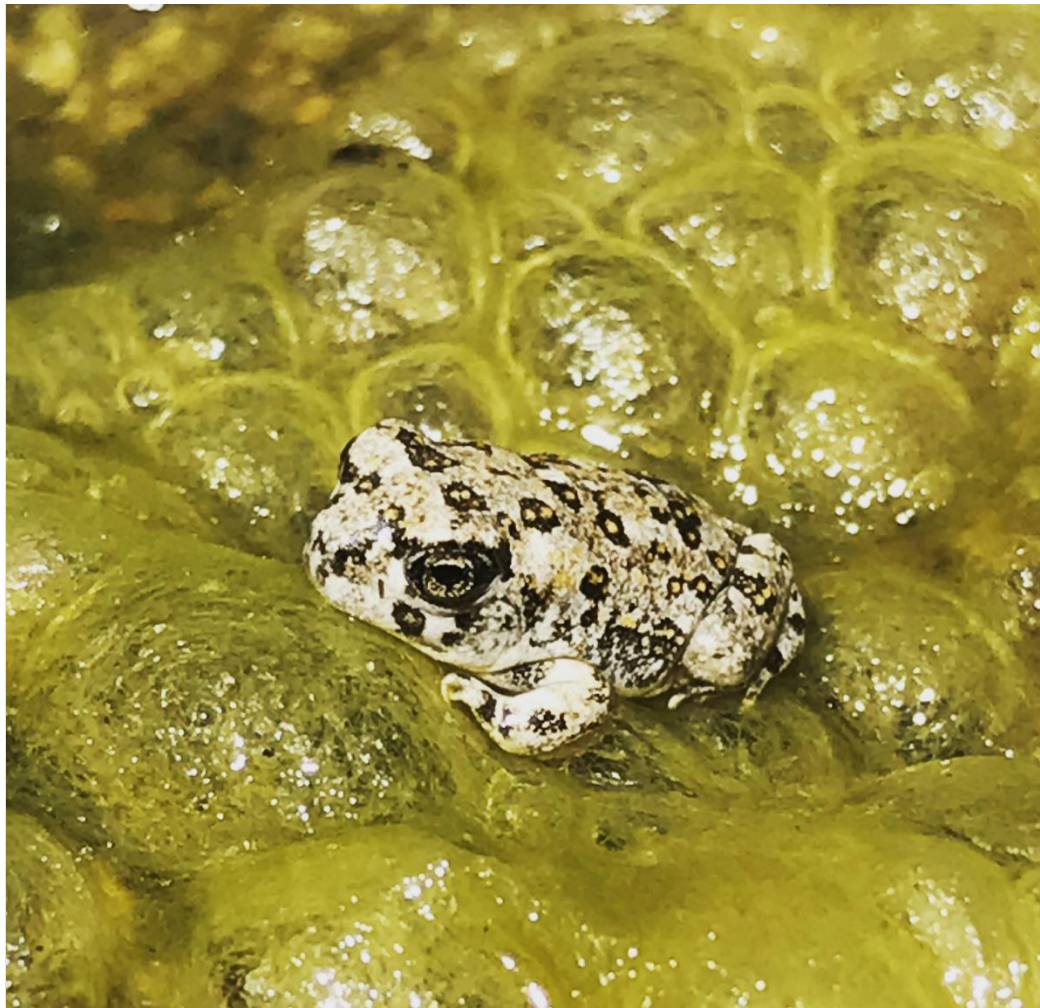


**Western Riverside County  
Multiple Species Habitat Conservation Plan  
Biological Monitoring Program**

**2017 Arroyo Toad Survey Report**



**24 July 2018**

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## **NOTE TO READER:**

This report is an account of survey activities conducted by the Biological Monitoring Program for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP was permitted in June 2004. Reserve assembly is ongoing and is expected to take 20 or more years to complete. The Conservation Area includes lands acquired under the terms of the MSHCP and other lands that have conservation value in the Plan Area (called public or quasi-public lands in the MSHCP). In this report, the term “Conservation Area” refers to these lands as they were understood by the Monitoring Program at the time the surveys were conducted.

The Monitoring Program monitors the status and distribution of the 146 species covered by the MSHCP within the Conservation Area to provide information to Permittees, land managers, the public, and the Wildlife Agencies [i.e., the California Department of Fish and Wildlife (CDFW, formerly California Department of Fish and Game) and the U.S. Fish and Wildlife Service]. Monitoring Program activities are guided by defined conservation objectives for each Covered Species, other information needs identified in MSHCP Section 5.3 or elsewhere in the document, and the information needs of the Permittees. A list of the lands where data collection activities were conducted in 2017 is included in Section 7.0 of the Western Riverside County Regional Conservation Authority (RCA) Annual Report to the Wildlife Agencies.

