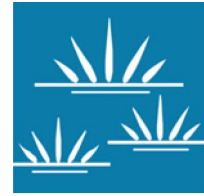


TECHNICAL MEMORANDUM

GLENN LUKOS ASSOCIATES

Regulatory Services



PROJECT NUMBER: 11150006WOOD
TO: Thomas DiPrima
FROM: Tony Bomkamp and Stephanie Cashin
DATE: August 6, 2024
SUBJECT: Summary of Western Spadefoot Toad Surveys in 2023 and 2024 at NorthLake Project Site, Los Angeles County, California

Biologists from Glenn Lukos Associates (GLA) conducted surveys for the western spadefoot toad (*Spea hammondi*) (WST) during the 2022/2023 and 2023/2024 rainfall seasons to document status within areas of potential habitat at the NorthLake Project Site (Project Site). As described below, for each of the survey seasons, WST was detected in three existing features within the Project Site where WST had been detected previously. The occupied features are depicted on Exhibit 1 [Pond Map]. The three features are designated as Cattle Pond, Pond 1, and Pond 2. Exhibit 2 [Site Photographs] depicts representative photographs from both the 2023 and 2024 surveys. Table 1 below summarizes the survey dates, weather, and presence/absence of WST for each of the survey seasons.

Table 1. Summary of Western Spadefoot Surveys

Survey Date	Biologist ¹	Start/End Time	Start/End Temperature (degree F)	Start/End Wind Speed (mph)	Cloud Cover (%)	Western Spadefoot Detected
04/27/2023	JA, SC, JF	0700-1500	65-83	3-5/0-1	Clear	Yes
04/03/2024	SC, CW	0930-1230	64-75	1-2/2-5	Clear	Yes
05/15/2024	SC, CW	1300-1400	70-70	0-5/0-5	Clear	Yes

¹ Jeff Ahrens (JA), Stephanie Cashin (SC), Jason Fitzgibbon (JF), Chris Waterston (CW).

2023 Western Spadefoot Survey Results

On April 27, 2023, GLA biologists, Jeff Ahrens, Stephanie Cashin, and Jason Fitzgibbon, conducted a focused survey for the WST at three previously documented ponded features known to support WST. GLA biologists also inspected potentially suitable habitat for WST when encountered. The 2022-2023 rainfall year was above average measuring 24.06 inches¹. Above average rainfall damaged access roads within the Project Site and delayed earlier survey efforts to the previously documented

¹ <https://dpw.lacounty.gov/wrd/rainfall/>

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ponded features. However, WST were detected at all three ponded features on April 27, 2023. Details regarding the WST the previously documented ponded features are below.

Cattle Pond

The Cattle Pond is a large shallow basin, which inundates during the rainy season. During the survey, the feature contained mostly open water with bare soil edges and sporadic mulefat (*Baccharis salicifolia*) along the edges [Exhibit 2, Photograph 1 and 2]. On April 27, 2023, the Cattle Pond had dried significantly with remaining surface water measuring 20 meters by 13 meters, eight centimeters deep, on average, and 15 centimeters at the deepest point. Clay was saturated below the surface and measured at least 30 cm in depth. The water was turbid, which made the estimation of WST individuals difficult. WST tadpoles were observed coming up for air at surface and diving into deeper water.

Biologists Stephanie Cashin and Jason Fitzgibbon walked the pond edge to search for WST. While walking the pond edge, WST metamorphs were observed hopping from the edge into vegetation and additional metamorphs were observed emerging from deep soil cracks along the edges [Exhibit 2, Photograph 4]. Gosner stage (Gosner, 1960)² was visually estimated and recorded as a range for each cohort. The metamorphs retained a small tail that wrapped close to the body (Gosner stage 44-45). Biologist Jeff Ahrens conducted dip netting near the center to confirm WST presence. Dip netting was conducted for 15 minutes with 25 WST tadpoles (Gosner stage 26-35) observed that appeared to be from the same cohort with all individuals with an estimated length of nine cm. No other amphibian species was detected.

