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John Thompson
C/o Paraiso Resort LLC
PO Box 1925
Horsham, PA 19044.

RE: PARAISO SPRINGS 2016 CALIFORNIA TIGER SALAMANDER AND CALIFORNIA RED-LEGGED FROG HABITAT ASSESSMENT - SUPPLEMENTARY UPDATE

Dear John:

This letter-report presents the results of the supplementary California tiger salamander (CTS) (*Ambystoma californiense*) and California red-legged frog (CRF) (*Rana draytoni*) habitat assessment update performed at the pond, in Paraiso Springs, at your request. The intent of the assessment was to provide a qualitative evaluation of the habitat conditions at the pond, from the time when the pond was surveyed for CTS and CRF from 2008 - 2010 (Bryan Mori Biological Consulting Services 2008; Bryan Mori Biological Consulting Services 2009; Bryan Mori Biological Consulting Services 2010).

Methods

A visual assessment of the pond was performed on 14 April 2016. Photographs were taken and water depths were measured, but no aquatic sampling was conducted.

Results

The pond was nearly dry, except for 3 - 4 small puddles ranging from 6" to 8" deep. The water was tinted dark-amber, but clear. Essentially no living vegetation was present on the pond bottom or within the high-water mark around the shoreline. The substrate within the pond basin consisted primarily of decomposed plant material. No amphibians or aquatic invertebrates were observed in the shallow pools. Photographs 1 – 3 depict the pond from various views.



Photo 1. View of the pond looking westward. Note the lack of surface water and vegetation in the pond basin.



Photo 2. View of the western end of the pond, where water was present in small, shallow pools.



Photo 3. The western end of the pool from a different angle. Note the dead stalks of cattails

Discussion

Habitat. Despite the heavy rainfall during the 2015-16 winter, where 13 inches were recorded at Paraiso Springs (J. Thompson, pers. comm.), water was lacking at the pond and did not provide breeding habitat for amphibians. The lack of water was somewhat surprising, given that the quantity of surface water was greater in 2010, with less rainfall. This inconsistency can be explained, since water from the recreational pools is no longer regularly discharged into the “pond”, and the pond only receives water from the swimming pools after cleaning operations (J. Thompson, pers. comm.). Presumably, the water table beneath the pond has become lower, over time, with less inflow. Without supplemental inflow from the swimming pools, the aquatic conditions observed at the pond during this field assessment may be more representative of normal conditions in this arid region, where rainfall averages around 7 inches per rain year. Drought over the previous 3 years also could have influenced water retention at the pond this year. Regardless, the conclusion drawn from the previous studies at the pond, that the pond is too seasonal to provide viable CTS and CRF breeding habitat, is supported by the aquatic conditions observed during this assessment.

Water Quality. No water quality measurements were collected to assess the acidic conditions at the pond, as this was beyond the scope of this site visit. Pacific chorus frog (*Pseudacris regilla*) adults, metamorphs or tadpoles, however, were not observed in the remaining shallow pools of the pond. Since treefrogs were observed during the 2010 survey, and based on the current lack of living vegetation observed within the pond basin, the acidic conditions

previously observed at the pond have likely worsened during the recent drought years, becoming more concentrated with the lack of rainfall and thus discouraging amphibian use. Irrespective of surface water retention, the pond continues to be unsuitable for CTS and CRF breeding, since it functions as a detention basin for pool cleaning wash.

In summary, the pond does not provide suitable habitat to support a breeding population of CTS and CRF, due to the ephemeral nature of the pond, together with the presumably low pH levels when water is present.

If you have any comments or questions regarding this update, please contact me anytime.

Sincerely,

Bryan Mori
Wildlife Biologist

REFERENCES

Bryan Mori Biological Consulting Services. 2010. Paraiso Springs California Tiger Salamander 2010 Spring Survey Results. Prepared for John Thompson, Paraiso Hot Springs Resort.

_____. 2009. Paraiso Springs California Tiger Salamander 2009 Spring Survey Results. Prepared for John Thompson, Paraiso Hot Springs Resort.

_____. 2008. Paraiso Springs California Tiger Salamander 2008 Spring Survey Results. Prepared for Patrick Regan, Rana Creek Environmental Planning.