FRIENDS OF TESLA PARK | SAVE THE FROGS! | ALAMEDA CREEK ALLIANCE | SAN FRANCISCO BAY CITIZENS COMMITTEE TO COMPLETE THE REFUGE | Save Mount Diablo PRESERVE • DEFEND • RESTORE • ENJOY | SIERRA CLUB FOUNDED 1892 | SPRAWLDEF

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Public Comments Processing
U.S. Fish and Wildlife Service, MS: BPHC
5275 Leesburg Pike
Falls Church, VA 22041-3803
http://www.regulations.gov/#!submitComment;D=FWS-R8-ES-2015-0050-0001

Attn: Docket # FWS-R8-ES-2015-0050 (Foothill yellow-legged frog, *Rana boylii*)

To Whom It May Concern:

We are writing on behalf of Friends of Tesla Park in response to the USFWS call for information regarding the factors which serve as a basis to list *Rana boylii*, the Foothill yellow-legged frog (FYLF hereafter) under section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 et seq.). The signers are part of the Friends of Tesla Park alliance, a group of individuals and organizations working to preserve public wildlands in the southeastern corner of Alameda County, California, in an area commonly referred to as the Tesla park land. We recommend full protection of Foothill yellow-legged frog under the Endangered Species Act.

Public and open space lands are often-times assumed to provide sanctuary for species in decline. This letter demonstrates, using the biologically rich Corral Hollow Creek watershed (Fig. 1) as a case study, that unregulated, or under-regulated, activities on publicly owned lands can have significant, adverse impacts to FYLF. These frogs have long been known to occur in Corral Hollow Creek. Museum records of abundant FYLF populations date back to 1911 and continue through time until the last few decades[1]. The persistence of these exclusively stream-breeding frogs has become tenuous because of listing **Factor A**, the "present or threatened destruction and modification" of its fluvial habitat due to Off Highway Vehicle (OHV) use at the Carnegie State Vehicular Recreation Area (CSVRA) and proposed expansion into Tesla Park. We also highlight **Factor D**, the "inadequacy of existing regulatory mechanisms" within the California State Parks Off-Highway Motor Vehicle Recreation (OHMVR) Division to protect this species. With regard to **Factor E**, "other natural or manmade factors affecting its continued existence" we highlight the vulnerability of small and isolated populations to stochastic events that can lead to extirpation and the implications of climate change for FYLF. We have not specifically addressed **Factor B**, "overutilization", although OHV use could also apply.

[1] University of California, Berkeley Museum of Vertebrate Zoology. Available url [http://arctos.database.museum/SpecimenSearch.cfm] accessed 8/5/2015.