The primary author of this report was the 2017 Herpetology Taxa Lead, Robert Packard. This report should be cited as:

Biological Monitoring Program. 2018. Western Riverside County MSHCP Biological Monitoring Program 2017 Arroyo Toad Survey Report. Prepared for the Western Riverside County Multiple Species Habitat Conservation Plan. Riverside, CA. Available online: <http://wrc-rca.org/about-rca/monitoring/monitoring-surveys/>.

While we have made every effort to accurately represent our data and results, it should be recognized that data management and analysis are ongoing activities. Any reader wishing to make further use of the information or data provided in this report should contact the Monitoring Program to ensure that they have access to the best available or most current data.

Please contact the Monitoring Program Administrator with questions about the information provided in this report. Questions about the MSHCP should be directed to the Executive Director of the RCA. Further information on the MSHCP and the RCA can be found at [www.wrc-rca.org](http://www.wrc-rca.org).

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## INTRODUCTION

The Western Riverside County MSHCP covers four amphibian species that inhabit stream environments in southern California: the federally endangered arroyo toad (*Anaxyrus californicus*, formerly *Bufo californicus*), California newt (*Taricha torosa*, formerly coast range newt, *T. torosa torosa*), California red-legged frog (*Rana draytonii*), and southern mountain yellow-legged frog (*Rana muscosa*). The Biological Monitoring Program has been collaborating with the Western Ecological Research Center, U.S. Geological Survey (USGS) and U.S. Forest Service (USFS) to conduct amphibian and stream surveys since 2004 to reduce overlapping survey efforts and ensure consistent data collection methods. The purpose of the stream surveys has been to assess habitat suitability and to document breeding locations for arroyo toad, California newt, red-legged frog, and yellow-legged frog within species-specific Core Areas and/or their tributaries. We target different species from year to year, depending on efforts of collaborating agencies and reporting requirements for species-specific objectives. The target species for stream surveys in 2017 was arroyo toad, which is a federally endangered species and a California species of special concern.

Species-specific Core Areas designated by the Plan for this species include portions of San Juan Creek, Los Alamos Creek, San Jacinto River, Indian Creek, Bautista Creek, Wilson Creek, Temecula Creek, Arroyo Seco, and Vail Lake, and adjacent suitable upland habitat (Dudek & Associates 2003). Under the MSHCP, species-specific Conservation Objective 6 for this species calls for maintaining breeding populations within a minimum of 80% of the conserved breeding locations as measured by the presence of juvenile toads, tadpoles, or egg masses across any five consecutive years (Dudek & Associates 2003).

The current five year reporting period for this species began in 2015 and stream surveys were conducted by Monitoring Program biologists in the spring and early summer of that year in the three known locations for breeding arroyo toad (Arroyo Seco, San Juan Creek, and Bautista Creek). However, due to several consecutive years of below average rainfall, there was insufficient flow in the streams to facilitate breeding and no evidence of breeding was found. In 2017, after above average rainfall, USGS coordinated a regional rapid assessment effort to survey for breeding arroyo toad (*USGS 2017 Arroyo Toad Snapshot Survey Protocol*; Appendix A), and the Monitoring Program joined this effort in the MSHCP Conservation Area. We surveyed five Core Areas for arroyo toad, and USFS biologists surveyed Arroyo Seco and Los Alamos Creek. Two Core Areas, Vail Lake and Indian Creek, were not surveyed due to access constraints.

### Goals and Objectives

1. Locate suitable habitat in Core Areas and adjacent suitable upland habitat.
2. Collect information about species distribution and demographics in the Plan Area.
  - a. Determine presence and abundance of arroyo toad adults, metamorphs, tadpoles and eggs within at least 80% of nine listed Core Areas.

## **METHODS**

### **Protocol Development**

The stream survey protocol used in 2015 was adapted and modified from the *USGS Aquatic Species and Habitat Assessment Protocol for Southcoast Ecoregion Rivers, Streams, and Creeks*, written and distributed by USGS (USGS 2005). Modifications of the USGS (2005) protocol were made to better suit the species objective needs of the MSHCP's Biological Monitoring Program. Surveys conducted in 2017 adhered to the *USGS 2017 Arroyo Toad Snapshot Survey Protocol* (Appendix A).

