



# the Tortuga Gazette

California Turtle & Tortoise Club Founded in 1964

Dedicated to Turtle & Tortoise Preservation, Conservation and Education

July/August 2008

Volume 44, Number 4



*A wild desert tortoise taking a break while digging his burrow. Photographed in habitat by Michael J. Connor.*

## **Turtle of the Month** Desert Tortoise (*Gopherus agassizii*)

### **Studies of Reproductive Output of the Desert Tortoise at Joshua Tree National Park, the Mojave National Preserve and Comparative Sites**

*by Jeff Lovich, Phil Medica, Hal Avery, Katherin Meyer, Gillian Bowser and Alan Brown*

Desert Tortoises have the greatest latitudinal distribution of any of the four North American tortoises ranging from southwestern Utah to northern Sinaloa State in Mexico, a range of 1,100 km (683 miles). Across this vast range, the Desert Tortoise occupies a staggering diversity of plant communities from tropical deciduous thorn scrub in Mexico, across the Mojave and Sonoran

Deserts, to the edge of the Great Basin Desert and the Colorado Plateau.

The stability of any population is a function of how many young are produced and how many survive to reproduce. Populations with low reproductive output and high mortality will decline until such time as deaths and births are at least balanced. Monitoring populations of sensitive species is particularly important

to ensure that conditions do not favor decline or extinction.

Turtles, including tortoises, are characterized by life history traits that make them slow to adapt to rapid changes in mortality and habitat alteration. Long life spans (in excess of 50 years), late maturity and widely variable nest success are traits that allowed turtles to outlive the dinosaurs.



## Table of Contents

### Turtle of the Month: Desert Tortoise (*Gopherus agassizii*)

- 1 Studies of Reproductive Output of the Desert Tortoise at Joshua Tree National Park, the Mojave National Preserve and Comparative Sites by Jeff Lovich, Phil Medica, Hal Avery, Katherin Meyer, Gillian Bowser and Alan Brown
- 2 Table of Contents
- 3 Urates or What *is* that White Stuff?  
Foothill Chapter Hawaiian Adventure
- 5 Coloration In Two Female Desert Tortoises by Don Williams
- 6 OHV and Livestock Grazing Restrictions in the Sonoran Desert National Monument
- 7 Forage Preferences and Feeding Patterns by Mark Massar  
CTTC Meetings and Programs
- 8 Cal State University Bakersfield Desert Tortoise Habitat by Don Williams
- 10 From the Chair...Industrializing the Mojave Desert by Michael J. Connor
- 11 Ten Tortoise Reasons to Stop LADWP Power Lines - Big Morongo Canyon Preserve
- 12 Turtle's Garden: Foothill Deervetch or Hill Lotus by Mary A. Cohen
- 14 Classified Advertisements
- 15 CTTC Directory

California Turtle & Tortoise Club: a Society Dedicated to Turtle & Tortoise Preservation, Conservation and Education Since 1964. Promoting and Facilitating the Care, Rescue and Adoption of Native and Nonnative Turtles and Tortoises.

The *Tortuga Gazette* (ISSN 1073-1334) is owned by the California Turtle & Tortoise Club Executive Board, which is incorporated in the State of California as a Not-for-Profit Corporation and is tax-exempt under IRS code 501(c)(3).

All material is copyright © CTTC unless otherwise attributed. CTTC policy permits reproduction of articles by other not-for-profit groups and educational institutions when permission is requested. Permission is granted on a case-by-case basis and CTTC must be cited as the source of the material.

Views expressed in the *Tortuga Gazette* are those of the contributors and not necessarily those of the Editor or the California Turtle & Tortoise Club.

#### Please let us know if you are moving!

Send address changes/corrections to  
Tortuga Gazette Distribution Manager  
Jane Roth <janer909@aol.com> or  
P. O. Box 7300, Van Nuys, CA 91409-7300.

But they are poorly adapted for life in the rapidly changing modern world. Increased mortality of young and adults can seriously tip the delicate balance required for turtles to survive.

