



United States Department of the Interior

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October 20, 2021

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Dear Mrs. Snibble,

This letter transmits the U.S. Geological Survey (USGS) Western Ecological Research Center's draft data summary entitled Southwestern pond turtle (*Actinemys pallida*) surveys and translocation, Murrieta Creek, Temecula, California 2021 Draft Final. This information is provided to fulfill USGS obligations under the U.S. Army Corps of Engineers Military Interdepartmental Purchase Request (MIPR)W81EYN92322939. We expect to publish these data in 2023, at which time a final publication will be distributed.

Please note that this information is preliminary or provisional and is subject to revision. It is being provided to meet the need for timely best science. The information has not received final approval by the USGS and is provided on the condition that neither the USGS nor the U.S. Government shall be held liable for any damages resulting from the unauthorized use of this draft data for interpretation or resource decision-making.

We appreciate the opportunity to work with the U.S. Army Corps of Engineers to provide scientific information relevant to resource management in southern California. Please direct any questions to Dr. Robert Fisher at (619) 206-5686.

Sincerely,

Robert Fisher

Principal Investigator



Southwestern Pond Turtle (*Actinemys pallida*) Surveys and Translocation, Murrieta Creek, Temecula, California 2021 Draft Final



Southwestern Pond Turtle (*Actinemys pallida*) Surveys and Translocation, Murrieta Creek, Temecula, California 2021 Draft Final

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U.S. GEOLOGICAL SURVEY
WESTERN ECOLOGICAL RESEARCH CENTER

Data Summary

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INTRODUCTION

The U.S. Geological Survey (USGS) has been conducting research on the southwestern pond turtle (*Actinemys pallida*, WPT) for over 20 years, which includes data collection and observations on their natural history, behavior, and conservation. This research provides information for various land management agencies as the WPT has been identified as a species of concern by the State of California (CDFW 2021) and has been in decline in southern California since the 1980s (Brattstrom and Messer 1988). For example, Brattstrom and Messer (1988) identified only eight populations in San Diego County and indicated that as few as five of the populations south of the Santa Clara River were reproductively viable over the long-term. In the 1980s and 1990s, studies began to examine the status and health of the populations in southern California with lower Murrieta Creek being one of the study areas (Holland 1991, Lovich 1998). The species is under review for listing under the Endangered Species Act (U.S. Endangered Species Act [ESA 1973, as amended]) based on a 90-day finding issued in April 2015 (USFWS 2015, 80 FR 19259).

The U.S. Army Corps of Engineers (Corps) is working with Riverside County Flood Control and Water Conservation District (RCFC & WCD) to implement channel improvements within the Murrieta Creek channel in the city of Temecula to reduce the risk of flooding and enhance the habitat. The Corps is required to complete one-time maintenance and long-term operations and maintenance in 2020-2021. As a project environmental commitment, the Corps is required to perform surveys, trap, and relocate any captured WPT from the work area (U.S. Army Corps of Engineers 2019).

The Corps implemented mitigation measures which required trapping in all suitable pools and relocation of any WPT by a qualified biologist prior to any construction related activity. As part of our long-term research on watershed integrity in southern California and on WPT, we surveyed this area for WPT and catalogued other aquatic species that were detected in these stream reaches. At the request of the Corps, we translocated any WPT we captured in the course of our surveys to Santa Margarita Ecological Reserve, as approved by the California Department of Fish and Wildlife. We previously trapped turtles in the Murrieta Creek channel and this work is a continuation of our capture-mark-recapture study of the turtles at this site.

METHODS

Trapping was the primary sampling method used to determine presence and to capture any WPT in the project area (Figures 1 and 2). Twenty-eight, 20" single fingered hoop traps, and 12" mesh minnow traps were set throughout the project area during two trapping sessions in August and September 2021 (Table 1). The traps were baited with mackerel and were checked every 24 hours for 10 consecutive days for the first trapping session, and five days for the second trapping session. All animal captures were recorded electronically and entered into the USGS database. For WPT, data collected included: carapace length, height, and width; weight, age, and gender, as well as location data. All WPT captured were tagged with a passive integrated transponder (Avid, Norco, CA). This 8 mm long capsule was inserted in the right hind coelomic cavity of the turtle. All aquatic species observed during sampling efforts were recorded.