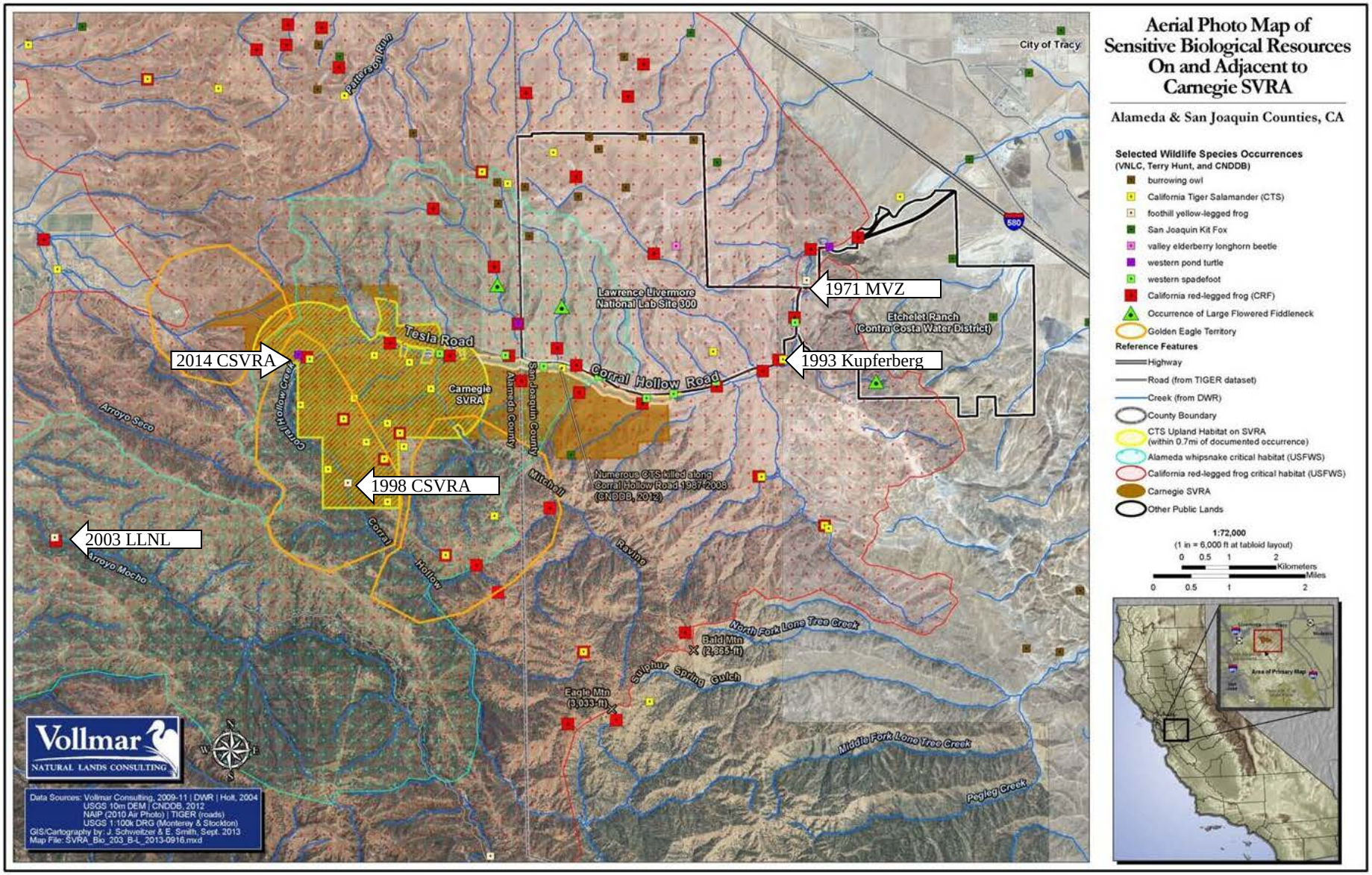


Figure 1 Locations (bold white arrows with years and observers) of Foothill yellow legged frogs observed in the Corral Hollow watershed and vicinity. Observer codes: CSVRA = Carnegie State Vehicular Recreation Area; LLNL = Lawrence Livermore National Laboratory; MVZ = Museum of Vertebrate Zoology at UC Berkeley; Kupferberg = Sarah Kupferberg personal observation/unpublished data.

Although we focus on a particular watershed, the threat posed by OHV use to this species on publicly owned land is not limited to this one locale. Similar OHV related threats occur elsewhere in the range of FYLF including Frank Raines OHV Park (Stanislaus Co. along Del Puerto Creek), Hollister Hills State Vehicular Recreation Area, and the Clear Creek area managed by the Bureau of Land Management (San Benito Co.). There are other publicly owned lands that are not specifically designated for OHV use, but where OHV use is allowed in the watersheds either currently, or historically, occupied by FYLF. Included in this category are the various US National Forests[2] (e.g. in the foothills of the Sierra Nevada). Improved regulatory mechanisms are needed to halt the decline of this species and aid its recovery in the streams and rivers flowing through public lands.