Pond 1

Pond 1 is a shallow round depression measuring approximately ten meters by eight meters with transparent open water, an average of ten centimeters deep with portions up to 30 centimeters. The edges of the pond were vegetated predominately with common spike rush (*Eleocharis marchrostachya*) [Exhibit 2, Photograph 5]. The pond is surrounded primarily by grassland habitat, including annual bromes (*Bromus* spp.) and slender wild oat (*Avena barbata*). The WST population was estimated visually using an average of three counts which were then rounded to the nearest one hundred. An estimated 1,000 WST tadpoles, appearing to be from three cohorts, were detected in Pond 1. Approximately half of this total appeared to be from the oldest and largest cohort measuring approximately 9 cm with some having well developed hind legs (Gosner 31-41). The tadpoles were observed in several dense congregations and others were evenly distributed throughout the pool. Some WST tadpoles were also observed surfacing for air from deeper areas [Exhibit 2, Photograph

² Gosner, K. L. (1960) A Simplified Table for Staging Anuran Embryos and Larvae with Notes on Identification. *Herpetologica*, 16, 183-190.

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6]. Additionally, an estimated 400 non-aquatic metamorphs were detected roaming within the vegetation and emerging from soil cracks of the previously wetted pond edge.

Pond 2

Pond 2 was dry on April 27, 2023. Pond 2 is also a shallow round depression surrounded by grassland and supports patches of common spike rush [Exhibit 2, Photograph 7]. Near the center and presumably the deepest location of the pond, an estimated 400 desiccated WST tadpoles were observed [Exhibit 2, Photograph 8]. Additionally, an estimated 100 WST toadlets, less than 2.5 cm, were observed within and emerging from soil cracks within the depression.

2024 Western Spadefoot Survey Results

On April 3 and May 15, 2024, GLA biologists, Stephanie Cashin and Chris Waterston, conducted a focused survey for the WST at three previously documented ponded features known to support WST (the same features as 2023). The 2023-2024 rainfall year was above average measuring 19.24 inches (*Castaic Fire Station, Los Angeles Public Works*). For a second consecutive year, above average rainfall damaged access roads to the ponded features and delayed earlier survey efforts. As with the 2023 surveys, WST were detected at all three ponded features. No additional features with WST were detected in 2024. Details regarding each of the previously documented occupied features are below.

Cattle Pond

On May 15, 2024, the Cattle Pond was dry, but evidence of ponding during the 2024 rain season was observed with mud visible in the deep soil cracks and cow hoofprints. The pond was walked in meandering transects to detect presence of WST, hydrology, and vegetation cover. No surface water was observed. Approximately 40 WST metamorphs were detected roaming in vegetation and emerging from soil cracks in the depression, suggesting there were likely 100s [Exhibit 2, Photograph 9].

Pond 1

On April 3, 2024, Pond 1 was observed to be inundated to approximately half of the maximum ponding observed in 2023. An approximate six- by five-meter area of shallow, clear, open water that supported patches of common spike rush was observed [Exhibit 2, Photograph 10]. An estimated 600 WST tadpoles from three cohorts were detected in Pond 1 [Exhibit 2, Photograph 11]. The smallest WST tadpoles were similar in size to the co-occurring Baja California treefrog (*Pseudacris hypochondriaca*) tadpoles.

