



Tortoise Tracks



The Desert Tortoise Preserve Committee, Inc.

Summer 2012 32:2

Appreciating Larrea

Thoughts from the 2012 DTRNA naturalist season

Article by: Robert A. Villa, 2012 DTRNA Interpretive Naturalist

Thrice now I have staffed the Desert Tortoise Research Natural Area (DTRNA) for the Desert Tortoise Preserve Committee (DTPC) and it has been a great trip through spring. This season's position was primarily funded by the [Great Basin Institute](#) (Research Associate division), through a cooperative agreement with the Bureau of Land Management.

As I type this on my second-to-last day on the job, the temperatures have already risen into the upper nineties for the past few days. I escape temporarily to the "crew house," an apartment rented for DTPC staff during this busy season. Even a true desert rat can appreciate air conditioning!

It should go without saying that no spring season is alike, however this season has been especially unique for me with tortoise and Mohave ground squirrel surveys. Being trained by and working for **Tim Shields** on the 2012 tortoise survey has been a special and rewarding experience as I may have come closer to being a Mohave desert tortoise as I ever have. Our artistic and biocentric sense of humor complimented each other well. The entire cast of characters associated with the 2012 season at the DTRNA would indeed make a great theatrical opus!



One of my main goals was to reach out to off-highway-vehicle (OHV) enthusiasts who ride in the area, and I feel I was especially effective with children and young-adults. With this audience, I frequently observed a general lack of knowledge of their impact on this fragile landscape and ecosystem. This season we advertised guided interpretive walks featuring information about human impacts on the desert and responsible recreation, which met with some success.

I'll never forget the look of amazement from a young boy who illuminated a tortoise in a burrow with a mirror I let him use. Instantly his energy "broke the ice" with this family and I was able to communicate OHV impacts on tortoises that can live to be near one hundred years and creosotes that can live to thousands, and how we subsidize ravens that kill tortoises.

I've also been working on a guide on the common snakes and lizards of the DTRNA, to be checked out by visitors; I hope to have it finished by the next season.

I was also pleasantly surprised when a group of young men in their twenties arrived after hours. One was to take notes for a class presentation. I was moved by their love of the Mohave ecosystem and their dissent towards the rampant destruction and alteration of our desert. Indeed, an effective talking point I raise during OHV outreach is the fact that the Mohave Desert is geographically restricted to the United States, arguably something worth preserving for future generations! They told me of how the desert was their backyard growing up and how they'd navigate through it by recognizing distinctly growing creosote bushes (*Larrea tridentata*). This is rather charming, and it was then that I learned to stop and smell the creosotes. That is, I learned to see the beauty in their weather-gnarled trunks and branches which make an effective natural origami. With no spectacular wildflower bloom this season, I learned to appreciate the geologic, energetic, and emotional geography of this area, and I am grateful.

I hope to return next season for the 25th naturalist season, if the universe affords me such. In the meantime, duty crawls!



Desert Tortoise Days in California City!

California City's 36th Annual Desert Tortoise Days, themed a "Shell-a-bration," was held on May 5, 2012 at the California City Central Park. This year, the Desert Tortoise Preserve Committee teamed up with the Ridgecrest Chapter of the [California Turtle and Tortoise Club](#) to provide information about wild and captive tortoises, as well as desert biodiversity and conservation. DTPC president, **Jane McEwan** made a special appearance as Mojave Maxine (costume provided by the Desert Managers Group and Living Desert) and received several hugs as she passed out tortoise awareness wristbands and pencils. The event was a great occasion to teach California City residents and visitors more about the desert in which they live and to encourage everyone to make the trip to the Desert Tortoise Research Natural Area.

You can read more about California City's Tortoise Days in the Mojave Desert News:

http://www.desertnews.com/article_1b79ee90-9aff-11e1-919b-0019bb2963f4.html



DTRNA Naturalist **Robert Villa** looks on as a visitor studies information on the desert tortoise and human impacts on the desert ecosystem. Some of the displays at Desert Tortoise Days included burrowing owl, desert tortoise, kangaroo rat, and sidewinder specimens, large and small tortoise shells, a badger skull, and "How long does your trash last?" trivia. Informational brochures about responsible recreation were avail-



Mojave Maxine visits with **Bob and Sue Parker** of the Ridgecrest California Turtle and Tortoise Club, who brought a few of their captive tortoises that are up for adoption. The live tortoises were a big attraction and their presence at Desert Tortoise Days helped us spread information about conservation of desert tortoises in the wild, too.



