



Conservation Biology Institute

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July 16, 2015

Ms. Laurel L. Impett
Shute, Mihaly & Weinberger LLP
396 Hayes Street
San Francisco, CA 94102-4421

RE: Village at Squaw Valley Specific Plan DEIR—review of impacts to Sierra Nevada yellow-legged frog (SNYLF)

Dear Laurel:

The Conservation Biology Institute (CBI) is a 501(c)3 organization that works collaboratively to conserve biological diversity in its natural state through applied research, education, planning, and community service. CBI's extensive partner network includes academic institutions, state and federal agencies, and other non-profit environmental organizations. CBI combines strengths across multiple disciplines ranging from conservation planning to habitat management and monitoring to ecological modeling of species populations, landscape connectivity, climate change, and fire.

I have reviewed the referenced document and submit these comments specifically on impacts to and mitigation for the Sierra Nevada yellow legged frog (SNYLF, *Rana sierrae*) and its habitat. My analyses have been informed through discussion with Dr. Tom Myers, hydrological consultant, and review of his Technical Memorandum on impacts to the Olympic Valley aquifer, as well as through discussion with Dr. Roland Knapp of the University of California Sierra Nevada Aquatic Research Laboratory, who is a leading expert on SNYLF. My comments are presented within the regional context of the Conservation Assessment for the mountain yellow-legged frog (Brown et al. 2014) and the forthcoming Conservation Strategy for the mountain yellow-legged frog.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Stallcup". The signature is fluid and cursive, with the first letter of the first name being a large, stylized capital "J".

Jerre Ann Stallcup, M.A.
Conservation Ecologist

Impact Assessment

The DEIR incorrectly states that disturbances to SNYLF and its habitat—development, increased groundwater pumping, and creek restoration—will be less than significant. However, Myers' hydrology analysis concludes that there *will* be significant impacts to wetland and aquatic habitat as a result of groundwater drawdown. These habitats are proposed Critical Habitat for SNYLF, which requires a mosaic of aquatic habitats and an intact aquatic food web for the species' various life history stages (eggs, larvae, metamorphs, and adults) as well as for potential dispersal. Thus, the development would adversely impact proposed SNYLF Critical Habitat—the area considered essential for the conservation of a threatened or endangered species. The DEIR does not require precautionary monitoring measures for all stages of the species' life cycle, only for adults, or for potential impacts to aquatic habitat and the aquatic food web. The proposed removal of fish barriers will decrease the potential habitat available for SNYLF, by allowing nonnative predatory fish to access new habitat, and should be considered a significant impact that is not mitigated.

The DEIR considers only the direct impacts of the proposed project on SNYLF. It does not consider the synergistic indirect effects of habitat loss, fragmentation, groundwater drawdown, changes in water quality and sedimentation as a result of development and operation, disease, increased recreation, and climate change. It does not acknowledge the potential regional impacts to connectivity between subpopulations of SNYLF in the vicinity of, but outside of, the project site. For example, SNYLF has been found upstream of and south of the project site as recently as 1999 and 2004. Therefore, the project has the potential to reduce connectivity between these subpopulations, and SNYLF populations are thought to function as metapopulations, where connectivity between subpopulations is essential to species persistence. The DEIR does not consider the significance of the metapopulation in this location to the long-term persistence, genetic diversity, connectivity, and recovery of the species on a regional level, or the cumulative impacts to *Rana sierrae* from this project in the context of impacts across its range. This is unacceptable for a species that is vulnerable to extinction.

Mitigation

The proposed project and mitigation, while potentially avoiding take of individuals, does not include measures outlined in the Conservation Assessment (Brown et al. 2014), the best available science for the species. The Conservation Assessment identifies the genetic variability throughout the species' range and the need to protect connecting habitat among genetic subunits. The mitigation plan does not consider contribution to conservation of the metapopulation or the species as a whole. The region west of Lake Tahoe is in the middle of the species' distribution, and there are very few, if any, individuals formally conserved in this region of Critical Habitat. Losing any populations in this area could result in disjunct populations to the north and south, with no potential for genetic connectivity.

The mitigation plan for impacts to Squaw Creek wetlands proposes to create brown trout refuge habitat as a target for restoration; the brown trout is a predator of SNYLF. Therefore, if successful, this restoration would actually cause greater impacts to *Rana sierrae*. The proposed mitigation does not account for the exacerbating impacts of climate change and other anthropogenic impacts on the SNYLF,

and the mitigation will not restore the structure and function necessary to support the native ecosystem characteristics of the Squaw Creek watershed. To mitigate significant impacts to SNYLF and its habitat, the project should implement measures described in the Conservation Assessment, which identifies recovery options to be presented in the forthcoming Conservation Strategy (Forest Service, in preparation).

Conservation Strategy

Final decisions on impacts and mitigation for this project should be deferred until release of the Conservation Strategy for this species. Conservation options to be presented in the forthcoming Conservation Strategy include management at multiple scales for multiple life history stages, requiring a mosaic of habitat types. Management strategies include removal of fish in priority basins, restoration and enhancement of habitat requirements, and (potentially) translocation of frogs. The Conservation Strategy considers the existing genetic variability throughout the species' range and the need to protect connecting habitat among genetic subunits. It will identify specific research needs relative to dispersal, the amphibian chytrid fungus, effects of airborne contaminants, and potential impacts of recreational activities and vegetation management, e.g., for fire.

Literature Cited

- Brown, C., M.P. Hayes, G.A.Green, and D.C. Macfarlane. 2014. Mountain yellow-legged frog conservation assessment for the Sierra Nevada mountains of California, USA. A collaborative inter-agency project by USDA Forest Service, California Department of Fish and Wildlife, National Park Service and US Fish and Wildlife Service. RS-TP-038. July.
- Myers, T. 2015. Technical Memorandum—review of draft environmental impact report, Village at Squaw Valley. Prepared for Sierra Watch.