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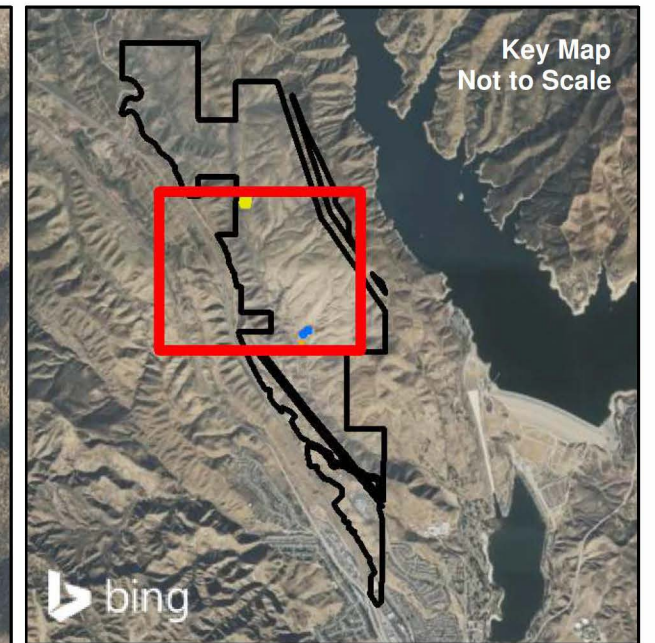
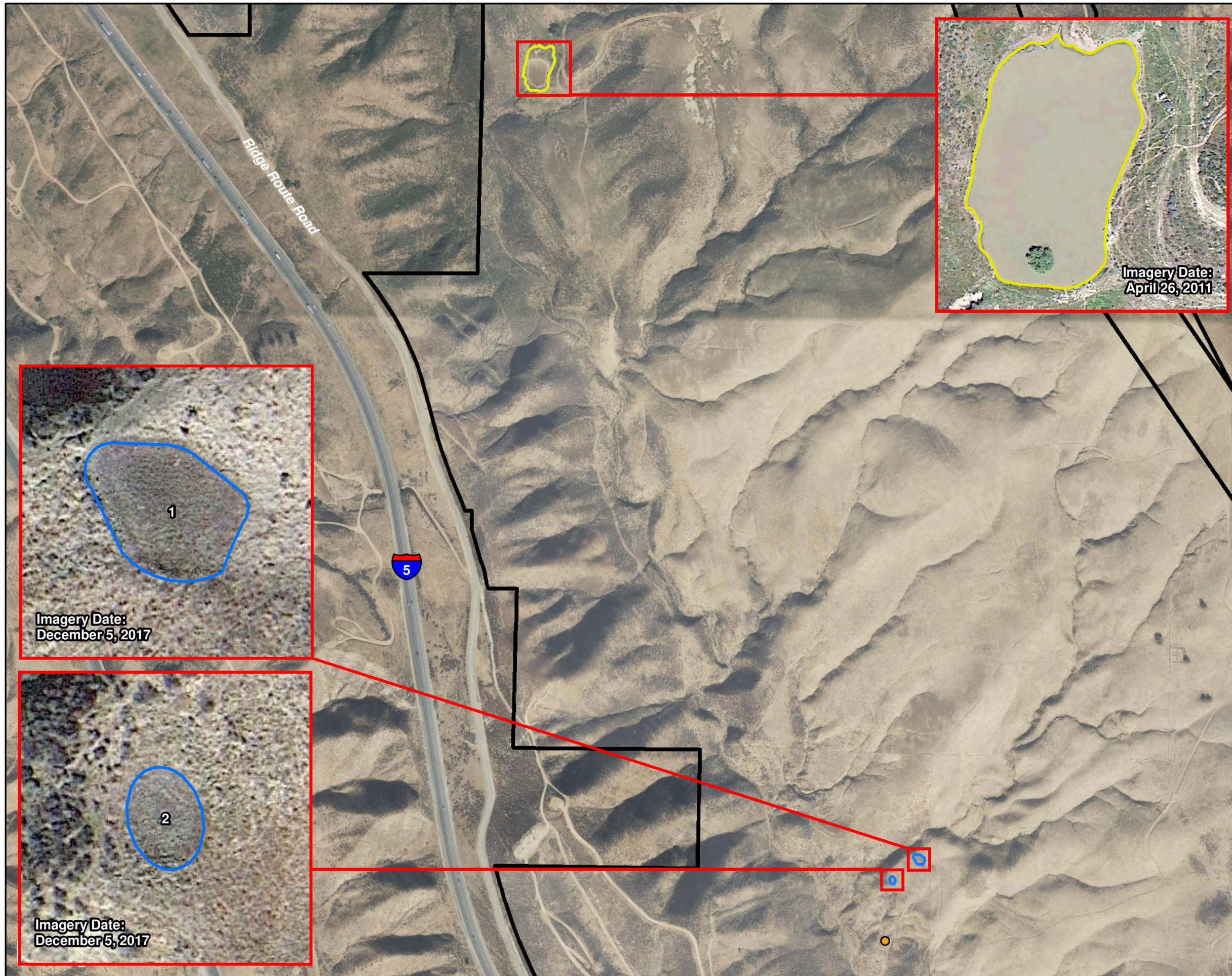
Pond 2