RESULTS

From our trapping efforts, eight unique WPT were captured in the project area (Table 2). We translocated all of the turtles to the Santa Margarita Ecological Reserve approximately 4.6 km downstream from the project site (Figure 3). This location was chosen after consultation with the California Department of Fish and Wildlife. Other native species captured during trapping were the two-striped gartersnake (*Thamnophis hammondi*), Baja California treefrog tadpoles (*Pseudacris hypochondriaca*), and a juvenile raccoon (*Procyon lotor*) that drowned in one of the traps (Table 3). Non-native species captured were catfish (*Ameiurus* sp.), American bullfrog (*Lithobates catesbeianus*), crayfish (*Procambarus clarkii*), mosquitofish (*Gambusia affinis*), green sunfish (*Lepomis cyanellus*), and a red-eared slider (*Trachemys scripta elegans*) (Table 4).

LITERATURE CITED

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- USFWS. 2015. Endangered and threatened wildlife and plants; 90-day findings on 10 petitions. Federal Register 80:19259–19263 (see Supplemental Material, Reference S7, <http://dx.doi.org/10.3996/012016-JFWM-005.S9> (192 KB PDF); also available: <http://ecos.fws.gov/ecp0/profile/speciesProfile?Spcode=C06B> (November 2016).

Table 1. Summary of southwestern pond turtle (*Actinemys pallida*) trapping surveys in Murrieta Creek, 2021.

Trapping Session	Start Date	End Date	Number of Traps	Total Trapping Hours	Start ¹		End ¹		Number of WPT ²
					Latitude	Longitude	Latitude	Longitude	
1	August 9, 2021	August 18, 2021	28	5696	33.48185	-117.14494	33.47921	-117.14337	8
2	August 30, 2021	September 3, 2021	28	2668	33.48185	-117.14494	33.47969	-117.14382	0

¹ Locations obtained in WGS84 datum in decimal degrees.

² Acronym: WPT = southwestern pond turtle

Table 2. Summary of southwestern pond turtle (*Actinemys pallida*) captures in Murrieta Creek, 2021. Note: All southwestern pond turtle captures occurred during the first trapping session.

Age	Sex	Maximum Carapace Length (mm)	Weight (g)	Unique ID	Previous USGS Captures				
					2011	2015	2017	2019	2020
Adult	Female	148.25	486	031855808	—	—	—	X	X
Adult	Female	143.1	452	032042315	—	—	—	X	—
Adult	Female	144.5	450	095630520	X	—	—	—	—
Adult	Female	152.3	478	845296029	—	—	—	—	X
Adult	Male	147.25	437	845529047	—	—	—	—	—
Adult	Male	149.5	482	845532306	—	—	—	—	—
Juvenile	Unknown	99.3	143	845296353	—	—	—	—	—
Juvenile	Unknown	91.25	94	845528098	—	—	—	—	—

¹Juvenile is categorized as < 103 mm carapace length

Table 3. Summary of native species observed during surveys in Murrieta Creek, 2021.

Common Name	Scientific Name	Age Class	Number Observed
Baja California Treefrog	<i>Pseudacris hypochondriaca</i>	Tadpole	18
Raccoon ¹	<i>Procyon lotor</i>	Juvenile	1
Two-striped Gartersnake	<i>Thamnophis hammondi</i>	Adult	12

¹Found dead in trap

Table 4. Summary of non-native aquatic species observed during surveys in Murrieta Creek, 2021.

Common Name	Scientific Name	Age Class	Number Observed
American Bullfrog	<i>Lithobates catesbeianus</i>	Adult, Juvenile, Tadpole	184
Catfish	<i>Ameiurus sp.</i>	Adult	111
Crayfish	<i>Procambarus clarkii</i>	Adult	283
Green Sunfish	<i>Lepomis cyanellus</i>	Adult, Juvenile	92
Mosquitofish	<i>Gambusia affinis</i>	Adult	1240
Red-eared Slider	<i>Trachemys scripta elegans</i>	Juvenile	1



Figure 1. Map of southwestern pond turtle (*Actinemys pallida*) captures and trap placement during the first trapping session (August 9 - 18), Murrieta Creek, 2021.