### **Study Site Selection**

Stream surveys in 2017 geographically targeted arroyo toad (i.e., sites were selected based on historic arroyo toad occurrences). We scouted for appropriate habitat and stream flow in the following locations: San Jacinto River, Temecula Creek, Los Alamos Canyon, Blackburn Canyon, Bautista Canyon, San Juan Creek, and Wilson Valley. We found adequate depth and flow in San Juan Creek and tributaries, Temecula Creek, San Jacinto River, and Bautista Canyon. Wilson Creek was dry, but some tributaries had minimal flow, and these were surveyed. Los Alamos Canyon had adequate depth and flow, but was surveyed by the USFS.

### **Survey Methods**

Surveys were conducted in 250 meter segments of rivers, streams, and creeks during appropriate times of year for amphibian breeding in order to document eggs, larvae (tadpoles) and metamorphs. Surveyors used visual and audio survey techniques to search the entire segment starting at the downstream end. All aquatic reptile and amphibian species (Covered and non-covered) were considered target species for the purposes of these surveys, including California red-legged frog, southern mountain yellow-legged frog, California newt, and western pond turtle.

### **Training**

Survey participants received training on the identification of all arroyo toad age classes by sight and sound (for adults), as well as training on the identification of co-occurring aquatic wildlife and invasive plant species using field guides, audio guides, and online training materials. Survey participants were instructed on proper field equipment sterilization techniques, survey methods and data collection.

## **RESULTS**

Monitoring Program biologists detected arroyo toads in two of nine Core Areas, Bautista Creek and San Juan Creek, including three tributaries of San Juan Creek (Decker Canyon, Morrell Canyon, and one unnamed tributary; (Fig. 1). Surveys were conducted for 18 days between the dates of 20 April and 29 May 2015, and for 28 days between the dates of 20 April and 29 June 2017. Breeding evidence, in the form of eggs, tadpoles, or metamorphs, was detected at these two Core Areas (Fig. 1; Table 1). We also conducted nocturnal surveys to listen for adult breeding calls, and heard them only at Bautista Creek. No adults were heard in Wilson Creek, Cahuilla Creek (a tributary of Wilson Creek), Temecula Creek, or the San Jacinto River.