The Desert Tortoise is a federally threatened species to the north and west of the Colorado River with full protection under the Endangered Species Act (Ernst et al. 1994). The listing of the tortoise in 1990 was based on the perception of rapid population declines due largely to human-induced changes in the Mojave Desert ecosystem (Fish and Wildlife Service 1994; Lovich and Bainbridge, 1999). The Recovery Plan for the Desert Tortoise, prepared by the U.S. Fish and Wildlife Service, identifies research on the reproductive output of the species to be a high priority for land management agencies tasked with the responsibility of recovery, and we hope, future delisting. To that end, in 1997 we initiated research on the reproductive output of the Desert Tortoise at several study sites in the Mojave Desert. Research support has been generously provided by the U. S. Geological Survey, Joshua Tree National Park, the California Desert District of the Bureau of Land Management, the Palm Springs-South Coast Resource Area of the Bureau of Land Management, Banning Veterinary Hospital in Banning, California, University Orthopedics in Las Vegas, Nevada, and J. F. Kennedy Memorial Hospital in Indio, California.

Previous research on the reproductive output of Desert Tortoises conducted by Fred Turner, Phil Medica, and others in the early 1980s demonstrated a strong correlation between clutch frequency, or how many clutches a female produces in one reproductive season, and biomass of annual plants that tortoises utilize for food. Production of annual plant biomass is in turn related to the timing and quantity of rainfall.

One of our goals is to obtain more detailed data on the relationships between rainfall, annual plant biomass, and various measures of tortoise reproductive output. The information generated will provide resource managers with models relating reproductive output of tortoises to easily measurable environmental variables. Such data are especially important in areas where tortoises and livestock may compete for resources such as food plants.

### Study sites

The three study sites established in the spring of 1997 included Joshua Tree National Park, the Mojave National Preserve, and another in an area administered by the Bureau of Land Management (BLM) near Palm Springs, California. Two additional study sites were added in the spring of 1998; one in Piute Valley, Nevada, and one in St. George, Utah, both on lands administered by the Bureau of Land Management. Studies in Utah are being conducted in cooperation with U. S. Geological Survey Research Biologists Todd Esque and Dustin Haines. The sites in the Mojave National Preserve and near Palm Springs are located in active cattle-grazing allotments.

### Methods

Thirty-six female tortoises were equipped with radio transmitters in 1997, located at weekly or biweekly intervals April-July, and x-rayed to determine the presence of shelled eggs. The x-ray procedure exposes tortoise embryos to radiation does much lower than internationally accepted levels established for developing human embryos (Hinton et al, 1997). Studies in the Mojave National Preserve were complemented with the use of ultrasound technology to determine the presence and size of follicles (eggs) prior to their detectability using x-radiography.

### Results

At the Palm Springs site, 9 out of 10 females produced a total of 72 eggs in the 1997 reproductive season (one produced no eggs). Of these nine females, six produced second clutches and at least one produced a third clutch. Mean size of the first and second clutches was 4.33 and 5.00 eggs, respectively. The earliest date of egg laying occurred April 18-23, about one month earlier than previously reported in the literature. In contrast, at sites nearby in Joshua Tree National Park, only one of eight females produced a clutch (five eggs), and she occupied the wettest microhabitat sampled that year. Most of the other monitored tortoises in the park occupied areas that were in the second year of drought with little or no production of annual food plants. Modest germination at the Mojave National Preserve allowed 12 of 18 monitored tortoises to produce single clutches (there were no subsequent clutches) in 1997. Differences among sites appear to be



Desert Tortoise laying her eggs. Photo by Don Williams.

related to patterns of rainfall and annual biomass production, as expected.

Of particular interest is the fact that the average annual number of eggs produced per female at the Palm Springs site was more than double (8) that of the tortoises at Mojave National Preserve (3.58). Such wide variation in annual reproductive output should be accounted for in any future population viability analyses for the species. Our results for 1997 have another aspect worth noting in that they underscore the fact that even well-protected natural areas like parks and preserves cannot protect sensitive species from the vagaries of climate variation. In this case, tortoises at a relatively wet and productive industrial site produced far more eggs than tortoises in fully protected, but drought-stricken areas.