Figure 2. Map of southwestern pond turtle (*Actinemys pallida*) captures and trap placement during the second trapping session (August 30 - September 3), Murrieta Creek, 2021.

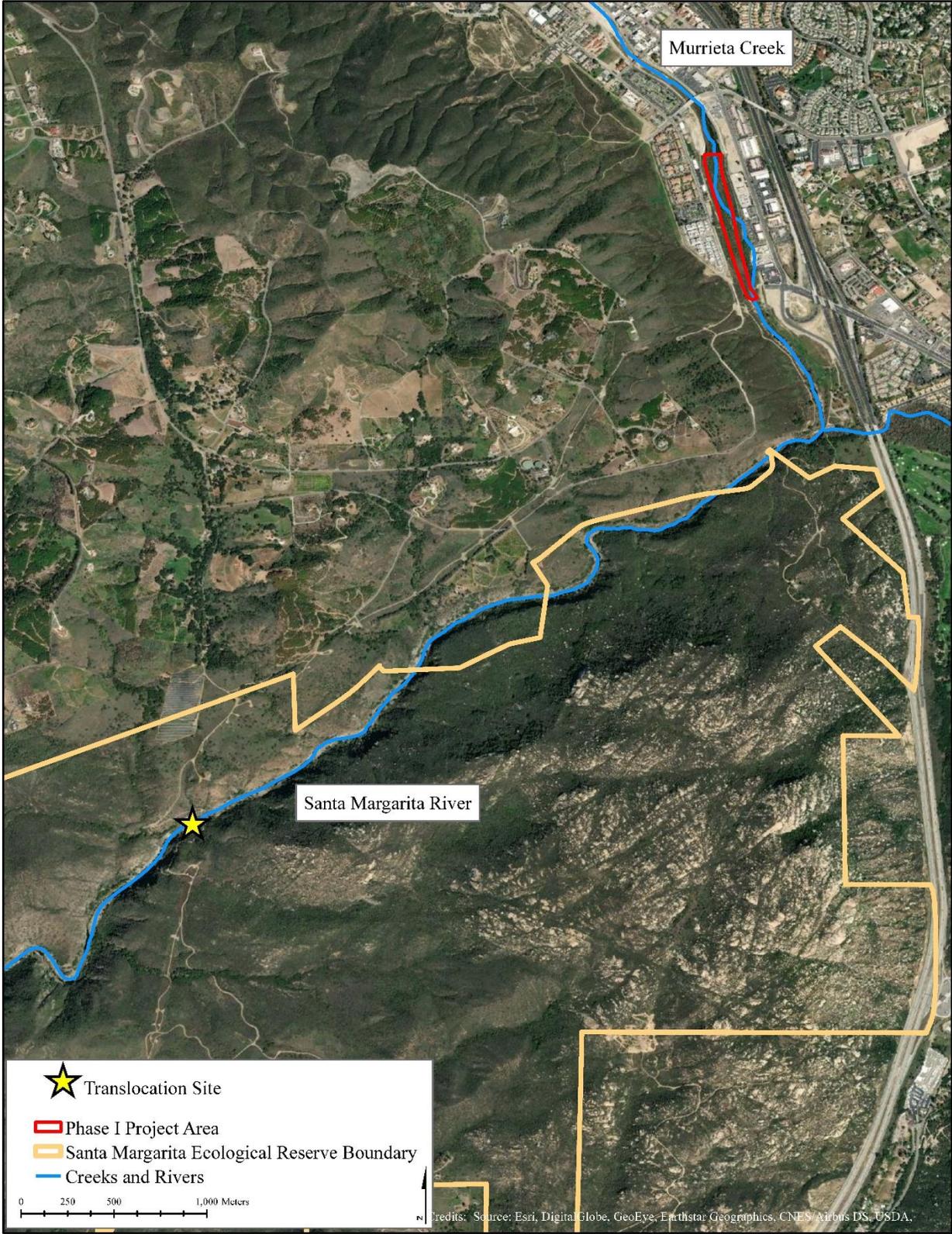


Figure 3. Map of the Santa Margarita River translocation site approximately 4.6 km downstream of the Murrieta Creek study site, 2021.