The core idea behind the environmental education and responsible recreation program is that a better understanding of the desert ecosystem and species that comprise it will promote a better land use ethic and instill motivation for adhering to responsible recreation principles. Materials from [Tread Lightly](#) feature responsible recreation principles and practical information for off-road vehicle riders and other types of recreationists, too.



Mojave Maxine and two members of California Boy Scout Troop #413



Mojave Maxine and DTPC volunteer, Valerie Welling



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CAUGHT ON CAMERA!

How the DTPC is using remote-sensing cameras to learn more about Mohave ground squirrels and other wildlife at the Desert Tortoise Research Natural Area

Article by: Mary Kotschwar Logan



It has long been apparent that the threatened Mohave ground squirrel (*Xerospermophilus mohavensis*) occurs in and around the Desert Tortoise Research Natural Area. Visitors and Naturalists report MGS sightings each year, past studies conducted by **Dr. Phil Leitner** have confirmed their presence in different areas, and Naturalist **Freya Reder** was successful in documenting over 30 individuals in and around the DTRNA in 2011 (see Tortoise Tracks 31:3). Despite the relatively abundant and consistent observations, however, the full extent of MGS distribution within and outside the DTRNA is unknown and little is known about the species' habitat relationships in this area.

This spring, the DTPC has continued working towards a better understanding of the distribution and habitat needs of this sometimes elusive species with a study of MGS occupancy and a comparison of the efficiency of multiple survey methods. While field work for the study only ended a few days ago, we are already excited to share information about the study and some of the preliminary results!

Our study areas included one site within the fenced boundaries of the DTRNA, near the Interpretive Center, and a second site within DTPC-owned properties in the unfenced Eastern Expansion Area, approximately 7 km northeast of the DTRNA site, and adjacent to the DTRNA's eastern border. Using the mapping software ArcGIS, we overlaid an imaginary grid of one hundred 150 meter x 150 meter cells (2.25

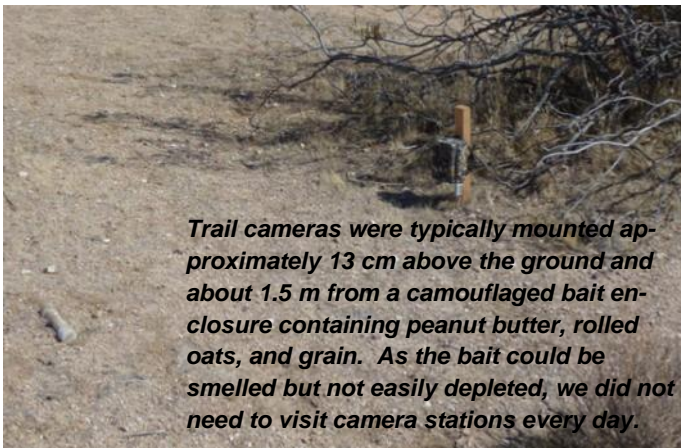
square kilometers or 0.87 square miles total) at each site. We conducted multiple bouts of walking transects that passed through the centers of all grid cells, while 48 of the 100 cells from each grid were randomly selected for sampling with remote-sensing cameras, as well. These camera traps, designed to trigger with motion and changes in heat, are now frequently used to study wildlife, especially elusive species that are difficult for human observers to detect using other methods. Recently, researchers have started using camera traps to study MGS, as well, and in many cases the method has been as or more successful at detecting MGS than traditional live-trapping methods. For this study, we rotated a limited number of trail cameras among the selected cells within each study area, so that a camera was sampling continuously at a cell for at least 10 consecutive days. Wildlife passing through the sites triggered the cameras and we returned once every 3-5 days to collect the data cards containing the date and time-stamped images of the animals.

Our research crew this spring was relatively small. Veteran MGS observer, Freya Reder, conducted four bouts of walking transects-- one survey at the beginning of March, two surveys in early April, and a fourth survey at the end of May. I worked with wildlife technician **Amy Trost**, a recent graduate of Humboldt State University, to install and maintain the camera traps from mid-March to early May. Although

(Continued on page 4)

the DTRNA experienced a very dry winter this year and we expected MGS activity to be reduced, with no reproduction in the spring, we were all encouraged when we began detecting MGS individuals both along the transects and on the cameras.