The results for 1998, an El Niño year, were remarkably different. At Palm Springs, 12 of 13 tortoises laid eggs and all 12 that produced eggs laid second clutches; about one-third produced triple clutches. Of interest is the fact that mean first and second clutch sizes did not differ from a statistical standpoint between 1997 and 1998 at Palm Springs. At Joshua Tree National Park, seven out of seven females laid eggs, and five produced second clutches. These differences with 1997 data seem to reflect the wet and highly productive conditions fostered by El Niño's rains. Rain that fell in late summer and early fall gave tortoises an opportunity to drink and feed on "summer" annuals prior to hibernation. Upon emergence from hibernation they were presented with a veritable cornucopia of winter annual food plants that germinated as a result of continued El Niño rains. Thus, to

date our studies suggest that in years when tortoises have an abundance of food plants, more tortoises may reproduce and produce more clutches, but that they produce a relatively constant clutch size, regardless of conditions.

### Future plans

The study will continue through the 1999 reproductive season at all five sites and through the 2000 season at Joshua Tree National Park and the site near Palm Springs. The data generated will provide natural resource managers with locally and regionally specific information on reproductive output of this threatened species and its relationship to environmental determinants such as rainfall and annual plant biomass production. Ultimately, these data can be used to build more accurate demographic models to better understand the recovery potential of Desert Tortoises. □

### Literature cited

- Ernst, C. H., J. E. Lovich, and R.W. Barbour. 1994. *Turtles of the United States and Canada*. Smithsonian Institution Press, Washington, D.C. 578 pp.
- Fish and Wildlife Service. 1994. *Desert tortoise (Mojave population) recovery plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pp.
- Hinton, T. G., P. Fledderman, J. Lovich, J. Congdon, and J.W. Gibbons. 1997. Radiographic determination of fecundity: is the technique safe for developing turtle embryos? *Chelonian Conservation and Biology* 2:409-14.
- Lovich, J. E. and D. Bainbridge. 1999. Anthropogenic degradation of the southern California desert ecosystem and prospects for natural recovery and restoration: A review. *Environmental Management*.

Originally published in National Park Service Park Science Magazine, Volume 19, Number 1 (February 1999). Reprinted with permission from the Editor.

## Urates, or What *is* that white stuff?

Many novice tortoise keepers are concerned when they see their tortoise excrete a "cheesy" textured or powdered whitish substance with their urine. This often happens after the tortoise has taken a long drink of water. It is obviously not solid waste (feces), nor is it liquid waste (urine). So, what *is* it?

Scientifically, the white matter is identified as uric acid salts or urates. Uric acid is a sparingly-soluble, nitrogenous compound that is formed in tortoises as the endpoint of protein metabolism. Excreting nitrogen largely in the form of urate is an adaptation to life in regions where water is scarce.

Excreting uric acid salts is important for desert tortoises for another reason, too. It provides desert tortoises with a means to eliminate excess potassium. It is considered important to keep your well-fed captive tortoise well-hydrated to promote the elimination of these potentially harmful substances. □

### CTTC Foothill Chapter presents **HAWAIIAN ADVENTURE** June 21 – June 26, 2009\*

\*with optional 3 nights pre- and 3 nights post-

Come join us as we visit spectacular *Honu* (Green Sea Turtles) basking at Laniakea!

A block of rooms has been reserved for CTTC members at the beautiful Hilton Hawaiian Village for this special trip at a fabulous discounted rate of \$197 per night. A special website has been created for direct online booking\*\* starting in early July of this year. Please plan to book early, as a limited number of rooms have been reserved at this discounted rate.