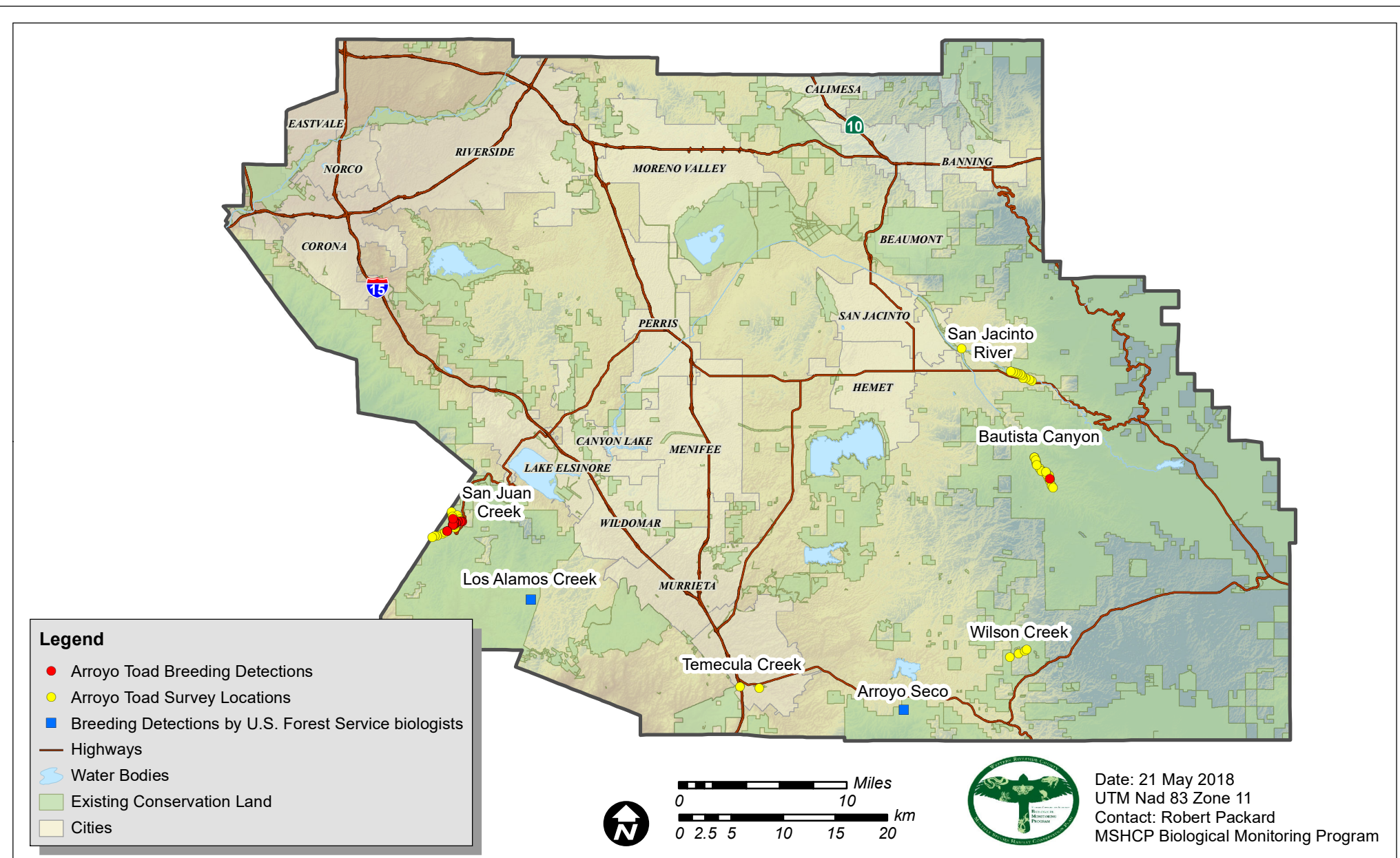


Figure 1. Arroyo Toad survey locations and detections in 2017. Survey detections include data from partnering organizations.

**Table 1.** Arroyo Toad survey locations and detections from 2015-2017.

Core Area	Nocturnal Surveys	Adults	Tadpoles	Metamorphs	Eggs
Bautista Creek	2015/2017	2017	2017	No	2017
Arroyo Seco <sup>a</sup>	No	2017	2017	2017	2017
San Jacinto River	2017	No	No	No	No
Los Alamos Creek <sup>a</sup>	No	No	2017	No	No
Wilson Creek	2017	No	No	No	No
Indian Creek <sup>b</sup>	No	N/A	N/A	N/A	NA
Vail Lake <sup>c</sup>	No	N/A	N/A	N/A	N/A
San Juan Creek	No	No	2017	2017	2017

<sup>a</sup>Surveyed by USFS biologists<sup>b</sup>Not surveyed in this reporting period<sup>c</sup>Not surveyed due to access constraints

Metamorphs were detected in San Juan Creek by Monitoring Program and USFS biologists. USFS biologists also detected tadpoles and metamorphs at Arroyo Seco, and tadpoles at Los Alamos Creek, confirming presence at two additional Core Areas for the species.

California newts were detected at San Juan Creek and its tributaries. No California red-legged frogs, southern mountain yellow-legged frogs, or western pond turtles were detected during these surveys.

## DISCUSSION

We focused our stream survey efforts on locating arroyo toad in species-specific Core Areas and other suitable locations across the Conservation Area where potential habitat occurs. As of 2017, these surveys have found evidence of breeding arroyo toad at four of nine Core Areas (44%), which does not meet the species-specific conservation objective of maintaining breeding populations within a minimum of 80% of the conserved breeding locations. In all likelihood the species objective will not be met for arroyo toad unless drastic habitat modifications are made to existing Core Areas, and the species is translocated to these areas. Most areas where arroyo toad have been detected historically are in conservation, but water levels do not seem to be sufficient to facilitate breeding. This could be due to long-term drought, but could also be due to water drawdowns from upstream infrastructure. Managing agencies should determine if water levels are influencing water levels in these streams during the breeding season.

Arroyo toad adults have been detected by The Nature Conservancy staff and USGS (*Adam Backlin, pers. comm*) at the Santa Rosa Plateau Ecological Reserve, a non-core area, but the last detection was in 2011 (*Zach Principe, pers. comm*). Subsequent attempts to locate arroyo toads at SRP with nocturnal calling surveys by the Monitoring Program have failed. Until further reports of arroyo toad are reported, we will consider this population extirpated.

## Recommendations for Future Surveys

Surveys for arroyo toad should continue in applicable Core Areas and conserved breeding locations to determine presence and breeding activity for this species, particularly following periods of above average rainfall. All suitable habitat in

conservation should also be monitored for the presence of this species. This can be done with visual encounter surveys for egg masses, tadpoles and metamorphs during the breeding season, which is generally January through March, or nocturnal calling surveys to determine if adult toads are present (Dudek & Associates 2003). Arroyo toads live approximately six-eight years (Fisher et al. 2018), so surveys should be conducted at a minimum of every five years, when sufficient rainfall permits.