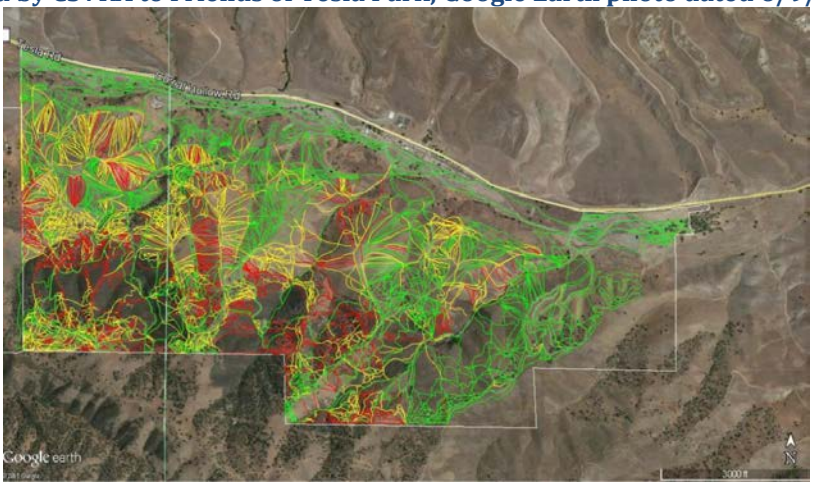
THREATS TO FOOTHILL YELLOW-LEGGED FROGS IN CORRAL HOLLOW

Multiple anthropogenic stressors are contributing to range wide declines of FYLF. Water diversion, extraction, and flow regulation pose major threats, with extirpation having occurred most frequently downstream of large dams[3], but declines have happened in free-flowing streams as well. Heavy erosion and transport of sediment to streams deteriorate conditions, can cause local extirpations[4], and subsequently isolate remaining populations.

1 SEDIMENTATION OF FLUVIAL HABITAT DUE TO OHV INDUCED EROSION

FYLF are now absent from historically occupied reaches of Corral Hollow Creek where OHV use occurs and downstream of the heavily sedimented reach. The stream reach where FYLF still occur is at risk of the same fate if OHV use expands. Twenty years ago, California State Parks purchased land upstream of the existing 1,575-acre CSVRA and is planning a 3,100-acre expansion. The present SVRA hosts at least 0.14 miles of trails per acre (Fig. 2).

Figure 2. Map view of CSVRA OHV trails and erosion status (lines shown as green, yellow, or red). GIS shapefile provided by CSVRA to Friends of Tesla Park; Google Earth photo dated 6/9/2014.



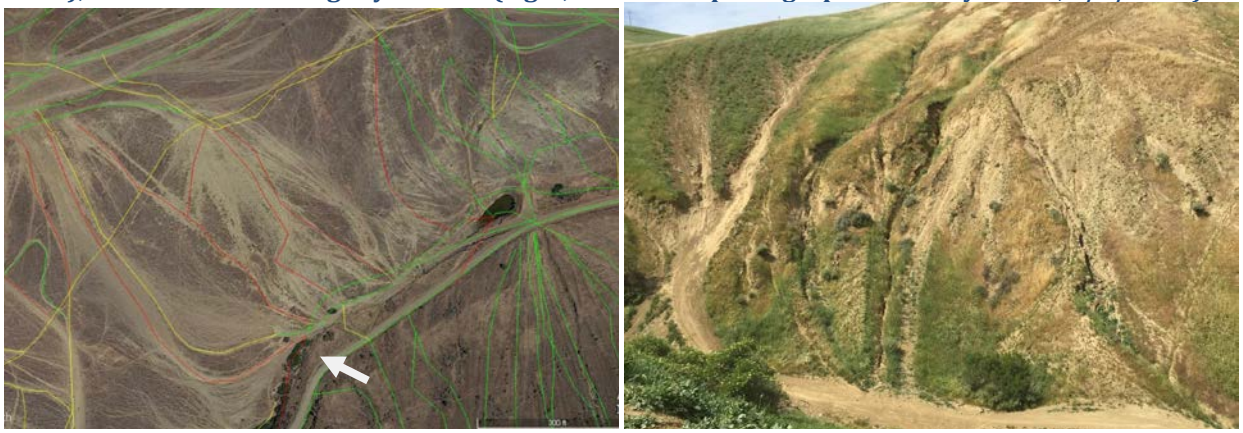
[2] See list of US National Forests with OHV use at http://ohv.parks.ca.gov/?page_id=23140

[3] Kupferberg, S. J., W. J. Palen, A. J. Lind, S. Bobzien, A. Catenazzi, J. Drennan, and M. E. Power. 2012. Effects of flow regimes altered by dams on survival, population declines, and range-wide losses of California river-breeding frogs. Conservation Biology 26:513–524