On April 3, 2024, inundation was observed within Pond 2. An approximate six- by five-meter shallow, turbid pond was observed, which supported patches of common spike rush [Exhibit 2, Photograph 12]. An estimated 350 WST tadpoles appearing to be from two cohorts were detected in Pond 2 [Exhibit 2, Photographs 13 and 14]. Approximately 300 of the individuals appeared to be from the oldest and largest cohort, which measured approximately 9 cm. A few individuals were observed to have well developed hind legs (Gosner 31-41). The second, smaller cohort was approximately half the size of the larger cohort at five cm. No other amphibian species were detected in Pond 2.

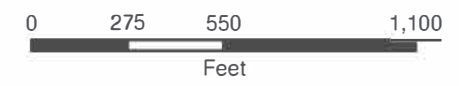
Discussion and Conclusion

GLA biologists detected WST at three locations during two above average rainfall seasons (2022-2023, 2023-2024). Surveys were delayed due to access issues both years; however, WST were detected at all known locations as documented in *Western Spadefoot Toad (Spea hammondi) Impact Assessment and Habitat Mitigation and Monitoring Plan (GLA April 2024)* during both years. Given the survey delays within the earlier portion of the survey season, population estimates varied between each ponded feature, but consistent detection suggests the populations appear stable at each feature.

The WST population estimates for the Cattle Pond were difficult to quantify as this pond dried faster and earlier in the year than the two smaller ponds and the water was turbid. The detection of WST at the Cattle Pond was low; however, metamorphs were quickly detected during both years. Given the Cattle Pond dries faster than Ponds 1 and 2, WST development may be accelerated in the Cattle Pond. The Cattle Pond is larger than the other two ponds with more soil cracks available for WST refuge; therefore, the number of metamorphs hiding in the cracks is likely much higher than were detected. The detection of WST at Pond 1 yielded the highest consistent detection from 500s to low 1,000s and multiple cohorts were observed co-occurring. Pond 1 appears to remain inundated longer than Pond 2; therefore, it may support a larger population of WST larvae, allowing multiple cohorts to metamorphose. Pond 1 was observed to support multiple cohorts and Baja California treefrog during both years. During the 2024 Pond 2 survey, the WST tadpoles were primarily from one cohort and of similar size to Pond 1's oldest cohort. As mentioned above, Pond 2 appears to dry faster than Pond 1, as it exhibited half the surface area compared to Pond 1 in 2024 and completely dry during the 2023 visit. However, Pond 2 remained inundated long enough, in both years, to produce at least one cohort, given the numerous metamorphs detected in 2023 and the late-stage tadpoles observed in 2024. Although Pond 1 appears to have the ability to support more WST larvae, both ponds are sufficiently proximate to each other to function as a single population that is likely supporting hundreds to low 1,000s of WST metamorphs during above average rainfall years.



-  Project Location
-  Cattle Pond: 0.80 acre
-  Pond
 - #1: 0.06 acre
 - #2: 0.02 acre



1 inch = 550 feet

Coordinate System: State Plane 5 NAD 83
 Projection: Lambert Conformal Conic
 Datum: NAD 1983 2011
 Map Prepared by: B. Gale, GLA
 Date Prepared: May 10, 2022

NORTHLAKE SPECIFIC PLAN
 Pond Map

GLENN LUKOS ASSOCIATES 

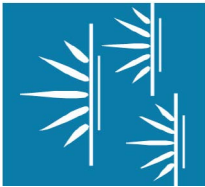
Exhibit 1



Photograph 1: Depicts the Cattle Pond, facing approximately west, on April 27, 2023.