Please visit <hiltonhawaiianvillage.com> to check out this beautiful oceanfront resort in Waikiki set on 22 acres. There are more than 30 species of wildlife, including eight South African penguins, turtles, ducks, ibis, flamingoes, koi and macaws.

Members of all Chapters of the CTTC are welcome. More activities are being planned. For more information please send email to <ruarturtlelover@aol.com>

\*\*No payment is required to reserve your room. However, credit card information is required for reserving your room. No charges will be made to your account until actual checkout from the hotel. □



**NEW!** **Healthy Herp**  
**NATURAL FROZEN REPTILE FOOD**  
 8 NUTRITIOUS VARIETIES



Introducing Healthy Herp™ **NATURAL FROZEN REPTILE FOOD™**

- NATURAL INGREDIENTS
- FROZEN FRESH NO PRESERVATIVES
- SCENT & COLOR ATTRACTS REPTILES
- A HEALTHY MEAL
- NO MESS EASY POP OUT CUBE

These innovative and advanced Natural Frozen Reptile Foods are a healthy meal formulated with whole fresh ingredients high in antioxidants that stimulate appetite, promote growth, resistance to stress and a long healthy life.



Healthy Herp by SFBB • 800-624-7322 • www.sfbb.com • info@sfbb.com



# Coloration In Two Female Desert Tortoises (*Gopherus agassizii*)

text and photographs by Don Williams



## ◀ Serenity ▲

A female Desert Tortoise estimated to be 54 years old. Her carapace is pale in coloration. In the inset photo, notice that Serenity's eye much darker than Mojave's eye.



## ▲ Mojave ▶

A female Desert Tortoise showing the typical tan and gray carapace coloration. In the inset photo, notice that her eye has the dark pupil with yellowish-green iris, typical of most of the species.



Serenity and Mojave both live in my yard. Serenity came to me from an elderly couple. Prior to coming to me, she had always lived in a back yard, eating grasses and weeds, and has never known store-bought produce. Her lifestyle has remained the same since coming to live with me, and her name says it all, she is very mellow, lives in a burrow that goes under my neighbors patio, and when it is very hot, will slide open my back screen door and sneak into our house.

Mojave was brought to me two years ago from a lady who lived in Walnut Creek and was moving to Colorado. She was brought with a male adult, and two of her juvenile offspring, whom I adopted out to other keepers. I agreed to keep Mojave for myself, with the condition that, should the previous keeper ever return, she may have her tortoise back. □

**Would you like to know more about color variations?** Visit the links listed below.

Auffenberg, W. and Frank, R. 1978. *Gopherus agassizii*. In: *Catalogue of American Amphibians and Reptiles*: 212.1-212.2.

Berry, K. H. and Alley, W. P. 2004. A Comparison of Shell and Limb Colors in Desert Tortoise Populations in California: Size, Sex, and Regional Differences. Abstracts 29th Annual Meeting and Symposium of the Desert Tortoise Council. Available at: <[www.deserttortoise.org/abstract/abstracts2004/2004abs3.html](http://www.deserttortoise.org/abstract/abstracts2004/2004abs3.html)>

Grover, M. C. and DeFalco, L. A. 1995. Desert Tortoise (*Gopherus agassizii*): Status-of-knowledge Outline With References. USDA Forest Service Intermountain Research Station General Technical Report INT-GTR-316. 134 pp.

Nussear, K. and Tracy C. R. 2003 Solar Absorptance of the Carapace Appears to Have Little Influence on the Thermal Biology of Desert Tortoises. Abstracts 28th Annual Meeting and Symposium of the Desert Tortoise Council. Available at: <http://www.deserttortoise.org/abstract/abstracts2003/2003abs46.html>



## Off-road Abuse Tearing Up National Monument in Arizona

Sonoran Desert National Monument Overwhelmed by Off-Road Traffic and Impacts

TUCSON, ARIZONA—December 5, 2007—The Sonoran Desert National Monument is considering banning off-road vehicle traffic altogether because of the resource damage and user conflicts, according to internal memos released today by Public Employees for Environmental Responsibility (PEER). Agency officials cannot cope with the “exponential” increase in recreational demands on the nearly half-million acre federal preserve south of Phoenix – particularly abusive off-roading by excessively large groups.