[4] Sweet, S. S. 1983. Mechanics of a natural extinction event: *Rana boylii* in southern California." Program of the 26th Annual Meeting of the Society for the Study of Amphibians and Reptiles and 31st Annual Meeting of the Herpetologists League at the University of Utah [August 7-12]. Vol. 93

Extrapolation from this estimate of density yields a prediction of at least 447 miles of new OHV trails in the expansion area (*i.e.* 0.14 miles/acre *x* 3100 acres). This linear tally and extrapolation greatly under-represents the amount of de-vegetated area prone to erosion around trails all trails, not only those designated yellow and red by CSVRA, where severe soil loss occurs (Fig. 3).

Figure 3. Map view (left) comparing CSVRA-designated trails (lines) and ratings (red, yellow, green color coding) to area of barren surfaces visible in a background aerial image (6/9/2014 Google Earth); associated hillside-gully erosion (right, location of photograph shown by arrow, 4/1/2015).



During storms, runoff bearing the fine sediment from the hillsides enters the creeks (Figs. 4, 5). The sediment buries the former stream channel, alters the channel's cross-sectional shape, and decreases the availability of suitable depth, velocity, and substrate habitats preferred by FYLF. These physical habitat features are central requirements for FYLF[5],[6]. As was noted in the Recovery Plan for California red-legged frogs regarding habitat quality in Corral Hollow

Figure 4. Pervasive hillside runoff concentrated in OHV trails where barren soils become over-saturated and erode in Carnegie SVRA (12/11/2014).

[5] Kupferberg, S. J. 1996. Hydrologic and geomorphic factors affecting conservation of the foothill yellow legged frog (*Rana boylii*). Ecological Applications 6:1332–1344.

[6] Yarnell, S. M., A. J. Lind, and J. F. Mount. 2010. Dynamic flow modeling of riverine amphibian habitat with application to regulated flow management. River Research and Applications 28: 177–191.

Creek, "off-road vehicle activities upstream … are decreasing the suitability of the ecological reserve due to high rates of sedimentation during peak stream flows"[7].

Climate change will likely exacerbate the erosion problems. Rainfall patterns are changing from a continuous rainy season that recharges ground water and sustains baseflows to droughts punctuated by intense storms generating maximum runoff and peak streamflows. 'Atmospheric river' storms, such as the one that occurred in December 2014 (Fig. 5), now contribute 80% of Bay Area annual rainfall, compared to 30-50% in the past[8]. Atmospheric rivers are bands of moisture laden air that extend across the Pacific Ocean from the tropics. Some global climate change experts, such as USGS hydrologist Mike Dettinger, predict that "under current climate scenarios, atmospheric rivers will hit Northern California twice as often by 2100 as they do now."[8]

Figure 5. Fine sediment discharge from OHV area to Corral Hollow Creek. (12/11/2014).

2 SMALL POPULATION SIZE AND ISOLATION

FYLF have been sporadically encountered in Corral Hollow Creek in Carnegie SVRA (2014[9], 1998[10], Fig. 1). Both observations were in the proposed CSVRA expansion area, upstream of the current riding area and reaches presently receiving excessively large loads of

[7] US Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). *US Fish and Wildlife Service, Portland, OR*.
[8] Rowntree, L. 2015. When it rains, it pours: historic drought and atmospheric rivers. BayNature available url [https://baynature.org/articles/when-it-rains-it-pours/] accessed 8/5/2015.
[9] DeSilva, T. and A. Meisel. 2015. 2011-2014 Habitat Monitoring Systems Report CSVRA.
[10] California Department of Parks and Recreation. 2000. Carnegie State Vehicle Recreation Area General Plan Amendment Environmental Impact Report. Livermore, CA. Prepared by Jones & Stokes. San Jose, CA.

sediment. The recent sighting was of a single juvenile, which by virtue of its size had metamorphosed the previous summer/fall. This indicates that there is likely a breeding site in the vicinity, yet no appropriately timed and geographically extensive surveys have been conducted to determine the location of the breeding site. Without such information, SVRA expansion plans cannot be modified appropriately. Indeed, specific protection of FYLF was not addressed in the 2015 Draft EIR released by CSVRA[11]. As an example of inadequate surveys, TRA Environmental Consultants conducted a survey on Oct. 17, 2013, when the reach was dry. Not surprisingly, no FYLF were detected.