Over the approximately three month season, detections of MGS and other desert wildlife abounded. Typically, the first species to appear on the cameras were kangaroo rats, which frequented every single camera station, hopping around the bait enclosure, and triggering several to hundreds of pictures each night. Another common nocturnal visitor was the desert kit fox, which appeared at 82 of the 96 camera stations, usually urinating and/or defecating at the site. During the day, the most commonly detected species was the white-tailed antelope squirrel, which appeared at all but four of the camera stations and seemed to return at multiple times in the day to investigate and dig around the bait enclosure. Other commonly detected species included black-tailed jackrabbits, sage sparrows, whiptail lizards, and the occasional coyote. Detections of the American badger, LeConte's Thrasher, and a loggerhead shrike were some of the highlights of the season. Even a couple of slow-moving tortoises managed to cross in front of our cameras, and we frequently caught glimpses of the hiking boots of visitors and researchers moving through the DTRNA.



Our focal species, MGS, was detected at 14 out of 48 camera stations within each grid, for a naïve occupancy estimate of close to 30% for the both the DTRNA and the unfenced Eastern Expansion Area study sites. While some of the detections were brief and limited to only one occasion, some MGS individuals investigated the bait tube on multiple days and aggressively chased off any antelope squirrels when they appeared. We will use detection histories, the records of days MGS did or did not appear at each of the camera stations, to estimate the probability of actually detecting the species with a camera if it is present. This detection probability can then be

used to improve the estimate of the species' occupancy.

Walking transects also proved to be a useful and complementary method for detecting MGS on our study grids. Freya Reder documented 7 MGS observations within the



DTRNA study grid, 3 MGS observations within the Eastern Expansion Area grid, and an additional 8 incidental detections of MGS while traveling to or between study areas. Although MGS were detected in more grid cells by cameras than by human observers, there were five cells in which MGS were detected by both methods, and 3 instances in which MGS were detected through human observation only and had not been detected by the camera in that area. Furthermore, more data could be collected about the behavior and forage species of the MGS individuals detected during the human observer surveys.

We are still organizing the data from this study, including the results of vegetation transects and other sampling that will be used to relate occupancy of MGS to habitat characteristics, and we are actively recruiting volunteers to help us categorize photos. However, the preliminary findings of this pilot study are highly encouraging, both in the effectiveness of using remote-sensing cameras and walking transects to study MGS, and in the similar levels of occupancy of MGS in both of the areas studied.

We thank the [California Department of Fish and Game](#) and the [Bureau of Land Management](#) for their guidance and authorization for the study. Early feedback from **Dr. Cameron Barrows**, **Dr. Phil Leitner**, **Dave Delaney**, and **Dr. Kristin Berry** helped improve the study design. Thanks to **Bruce Garlinger** for his advice on camera-trapping and for creating a system to deter theft of the cameras. We greatly appreciate the hard work and skill of our crew, Amy Trost and Freya Reder, and the assistance of our 2012 Naturalist Robert Villa and volunteers **Chuck Hemingway**, **Laura Stockton**, **Colleen Bare**, **Mark Bratton**, and **Chris Herbst**.

A pair of desert kit foxes inquisitively sniff the bait enclosure



A desert tortoise ambles through—you can almost make out the epoxied number tag on his shell.



Night and Day: American badgers were detected twice during the study, once at night in the Eastern Expansion Area (left) and once in early evening at the DTRNA (right).

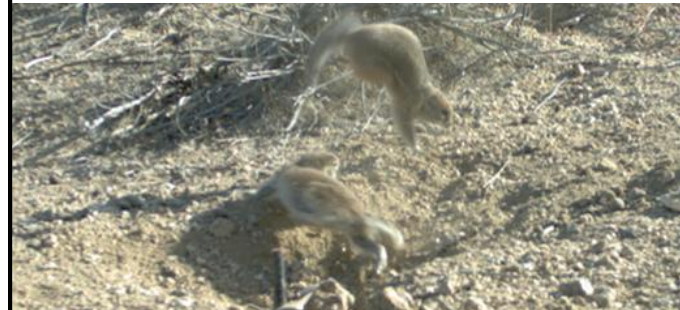


MGS approaching antelope squirrel at the bait enclosure

Biologists have a sense of humor



Loggerhead shrike at the Eastern Expansion Area



...and quickly displacing the antelope squirrel

Le Conte's Thrasher appeared at multiple camera stations in the Eastern Expansion Area



Don't mess with the MGS!

Burrowing Owl Orientation at the DTRNA

Article by: Jun Lee

Pictures by: Jun Lee and Steve & Marlene Ishii

Dan Burnett led a field orientation about Burrowing Owls (*Athene cunicularia*) at the Desert Tortoise Research Natural Area (DTRNA) for members of the Preserve Committee on May 19th. Participants included **Robert Villa**, the DTPC's 2012 Naturalist, **Mary Kotschwar Logan**, the DTPC's Preserve Manager, **Jun Y. Lee**, Board members **Steve and Marlene Ishii**, and DTPC members **Laura Mogg** and **Charles Massieon**.