Minutes from an internal “Emergency Resources Protection Meeting” of the Sonoran Desert National Monument staff held on March 5, 2007 and other agency records, obtained by PEER from the U.S. Bureau of Land Management (BLM) under the Freedom of Information Act, indicate that:

- \* Growing problems prompted the official Resource Advisory Council to recommend a total ban on off-road vehicles entering the Monument;

- \* Attempts to restore damaged areas are being thwarted by repeated improper off-road intrusion. One BLM staff member noted that “volunteers are not enough to restore all the damaged areas. Volunteers are also getting tired of seeing their work destroyed...”

- \* In 2006, there were 73 illegal off-road “incursions” into the three congressionally designated wilderness areas inside the Monument (the North and South Maricopa Mountains and Table Top). All told, Arizona BLM recorded 280 wilderness violations last year by off-roaders.

The Sonoran Desert National Monument is an increasingly popular recreational destination in between the burgeoning populations of Phoenix and Tucson. One of the fastest growing components of Monument visitation is off-road traffic, allowing ever bigger groups to damage remote and sensitive areas.

“Reckless off-roaders are trashing Arizona’s natural heritage,” stated Southwest PEER Director Daniel Patterson, adding that the Sonoran Desert is the most biologically rich of the world’s deserts. “America’s national monuments must be protected from vandalism and environmental

destruction, even if that means keeping off-road vehicles out of monuments.” Patterson is an Ecologist who formerly worked with BLM.

The BLM documents cite a wide range of growing headaches arising out of off-road groups, from improper disposal of human waste to the intensive law enforcement presence needed. Unfortunately, the deteriorating situation at Sonoran Desert National Monument is becoming prevalent on public lands across the Southwest, where off-road vehicles are now, by far, the number one law enforcement problem, according to agency statistics compiled by PEER.

“Due to the abuse, it is not surprising that BLM managers are considering an off-road vehicle ban for the Monument,” concluded Patterson. “Without effective enforcement it appears doubtful that abusive off-roading on our public lands can be stemmed.”

## Sonoran Desert National Monument to Receive Some Protection From Off-road Vehicle Abuse

TUCSON, ARIZONA—May 14, 2008—The Center for Biological Diversity commends the Bureau of Land Management for moving to protect the Sonoran Desert National Monument from off-road vehicle abuse. The agency will close approximately 89 miles of routes that allow access to 55,000 acres for motorized use. But the ongoing damage from off-road vehicles extends over many tens of thousands of acres on the monument that are not subject to the announced closure order.

“The vehicle closure is welcome news, but the Bureau of Land Management should be doing a lot more to protect the national monument,” said Randy Serraglio of the Center for Biological Diversity. “Off-road vehicles still have unfettered access to over 500 miles of routes and 270,000 acres on the monument. The agency is obligated to protect all of these lands from motorized abuse.”

President William Clinton’s proclamation establishing the Sonoran Desert National Monument declared it to be “a magnificent example of untrammeled Sonoran Desert landscape. The area encompasses a functioning desert ecosystem with an extraordinary array of biological, scientific, and historic resources. The most biologically diverse of the North American deserts, the monument consists of distinct mountain ranges separated by wide valleys, and includes large saguaro cactus forest communities that

provide excellent habitat for a wide range of wildlife species.”

The monument contains habitat for several imperiled species, including the Desert Bighorn Sheep, Sonoran Pronghorn, Desert Tortoise, Lesser Long-nosed Bat, Cave Myotis, and Cactus Ferruginous Pygmy-owl.