## ACKNOWLEDGEMENTS

We thank the land managers in the MSHCP Plan Area, who in the interest of conservation and stewardship facilitate Monitoring Program activities on the lands for which they are responsible. Funding for the Biological Monitoring Program is provided by the Western Riverside Regional Conservation Authority and the California Department of Fish and Wildlife. Program staff who conducted surveys during the winters of 2015-2016 and 2016-2017 were: Robert Packard (Herpetology Program Lead), Masanori Abe, Jessica Burton, Tara Graham, Michelle Mariscal, Adam Malisch, Lynn Miller, Esperanza Sandoval, Ana Sawyer, David Tafoya, and volunteers Sean Carson, Robert Krijgsman, and Paulette Morales. We would also like to thank USGS for coordinating the regional survey effort, and the USFS for sharing the data they collected in Cleveland National Forest.

## LITERATURE CITED

- Dudek & Associates. 2003. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Final MSHCP, Volumes I and II. Prepared for County of Riverside Transportation and Lands Management Agency. Prepared by Dudek & Associates, Inc. Approved June 17, 2003.
- Fisher RN, Brehme CS, Hathaway SA, Hovey TE, Warburton ML, Stokes DC 2018. Longevity and population age structure of the arroyo southwestern toad (*Anaxyrus californicus*) with drought implications. Wiley Ecology and Evolution.
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## Appendix A. USGS 2017 Arroyo Toad Snapshot Survey Protocol



### 2017 Arroyo Toad Snapshot Survey Protocol

The U.S. Geological Survey, along with collaborators from the *Arroyo Toad Trend Analysis Workshop on March 17, 2017*, has put together a rapid assessment protocol to document successful arroyo toad recruitment across their range in California. These minimum data criteria are focused solely on a quick determination of arroyo toad recruitment within their range. We discussed working as a group to publish a summary of this assessment as a point in time for this species following an extended drought. Anyone collecting these data is invited to participate as an author on that publication.

#### Minimum Data Collection:

Daytime Surveys: Focus on recruitment with the observations of tadpoles and metamorphosis.

- 1) Separate out surveys with appropriate time interval (depending on age of tadpoles) to capture whether metamorphosis occurs
- 2) Date
- 3) Record start/end time
- 4) Record start/end coordinates
- 5) Record number of observers
- 6) Record if water is present
- 7) Record if site has suitable breeding habitat
- 8) Record the number of groupings of tadpoles w/GPS coordinates
- 9) Take representative photos of tadpoles to ensure proper identification

Nighttime Surveys: Focus on adult presence, if no breeding is observed.

- 1) If no recruitment is observed, conduct a nighttime survey for adults
- 2) Same day as above – reword

#### Optional Additional Data Collection:

- 1) Record invasive species present w/GPS coordinates
- 2) Record if stream is perennial/ephemeral
- 3) Record start/end of water presence
- 4) Record other issues that could be impacting arroyo toads (dams, pumping, recreation, etc.)
- 5) Record any active management activities with invasive species and/or other issues

Please send all suggestions/updates to this rapid protocol to Liz Gallegos ([egallegos@usgs.gov](mailto:egallegos@usgs.gov)).

**ATTACHED:** Example data form for use, if needed.

## Appendix A. Continued

### Arroyo Toad Snapshot Survey Form

Survey Type day/night Date \_\_\_\_\_ Site Photo \_\_\_\_\_ Observer1 \_\_\_\_\_  
 Creek Name \_\_\_\_\_ Site Name \_\_\_\_\_ # photos \_\_\_\_\_ Observer2 \_\_\_\_\_  
 \_\_\_\_\_ Start Time \_\_\_\_\_ End Time \_\_\_\_\_ Observer3 \_\_\_\_\_  
 Survey Method\*: - choose all that apply: Visual encounter, seine, dip net, funnel/minnow trap, call survey, other.

Coordinates:

Start Lat	_____	End Lat	_____	Slope	_____
Start Long	_____	End Long	_____	Site	_____
Start Elev	_____	End Elev	_____	Length	_____
Datum	_____	Drainage	_____		
Water Present	Permanent, Semi-permanent, Temporary, Unknown			Site Notes	
Suitable breeding habitat present:	0%, 1-10%, 11-25%, 26-50%, 51-75%, 76-100%				
Disturbance present (Type, intensity of disturbance)					

Weather:

Temperature	_____	Condition	clear or few clouds, partly cloudy or variable, cloudy or overcast, fog, mist or drizzle, showers or light rain, heavy rain, sleet or hail, snow
Notes	Wind Speed _____		

Animal/tadpole grouping:

	Lat/Long	Species	Age	Sex	Length (mm)	Weight (g)	Recap	Tissue Y/N	Photo Y/N	Deformities
1										
2										
3										
4										
5										
6										
7										
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