FYLF were not historically sparse in Corral Hollow Creek, but their distribution appears to have become fragmented. The 2004 CSVRA Draft Multiple Species Habitat Conservation Plan (p. 6-13)[12], , UC Berkeley Museum of Vertebrate Zoology specimens from 1971 (MVZ:Herp:98194), and a survey conducted in 1993 by Dr. Sarah Kupferberg (unpublished data via personal communication) report large numbers of tadpoles downstream of what is now CSVRA. The present rarity of FYLF in Corral Hollow Creek places them at risk of extirpation. A population projection model developed for this species[13] indicates extirpation is extremely sensitive to population size. The likelihood of recolonization after extirpation in Corral Hollow Creek is low because dispersal usually follows watercourses[14] and there are barriers both upstream and downstream of the extant FYLF. Upstream, there is a ridge separating the presently occupied site from the nearest extant population 4 miles away in Arroyo Mocho[15] (Fig. 1). Carnegie SVRA represents the downstream barrier.

3 NEED FOR ESA PROTECTION & IMPLEMENTATION OF CONSERVATION GUIDELINES

ESA protection of FYLF would improve the implementation of conservation guidelines. The Draft Multiple Species Habitat Conservation Plan from 2004 was never adopted. Current CSVRA Best Management Practices for ongoing operations, and the Natural Resource Management Guidelines in CSVRA's Preliminary General Plan and Draft EIR released in 2015 are insufficient to avoid or minimize impacts on FYLF because the buffer zone along Corral Hollow Creek is too narrow. Furthermore, tributaries are not protected from OHV use and crossings are allowed. Connectivity to seeps and off-channel water bodies is not accounted for. The Preliminary General Plan assertion that a 'Limited Recreation Area' (≤ 150 feet on one or the other side of Corral Hollow Creek) would protect FYLF ignores the scientific literature about movement and dispersal in this species. It has long been known

[11] Carnegie State Vehicular Recreation Area. 2015. General Plan Revision, Draft Environmental Impact Report, State Clearinghouse Number 2012052027. Available url accessed 8/3/2015 [http://carnegiegeneralplan.com/announcements/22]

[12] CSVRA 2004. General Plan Amendment, Draft multiple species Habitat Conservation Plan. prepared by HDR Aug. 2004. Received via Public Records Act Request by Friends of Tesla Park.

[13] Kupferberg, S. J., A. J. Lind, and W. J, Palen. 2009. Pulsed flow effects on the Foothill yellow-legged frog (*Rana boylii*): Population modeling. Final Report. California Energy Commission, PIER. Publication number 500-09-02a. 80 pp. Available url accessed 6/27/2015 [http://www.fs.fed.us/psw/publications/lind/lind(KupferbergCEC-500-2009-xxx).pdf]

[14] Bourque, R. M. 2008. Spatial ecology of an inland population of the Foothill yellow-legged frog (*Rana boylii*) in Tehama County, California. MS Thesis, California State University, Humboldt. 93 pp.

[15] California Natural Diversity Database

that juveniles disperse away from natal streams and have been caught up to 600 feet away from a stream channel[16]. FYLF use small tributaries and seeps[17] and move from hundreds to thousands of meters in dendritic stream networks[18]. Development of a recovery plan for FYLF would ground guidelines in science.

4 CRITICAL HABITAT AND DISTINCT POPULATION SEGMENT

We believe that Corral Hollow Creek should be designated as critical habitat for FYLF given the location of the watershed within the species' geographic range and the potential for recovery in the publicly owned land if the expansion area can be designated as a preserve with no OHV use. At the latitude of the watershed, 37.6°, Lind[19] estimated that the frogs were missing from more than two thirds of historically occupied sites (Fig. 6). Analysis of mitochondrial DNA data strongly suggests that populations of FYLF at this latitude and further south in the Central California Coast Range constitute a distinct genetic lineage[20]. Samples from the nearby population in Arroyo Mocho were part of Lind et al.'s "Clade D", and we assume Corral Hollow frogs would fall in this lineage.