## Sonoran Desert National Monument Livestock Grazing News

by Greta Anderson, Western Watersheds Project

SONORAN DESERT NATIONAL MONUMENT—March 4th, 2008—A significant event occurred in Arizona this past week: Livestock grazing was retired on parts of the Sonoran Desert National Monument. Four allotments were closed south of Interstate 8, with a fifth one to be closed in 2009, pursuant to the establishing Proclamation. The occasion passed quietly, even somberly, because the lands in questions are so beat up that its unlikely livestock removal will make a difference there in our lifetimes. It wasn’t much of a celebration, just me, a scant bit of annual growth, and some carcasses.

The BLM asserts that cows die of all kinds of natural causes, and that is probably true. But five don’t die at a fenceline and three more don’t die at a water tank within a matter of weeks of natural causes. They die because the “green up” hasn’t happened yet, and they die because they’re hungry. I’ve seen more cattle bones spread on the Sonoran Desert National Monument than I’ve seen on any federal lands anywhere, and I don’t suspect it’s because they get bloat or get poisoned. They starve, dehydrate, give up. The desert is no place for cattle, but the ranchers will try and try and try.

And so, apparently, will the BLM. Tasked in 2001 with making a “Compatibility Determination” for livestock grazing and the protection of Monument objects, the BLM hired The Nature Conservancy to help them find a method of managing cows that won’t harm the Monument. After an extensive review of the literature, TNC came back and said, “There is no known system of grazing that is compatible with resource protection.” Then the BLM hired a scientist to assess vegetation conditions on the Monument, and the report concluded that livestock are adversely affecting Monument objects. The BLM replied that the scientist didn’t use proper methods, even though BLM signed the contract and agreed to the study. In the meantime, the BLM used categorical exclusions to renew the permits north of the Interstate until 2015.



No NEPA, no categorical exclusions to renew the permits until 2015. No NEPA, no public involvement.

Just a sly little nod to the forthcoming Resource Management Plan which will supposedly house the Compatibility Determination. That RMP is already a few years late and there is no real expectation that it will actually be in effect anytime soon. In the meantime, it's business as usual on the remaining seven allotments on the Sonoran Desert National Monument.

Except for those four allotments in the Vekol Valley. For them, it's a brand new day.



Traditional Native American turtle motif from the Southwest United States.

## Forage Preferences and Feeding Patterns

by Mark Massar, Desert Tortoise Preserve Committee

One of the original ways biologists collected information on Desert Tortoise (*Gopherus agassizii*) diet was by examining tortoise scat. However, scat analysis is very inaccurate because certain species, such as grasses, pass through the digestive tract more readily than others (i.e., herbaceous plants).

Instead, biologists use bite counts, which involve observing a particular tortoise (with binoculars) from dawn to dusk, tediously counting every bite the animal takes and recording the plant species eaten. Based on tens of thousands of bite counts from various tortoises across the Mojave Desert, a clearer picture of the diet of wild Desert Tortoises has emerged.

Tortoises are strict vegetarians. In general their food consists of winter annuals, summer annuals, herbaceous perennials, grasses, and, to a lesser extent, cacti. Tortoises do not eat desert shrubs such as the ubiquitous creosote bush (*Larrea tridentata*). Tortoises are very selective about the plants they prefer.

The specific plants that tortoises prefer are often rather rare in the environment. Tortoises will make deliberate searches in order to find them, often following specific pathways from one plant to another, and bypassing other, more common and seemingly less palatable plants.

The majority of the diet of Desert Tortoises consists of just a few plant species. Plants in the legume family make up the greatest percentage of their diet, with lotus (*Lotus humistratus*) and astragalus (*Astragalus didymocarpus* and *A. layneae*) being the most important species, especially in the eastern Mojave. Surprisingly, tortoises do not prefer the more common annual species, such as Desert Dandelions (*Malacothrix glabrata*) and Alkali Goldfields (*Casthenia* species), although these species can carpet the desert in a sea of color following wet winters.

