

Agency/Organization: U.S. Geological Survey, NOROCK

Project Name: Distribution and Threats to the Arizona Toad in Clark County

Project Number: 2023-USGS-2345A

Reporting Period: July 1, 2025-September 30, 2025

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QUESTION 1:

What did you accomplish during this reporting period? How did these accomplishments help you reach the goal of your project? If relevant, what indicators or benchmarks were used to determine your progress?

During this reporting period, we completed all proposed field work for the project as well as several project milestones including the End of Field Work Meeting (M07) and Annual Project Review Presentation at the Clark County DCP Symposium (M08). We also submitted a quarterly report (D13) and biennium progress summary report (D14) and completed 2025 Data Deliverables (D15).

The field crew has visited 270 potential sites over the previous 2 years of the project. We found adequate aquatic habitat to conduct 198 unique visual encounter surveys at 154 different sites, including 59 nocturnal surveys and 139 diurnal surveys. The number of surveys conducted is a valid benchmark for our progress in completing this project and reflects our efforts to survey adequate sites in the project area.

We encountered 149 adult Woodhouse's Toads at 23 sites, 22 adult Arizona Toads at 6 sites, and 210 adult Red-spotted toads at 32 sites. We also encountered unidentified toad tadpoles at 40 sites.

We have collected 142 buccal swabs at 34 sites, including swabs from 104 Woodhouse's Toads, 29 Arizona Toads, and 6 potential hybrid or unknown species.

We found adequate water to collect eDNA filters at 131 sites and collected a total of 295 filters. The mean volume of water filtered across all sites was 4.7L.

Completion of field work allowed us to submit eDNA filters for analysis, and we received partial results for Arizona Toads and Bullfrogs in mid-August. Compiling eDNA and visual encounter survey results yielded Arizona Toad detections at 21 sites in the project area, 7 of which fall in Clark County.

Continued effort is being dedicated to producing a finalized habitat suitability map for Arizona Toads in the project area. We are currently incorporating results from our 2025 field surveys and are adjusting model parameters to best fit our data.

We have completed all permit reports for this project in 2025 and have submitted them to all land managers in the region.

QUESTION 2:

What, if any, problems were encountered? Briefly describe those problems and the manner in which they were dealt.

We didn't encounter any significant problems in this reporting period. We were able to complete fieldwork within a realistic timeframe that fell ~2 weeks earlier in 2025 than in 2024 to better capture water at ephemeral sites. Surveying during summer heat was challenging early in this quarter, but we adjusted sampling schedules to sample higher elevation sites and adjusted daily schedules to survey early in the morning and in the evenings to mitigate this problem and increase our chances of encountering amphibians.

QUESTION 3:

What, if any, proposed activities were not completed? Briefly describe those activities, the reasons they were not completed and your plans for carrying them out.

All proposed activities for this reporting period have been completed. Field work is complete, our annual project presentation was delivered, and we are compiling final results and reports from eDNA filter analysis to compile final project data files.

QUESTION 4:

What is the calculated percent of work completed?

We have completed surveys at 154 out of the proposed 100 sites for the 2-year project, or 154%. We planned to conduct surveys at ~50 sites in each year of sampling and have exceeded that goal.

QUESTION 5:

Do you foresee any upcoming problems with future project activities? If so, how do you propose to overcome those problems?

We do not foresee any problems with future project activities. We have received results for all eDNA filters and are compiling data and reports for project wrap-up.

QUESTION 6:

Is there anything else you want to tell the DCP about this project?

We've detected Arizona Toads in Clark County at 7 sites, an increase from our detections at a single site in the county in 2024! All Arizona Toad detections in Clark County are from eDNA filters, solidifying that this method is critical when targeting rare or cryptic species. While there is the possibility that some of these detections are a result of hybrid Arizona x Woodhouse's Toads, the presence of Arizona Toad DNA in the county indicates the potential for the species to persist.

Three of these seven detections fell on Clark County owned (or adjacent) properties: the Bunkerville East Riparian Reserve (2024 eDNA detection), Mormon Mesa South Riparian Reserve (2025 eDNA detection), and Electric Avenue Property (2025 eDNA detection). With the exception of one equivocal detection in Red Rock NCA that should be treated as inconclusive,

Arizona Toad detections in Clark County are restricted to sites along the Virgin River from the state line with Arizona to the Virgin River's confluence with the Muddy River in Lake Mead NRA. Continuing to protect and monitor the Virgin River corridor and the Clark County properties for toads will be crucial in the species' continued persistence in the county.

The Arizona Toad detection in Calico Basin of Red Rocks NCA remains equivocal. This site is disjunct from other verified records or current populations in the region, and was a weakly positive result for a single eDNA filter. While this result certainly warrants further surveys in Calico Basin, we are currently treating the detection as inconclusive.

We have also distributed data to U.S. Fish and Wildlife Service for use in the Species Status Assessment for Arizona Toads, and have submitted all permit reports to land managers and agencies who granted us research permits for this project. For land managers who hold parcels with Arizona Toad detections, we are encouraging future surveys for confirmation of the species and are communicating the constraints of eDNA and visual survey methodology.

QUESTION 7:

What was produced during the reporting period?

During this reporting period, we have completed/submitted:

- D13 (Quarterly Progress Report) - Submitted to DCP on June 23, 2025
- D14 (Biennium Progress Summary Report) - Submitted to DCP on June 23, 2025
- D15 (Data Deliverables) - Submitted to DCP on July 1, 2025
- M07 (End of Field Work Meeting) – Completed July 21, 2025
- M08 (Annual Project Review Presentation) – Delivered at Clark County DCP Symposium on August 18, 2025