Photograph 2: Depicts a closer view of wet portion of Cattle Pond, facing approximately north, on April 27, 2023.



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Exhibit 2 – Page 1

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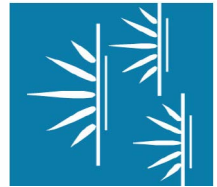
Site Photographs



Photograph 3: Depicts western spadefoot (*Spea hammondi*) metamorph with tail (Gosner 44), approximately 2.5 cm long, detected in Cattle Pond and placed temporarily into white basin for photograph then released on April 27, 2023.



Photograph 4: Depicts western spadefoot metamorphs emerging from soil crack of Cattle Pond on April 27, 2023.



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Exhibit 2 – Page 2

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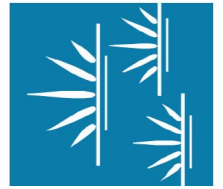
Site Photographs



Photograph 5: Depicts Pond 1 with transparent open water and emergent common spike rush (*Eleocharis machrostachya*) on April 27, 2023.



Photograph 6: Depicts western spadefoot in Pond 1 with an estimated 100, 9 cm long tadpoles (Gosner 36-39) and 12 metamorph (Gosner 42-44). Additionally, 300-500 non-aquatic metamorphs (Gosner 44-46) were free moving in vegetation or emerging from soil cracks around pond on April 27, 2023.



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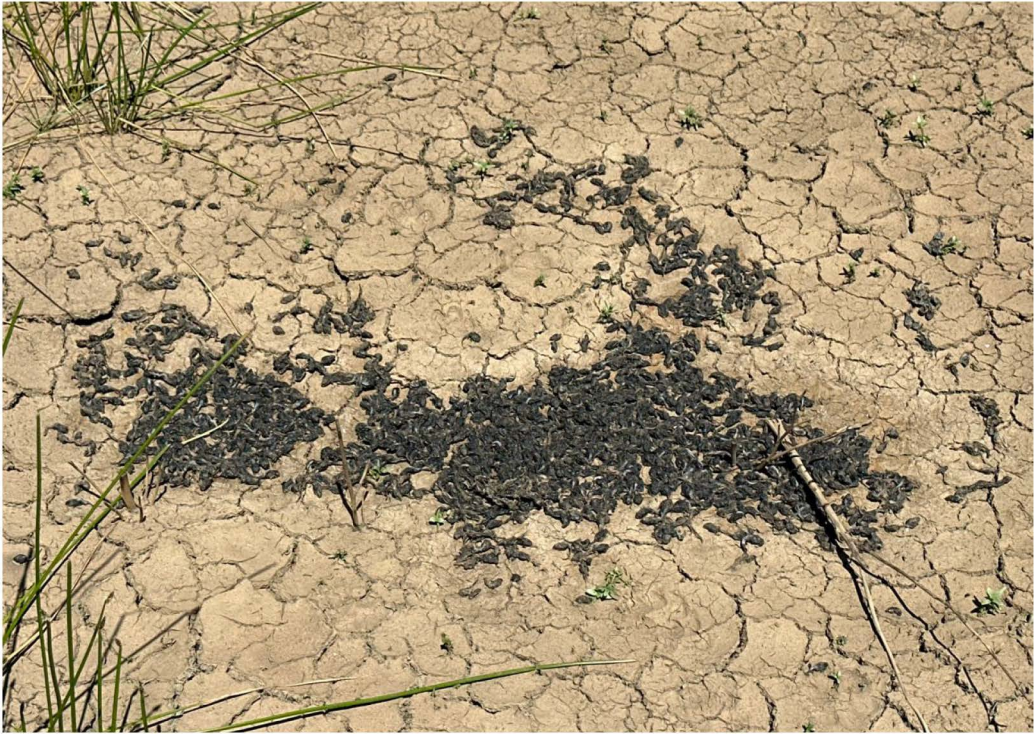
Exhibit 2 – Page 3

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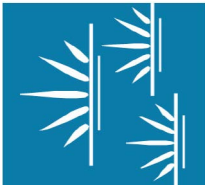
Site Photographs