As it turns out, there is a good reason why

tortoises are particular in their food choices. Most desert plants contain high levels of potassium. Because an accumulation of potassium in the body is lethal, potassium is regularly excreted from the body using a process that is, unfortunately, water intensive. Obviously desert tortoises need to be experts at water conservation, so they select the few desert plants in their environment that have relatively low concentrations of potassium and relatively high levels of water and protein. Desert tortoises prefer fresh, green, succulent annuals over dried vegetation. In the western Mojave Desert, fresh annuals are available mainly in the spring following the winter rains.

In the eastern Mojave Desert and the Colorado Desert, rains come not only in the winter but also in the summer. This gives tortoises living there two opportunities to eat fresh green plants. During droughts, tortoises generally become less active, staying mostly underground in their burrows and caves.

An alarming trend in the Mojave Desert is the spread of non-native annual plants. This spread is changing the desert in many ways that are jeopardizing the future of the Desert Tortoise. Non-native annuals are replacing many of the native preferred annuals.

Non-native annuals make up a very small percentage of the tortoises's diet, although in some places they now make up more than 90% of the annual-plant biomass. Also, alien annuals promote the spread of wildfires, which in turn creates conditions favorable for the increased spread of alien annuals.

Although the situation appears dire, land managers are beginning to explore options of controlling the spread of alien annuals and reseeding areas with the native annuals that tortoises prefer. □

Reprinted from the Desert Tortoise Preserve Committee's *Tortoise Tracks*, Summer 2006 (26:2)

## 2008 show schedule

**August 9:** Inland Empire Chapter Turtle & Tortoise show at Redlands Senior Citizen Center, 111 W. Lugonia Ave., Redlands, CA. 10 AM - 4 PM.

### San Diego Turtle & Tortoise Society

**July 19 - 20:** Annual Show and Plant Sale at Balboa Park, Casa del Prado, room 101, San Diego, CA. July 19: 10 AM - 5 PM; July 20: 10 AM - 4 PM. Visit the SDTTS website for more information: <[www.sdturtle.org](http://www.sdturtle.org)>

### Turtle Survival Alliance

**September 17 - 20:** 6<sup>th</sup> Annual Symposium on Conservation and Biology of Tortoises and Freshwater Turtles at the Sheraton Tucson Hotel in Tucson, AZ. Visit the TSA website for more information: <[www.turtlesurvival.org/news](http://www.turtlesurvival.org/news)>

## Meetings and Programs

- ♦ **Cen-Val** ♦ no meetings in July and August (school is closed).
- ♦ **Chino Valley** ♦ July 18; August 15
- ♦ **Foothill** ♦ July 25; August 22
- ♦ **High Desert** ♦ July 14; August 11
- ♦ **Inland Empire** ♦ July 4; August 1
- ♦ **Kern County** ♦ July 21; August 19
- ♦ **Low Desert** ♦ August 4
- ♦ **Orange County** ♦ July 11; August 8
- ♦ **Santa Barbara-Ventura** ♦ meetings are held in members' homes.
- ♦ **TOOSLO (San Luis Obispo)** ♦ July 9; August 13
- ♦ **TTCS (Long Beach)** ♦ July 18; August 15- Maurice Lavoie on his Red-eared Slider pond and its biological filtration system.
- ♦ **Valley** ♦ July 18; August 15
- ♦ **Executive Board** ♦ July 12: meetings are held at the Los Angeles County Arboretum in Arcadia, CA.

Check your Chapter website for the latest program information. <[www.tortoise.org](http://www.tortoise.org)> has links to all CTC chapters. Programs may be scheduled after the newsletter is published.



# California State University Bakersfield Desert Tortoise Habitat

text and photography by Don Williams, Vice-president and Adoptions, Kern County Chapter



▲ Leonard Plunkett constructed the Habitat sign. Informative handouts are available to visitors. Tours of the Habitat can be arranged through Leonard, Kirk or myself. For e-mail or phone contact information, visit our website <[www.kerncttc.org](http://www.kerncttc.org)>

Behind the Habitat sign is a Creosote (*Larrea tridentata*) habitat which includes Prickly Pear (*Opuntia* species) and grasses. The vegetation community in the Desert Tortoise's Mojave range is commonly described as "Creosote Scrub." ►



▲ The entire Environmental Studies Area is fenced with chain link for security purposes. The tortoise pens' internal fencing is constructed from grape stakes reclaimed from local grape growers. The grape stakes were installed by trenching down 14-18 in (36 - 46 cm) and backfilling. The stakes provide a physical and visual barrier for the tortoises while allowing easy access to the pens for construction and maintenance work.

