May 27, 2026

DESERT CONSERVATION PROGRAM PROJECT COMPLETION SUMMARY
Drone Survey Analysis 2025
2023-RESI-2390C

The work for the above referenced project has been completed. Below is a summary of project related information.

The purpose of the above referenced project was:

The Desert Conservation Program (DCP) uses occupancy surveys as the method to detect change in tortoise populations on the reserve system. To obtain this data, the DCP contracts outside firms to complete surveys on an annual basis. Due to rising survey costs, DCP wishes to use aerial imagery collected through drones to acquire similar data at lower costs. The project will analyze data collected with drones and will compare its usefulness and accuracy with on-the-ground occupancy surveys. This would allow for the comparison between traditional ground surveys and drone surveys to determine if drone technology is a viable and cost-effective means of carrying out sampling in the future.

The major accomplishments or findings of this project include:

The study area was a series of eight 500-acre monitoring plots within the Boulder City Conservation Easement. The drone/ AI survey method successfully detected tortoises and burrows in the BCCE. The study estimated an easement-wide tortoise abundance of 1025 individuals. This was collected from a sample of 4.7% of the total area of the BCCE. Ten adult tortoises were detected in the survey area, as well as five subadults/juveniles and ten tortoise carcasses. Fifty active or intact tortoise burrows were detected. Adult tortoise density in the surveyed area was estimated to be 2.9 tortoises/km^2. This is lower than the density estimated in the 2024 surveys at 4.6 tortoises/km^2, but the 2025 estimate from the survey falls within the 2024 survey's lower bound 90% confidence interval of 2.1 tortoises/km^2, therefore the two estimates are compatible. Recommended that future surveys establish improved communication to ensure that surveys occur when significant above-ground tortoise activity has been observed in the study area.

For more information about this project and/or for other Project Reports or Symposium Reports, please visit our website.

If you have any questions about this project, please contact Scott Cambrin, at (702) 455-3859.