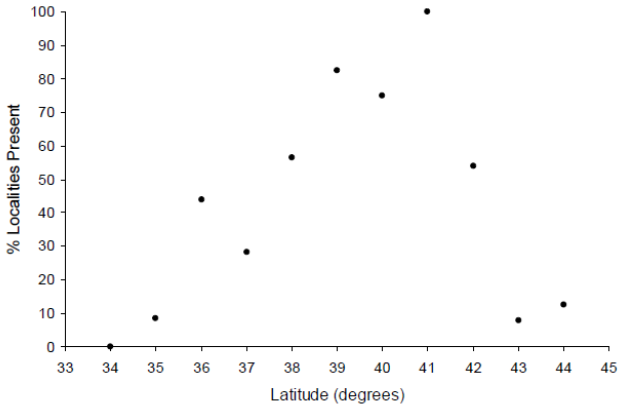


Figure 6. Percent of historic localities with FYLF present in relation to latitude (from Lind 2005).

We urge the USFWS to facilitate research efforts using contemporary nuclear DNA analysis techniques to verify that the Corral Hollow Creek population of FYLF is part of a Distinct Population Segment. Ryan Peek, Ph.D. candidate at UC Davis, is currently working on a project to extend the work of Lind et al.[16] using the same samples which have been maintained in a frozen archive. The most difficult aspect of the project is the logistics of collecting new tissue samples from additional populations of FYLF to fill in geographic sampling gaps. FYLF are often in remote and difficult to access locations. The listing process, status review, and assembly

[16] Twitty, V., D. Grant, and O. Anderson. 1967. Amphibian orientation: An unexpected observation. Science 155: 352–353.
[17] Gonsolin T. E. 2010. Ecology of foothill yellow-legged frogs in upper Coyote Creek, Santa Clara County, CA. State University of California, San Jose. MS Thesis. 110 pp; Rombough, C. J. 2006. Wintering habitat use by juvenile foothill yellow-legged frogs (*Rana boylii*): the importance of seeps. Northwestern Naturalist 87: 159.
[18] Bourque, R. M. 2008. Spatial ecology of an inland population of the Foothill yellow-legged frog (*Rana boylii*) in Tehama County, California. MS Thesis, California State University, Humboldt.
[19] Lind, A. J. 2005. Reintroduction of a declining amphibian: determining an ecologically feasible approach for the foothill yellow-legged frog (*Rana boylii*) through analysis of decline factors, genetic structure, and habitat associations. Doctoral dissertation, University of California, Davis.
[20] Lind, A. J., P. Q. Spinks, G. M. Fellers, and H. B. Shaffer. 2011. Rangewide phylogeograpy and landscape genetics of the Western U. S. endemic frog *Rana boylii* (Ranidae): implications for the conservation of frogs and rivers. Conservation Genetics 12:269-284.

of a working group of scientists and public land managers could provide a unique opportunity to expedite the collection and delivery of tissue samples to Mr. Peek. An accurate assessment of Distinct Population Segments could be produced relatively quickly given a coordinated effort.

An additional geographic reason for designating the Tesla area as Critical Habitat is its location in both an east-west corridor connecting the xeric San Joaquin Desert biome and the mesic biome of the East Bay Hills and a north-south corridor in the Diablo Range (Fig. 7). If the Corral Hollow population of FYLF recovers under ESA protection, it could serve as a genetically appropriate source population for reintroduction efforts to historic localities in Contra Costa county in watersheds in the Mount Diablo area[21,22].