Burrowing owl burrows range in size from 3 ½ inches to about the size of a basketball in diameter. Although the owls are capable of digging their own burrows, they tend to be opportunistic and often use vacant burrows created by kit fox, desert tortoise, and other desert animals, typically in areas with loose soil. The owls may also be found in and around abandoned mines. In the field, common identifiers of burrowing owl burrows include an "apron" around the front of burrows (used by the owls to stage their young), whitewash in and around the apron, and evidence of down when the owl sheds. Burrowing owls "decorate" burrows with coyote dung, parts of dead animals, and other debris possibly to attract insects, according to Mr. Burnett. Burrowing owls have a high "nest fidelity," reusing burrows year after year and often occupying alternative burrows within the same area. Burrowing owl pellets tend to be about 1 inch in length and thinner than desert tortoise scat. The pellets typically contain sign dried insect parts, feathers, and bones. The owls feed on insects such as darting beetles, as well, as voles and field mice. They tend to forage within a half-mile radius of an active burrow.

The orientation was conducted within 2 miles of the DTRNA Interpretive Center and the group found a number of potential burrowing owl burrows. During the morning hike, a number of desert horned lizards were seen, along with several areas with large pellets, probably from the great horned owl or the common barn owl. The groups spent sometime witnessing a juvenile tortoise emerging from its burrow under a creosote bush. Naturalist Robert Villa gave a field discussion about the desert tortoise and areas around the Interpretive Center where he identified active burrows and individuals during the 2012 naturalist season.

The DTPC has implemented a number of mitigation projects at the DTRNA involving burrowing owl mitigation funds. As part of its implementation obligations the DTPC is responsible for creating artificial burrows for the burrowing owl. Based on his many years of experience in working with Jeff Manning and the Imperial Irrigation District, Mr. Burnett suggested that artificial burrows can be made with stacked pipes above ground, hay bales, and below ground man-made burrows. Man-made burrows often involve constructing a wood box that is buried 3-feet deep connected with PVC piping for ingress and egress. Dan Burnett cited successful man-made artificial burrows at the China Lake Naval Base. Involving local scout troops to make and install man-made artificial burrows would be a positive win-win project between the DTPC and local scout groups, Mr. Burnett said.

More information about burrowing owl habitat and mitigation measures can be found in the Staff Report on Burrowing Owl Mitigation recently issued by the California Department of Fish and Game (see: <http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf>).



Horned Lizard



Burrowing Owl Display



Content of Owl Pellets



Burrowing Owl Burrow



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DTPC Calendar of Events

September 15, 2012, 9:00 amDTPC Board Meeting,
Best Western, California City, CAOctober 20, 2012Fall Work Party
DTRNA, California City, CADecember 1, 2012DTPC Board Meeting
DTPC Office, Riverside, CA

Special thanks to the following:

Kristin Berry
Cameron Barrows
Phil Leitner
Dave Delaney
Jane McEwan
Mark Bratton
Laura Stockton
Chris Herbst
Steve and Marlene Ishii
Jun Lee
Chuck Hemingway
Laura Mogg
Charles Massieon
Colleen Bare
Dan Burnett
Bruce Garlinger
Bob and Sue Parker
Freya Reder
Inga Swearingen
Amy Trost
Robert Villa
Valerie Welling
Great Basin Institute

Bureau of Land Management, Ridgecrest
California Turtle and Tortoise Club

More information for each event can be found by calling (951) 683-3872 or sending an email to dtpc@pacbell.net. Additional information can be found on the DTPC's website www.tortoise-tracks.org and Facebook www.facebook.com/dtpc.inc.

If you are interested in becoming a DTPC member, contact us at (951) 683-3872 or visit our website at: <http://www.tortoise-tracks.org/dtpc/member.html>



Tortoise Tracks

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Calling All Volunteers!

Looking to get involved? We have diverse volunteer opportunities in several locations:

→ **STEWARDSHIP**

Sign installation, parcel monitoring, and invasive plant species management.
(Kern, San Bernardino, and Riverside Counties)

→ **EDUCATION**

Presentations to school and community groups, representing the DTPC at outreach
events, creation and distribution of materials.
(throughout Southern California)

→ **RESEARCH**

Wildlife photo classification and data entry.
(DTRNA, DTPC Office in Riverside, CA)

→ **OFFICE SUPPORT**

Preparation of mailings, merchandise orders, and office organization
(Riverside, CA)

If you would like more information about one of the listed opportunities or have other project ideas, please
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