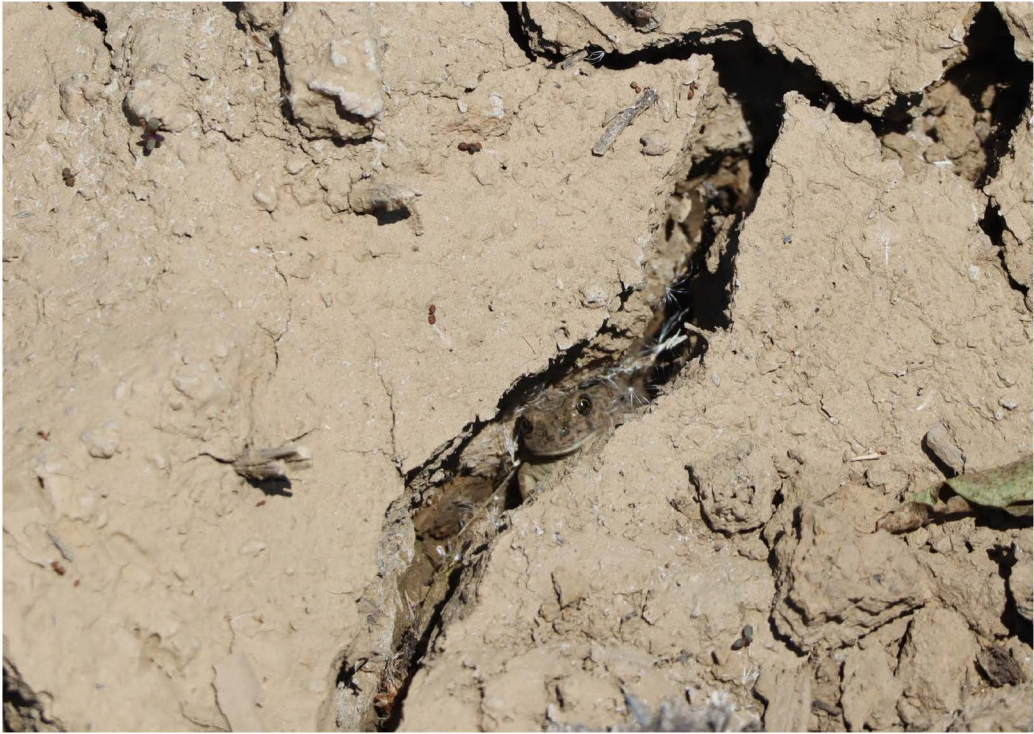


Photograph 7: Depicts Pond 2 dry on April 27, 2023.



Photograph 8: Depicts dead western spadefoot tadpoles near center of Pond 2 on April 27, 2023. Additionally, approximately 100 non-aquatic metamorphs (Gosner 44-46) were free moving in vegetation or emerging from soil cracks around pond.

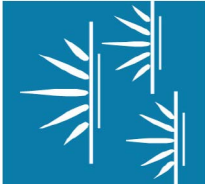




Photograph 9: Depicts Western spadefoot metamorph hiding in a soil crack within the Cattle Pond on May 25, 2024



Photograph 10: Depicts Pond 1 on April 3, 2024.



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Exhibit 2 – Page 5

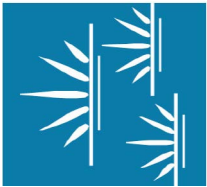
NORTHLAKE PROJECT
Site Photographs



Photograph 11: Depicts dozens of western spadefoot tadpoles (Gosnar 31-41) in Pool 1 on April 3, 2024. Three cohorts of spadefoot tadpoles were observed and Baja California treefrog (*Pseudacris hypochondriaca*) tadpoles were observed.



Photograph 12: Depicts dozens of western spadefoot tadpoles in Pond 2 on April 3, 2024.



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Site Photographs



Photograph 13: Depicts western spadefoot tadpoles congregating at pond edge in warm shallow water on April 3, 2024



Photograph 14: Depicts an additional view of western spadefoot tadpoles in Pond 1 on April 3, 2024