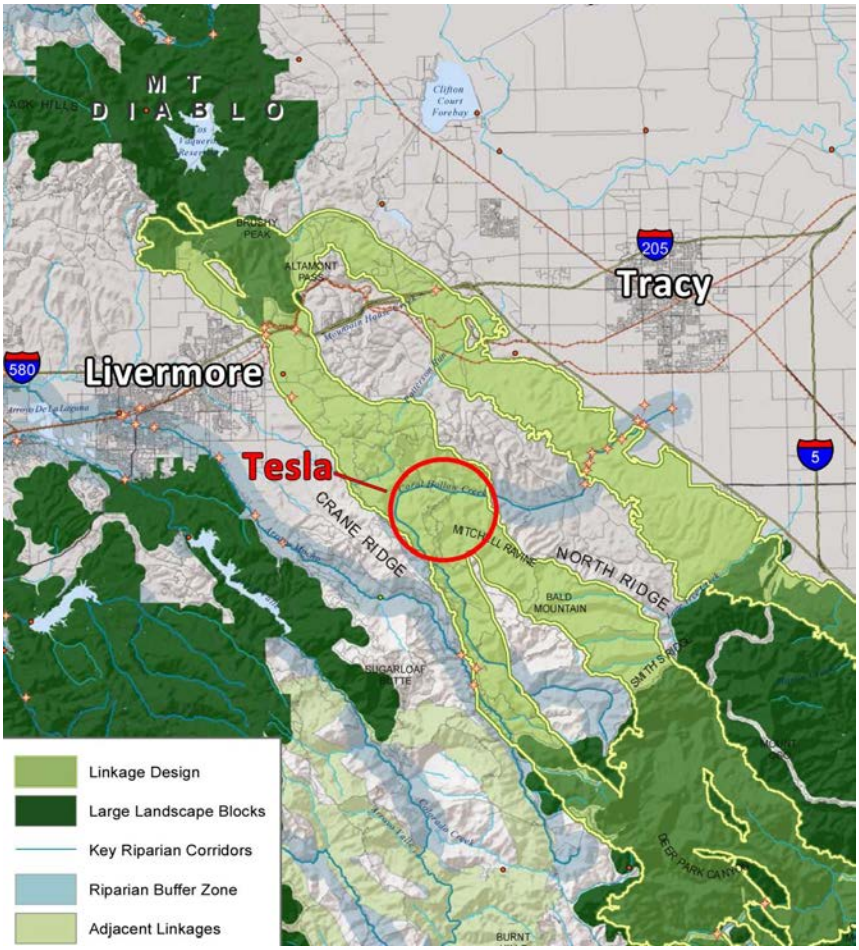


Figure 7. The red circle shows the location of the Tesla Park area (CSVRA expansion area) in a designated critical wildlife linkage corridor[23] between watersheds in Contra Costa Co. and on Mt. Diablo where FYLF are presumed extirpated to the Arroyo Mocho and Corral Hollow watersheds where the frogs are extant. Image reproduced and modified from Penrod et al. 2013.

[21] University of California, Berkeley, Museum of Vertebrate Zoology. Specimen #60187 availabel url [http://arctos.database.museum/guid/MVZ:Herp:60187] accessed 8/11/2015.

[22] Jennings, M.R. and M.P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. Final Report submitted to the California Department of Fish and Game, Inland Fisheries Division. Contract No. 8023. 255 pp.

[23] Penrod, K., P.E. Garding, C. Paulman, P. Beier, S. Weiss, N. Schaefer, R. Branciforte and K. Gaffney. 2013. Critical Linkages: Bay Area & Beyond. Produced by Science & Collaboration for Connected Wildlands, Fair Oaks, CA

5 CONCLUSION

Thank you for the opportunity to share our observations of a significant threat to FYLF that exists on publicly owned lands and should be taken into consideration when developing conservation strategies and making a listing determination under the Endangered Species Act. The examples provided from CSVRA illustrate the significant threats to FYLF posed by OHV use. Because the management practices we have highlighted are OHMVR Division state-wide policies, it must be assumed that similar risks exist throughout the species range in California where OHV use occurs. If FYLF were protected by the Endangered Species Act, management of OHV use and expansion of OHV use into sensitive areas could be more effectively regulated.

Given this case study and other information about the species, we urge USFWS to provide full protection to Foothill yellow-legged frog under the Endangered Species Act including: (1) conducting a full status review of FYLF; (2) listing FYLF as threatened or endangered; and (3) designating the Corral Hollow Creek watershed as part of the Critical Habitat needed to maintain what will likely prove to be a Distinct Population Segment.

Please contact us at Friends of Tesla Park, 3053 Marina Road, Livermore, CA 94550, Friendsofteslapark@gmail.com, for questions or information regarding this letter.

Sincerely yours,

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