. These sites have no potential breeding. Adjacent creek bank habitat has dense vegetation, down woody debris and tree root exposure which provides potential dispersal and upland habitat for the frogs (Fig 3). Also, an adult has been spotted on Lagunitas Creek riparian corridor approximately 600 meters from the downstream site. No adults were spotted during this survey.

RECOMMENDATIONS

Recommendations to prevent take of RADR at the work areas are as follows:

1. A pre-construction survey will consist of a night survey of potential habitat by a qualified biologist within 2 to 4 days of the projected time the work will begin. If RADR is found in the work area, it will be removed from the site and taken to a predetermined site approved by the USFWS. Pre-construction surveys should be included for each area and site.

2. A mandatory training on RADR natural history for all employees at the work site should be conducted by the qualified biologist who will include descriptions of the species and its habitat and protective measures the employees should take to prevent take of the species.

3. The qualified biologist should remain on site for groundbreaking activities and, thereafter, a trained monitor should remain on site for the remainder of the work. He/She will monitor all heavy equipment use in the project site and habitat within the project area.

4. If a RADR is sited, all work in the project site should halt immediately until a qualified biologist is able to remove the frog from the site.

APPENDICES

A.

Pictures of Potential RADR Habitat

Fig 1. Submerged woody debris in a pool on San Geronimo Creek (Site 2A) which provides potential breeding habitat for the California Red-Legged Frog.

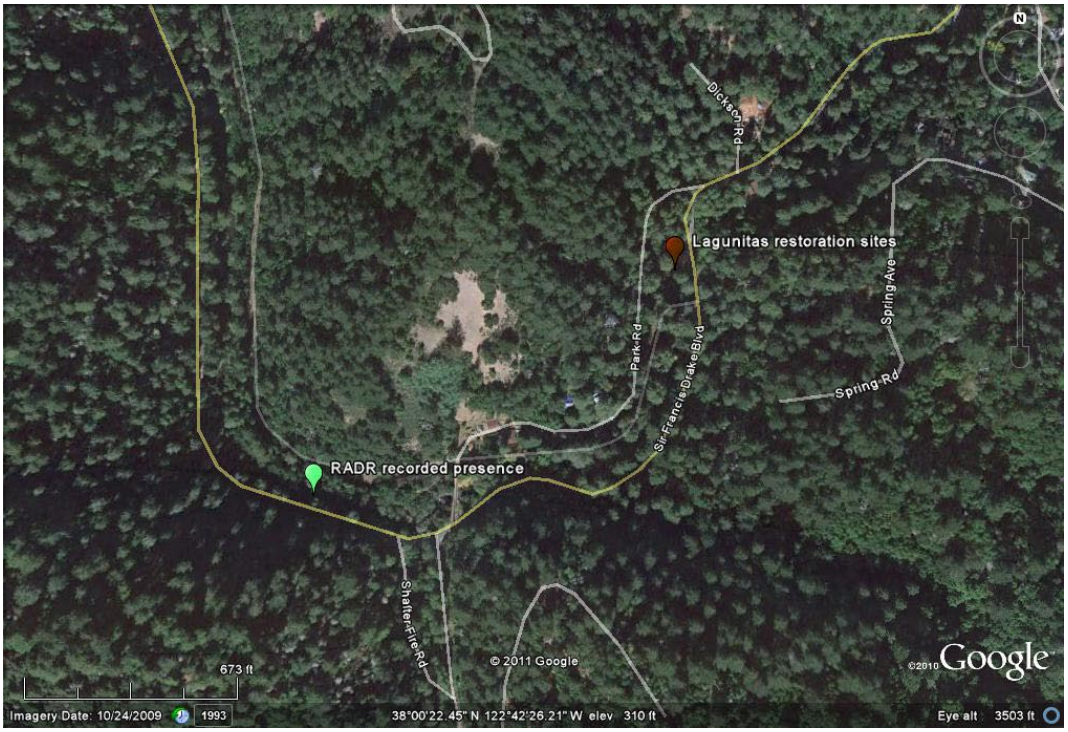
Fig 2. White site with cut bank, pool, and small submerged woody debris in the creek.

Fig 3. Dense vegetation and fallen woody debris in the riparian area on the creekbank adjacent to a project site in Lagunitas.

Appendices

B.

A satellite image of the Lagunitas project area and closest known RADR occurrence.



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