



**SDZWA conservation scientists** use telemetry to track monitored desert tortoise populations.

gry predator. We also know that all desert environments are not equal, and some contain different compositions of plant species that might afford food or shelter.

Armed with these ideas, we set out to test how careful selection of release site might affect tortoise health, growth, movement, and survival. Does camouflage, refuge availability, or plant community make a difference? In our first round of tests, conducted in Nevada and led by Melia Nafus, Ph.D., (working for SDZWA at the time, but now with USGS), the answer was an unqualified “Yes.” Careful site selection based on these factors boosted one-year survival from 20 percent to almost 80 percent! However, the Nevada and California deserts can be quite different, and the next step was to determine whether these same benefits still hold true in California. In scientific parlance, we wanted to know whether our findings were *generalizable*.

Today, we are in the midst of this second round of efforts. We raised nearly 150 healthy young tortoises and released them into several sites within Edwards Air Force Base and Ward Valley, managed by the Bureau of Land Management. We do not yet have answers from this more recent study, but we are actively tracking these tortoises to monitor how they are doing. We also conduct periodic health assessments

and measure growth rates to determine which tortoises are thriving, data that in turn inform us about habitat quality. We predict that tortoises will grow faster in higher quality habitat.

## Looking Ahead—and Up

It is our hope that, in addition to replenishing declining populations of this desert icon, our research will help us learn more about tortoise habitat needs. The knowledge gap about young tortoises is especially large, in part due to difficulties in finding them. They spend about 98 percent of their lives below ground, sheltered in a burrow, coming up following rains to eat and drink. Mystery has never informed conservation action, so our aim is to make the lives of young tortoises less mysterious. While we know what constitutes “suitable habitat,” we don’t know what makes “great” habitat, which allows tortoises to thrive, not just survive. This knowledge will help conservation managers make better decisions about where to release tortoises that need to be translocated, which habitat areas to prioritize for protection, and which features of the environment are important to restore to improve existing tortoise habitat. Armed with this knowledge, we plan to promote the recovery of this beloved species of the Mojave Desert of California.



**A female desert tortoise** can retain sperm and lay fertile eggs for up to 15 years after mating only one time with a male.

*This project was made possible by generous support from the U.S. Bureau of Land Management, the U.S. Fish & Wildlife Service, the California Energy Commission, the National Fish & Wildlife Foundation, Edwards Air Force Base, the Favrot Fund, and the Zuest Family Foundation.*

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