The CSUB Desert Tortoise Habitat is a work-in-progress. There are currently 14 pens occupied by 16 adult tortoises.

*Tortuga Gazette*

CTTC's Kern County Chapter is building and maintaining a Desert Tortoise Habitat on the campus of California State University Bakersfield (CSUB). The Desert Tortoise Habitat is part of the CSUB Environmental Studies Area, managed by Dr. David Germano. The Habitat is maintained by Kirk Muth, Leonard Plunkett and Don Williams with some help from chapter members.

Original construction began early 2004. At that time, the Habitat area was composed of nine pens, each approximately 75 yards by 80 yards (6,000 sq. yds). Participation from club members and a Boy Scout Troop (building underground box burrows) helped get the project off the ground.

The original plant materials in the Habitat were mostly foxtails, tumbleweeds, other inedible weeds, a few native grasses, Creosote shrubs and Mesquite trees. The foxtail weeds (*Bromus* species), tumbleweeds and inedibles are being eradicated and overseeded with more desirable native grasses and other herbaceous species.



▲ Ancient Old Man, one of the Habitat's Desert Tortoises. He developed a respiratory infection. After treatment for the infection, he was adopted by a family in January 2008.

The pens are landscaped with tortoise-friendly native and non-native plant materials. Some areas are irrigated; in others, moisture comes solely from natural rainfall. The photos below are barrels at Don's home which represent the species planted in the CSUB pens. The CSUB pens were overrun with foxtail weeds. Overseeding with appropriate plants is gradually replacing these undesirable weeds with pasture mixes composed of various plant species.

A typical array of edible plantings: Common Mallow (*Malva neglecta*), Field Pea (*Pisum sativum*) and Indian Rice Grass



▲ Female Desert Tortoise in a burrow she excavated at CSUB. Some tortoises prefer to excavate their own burrows; some prefer artificial burrows. The original underground box burrows at the Habitat proved to be too narrow and subject to invasion and filling by gophers and ground squirrels. Artificial burrows are now being constructed in some pens using large-diameter plastic pipe in wooden boxes covered with soil.



▲ This Prickly Pear cactus (*Opuntia* species) in one of Leonard's pens has a male tortoise's burrow underneath it.

This female tortoise's natural burrow is under a Mesquite tree (*Prosopis* species) in one of Don's pens. ▼

Desert Tortoise Planting Mix seeds are available from various sources. Mixes may include some or all of the following native and non-native species: Desert Needlegrass aka Desert Stipa (*Achnatherum speciosum*), Orchard Grass (*Dactylis glomerata*), Herons bill/Filaree (*Erodium cicutarium*), Common "Cheese" Mallow (*Malva neglecta*), Common dandelion (*Taraxacum officinale*), Desert Indian wheat/desert plantain (*Plantago ovata*), California Poppy (*Eschscholzia californica*), Globe Gilia (*Gilia capitata*), Desert Tidy Tip (*Layia glandulosa*), Owl's Clover (*Castilleja densiflora*), Desert or Apricot Mallow (*Sphaeralcea ambigua*), Desert Dandelion (*Malacothrix glabrata*), Red and White Hollyhocks (*Alcea* species), Mojave Hairy Sand Verbena (*Abronia villosa*), purple vetch (*Vicia americana*), sweetpea (*Lathyrus odoratus*), field pea (*Pisum sativum*). ▼



Our vision is that, eventually, the Habitat will become self-sustaining with native forage plants becoming self-renewing. Our main involvement at that time will be removal of early-spring invasive non-native plants as well as on-going evaluations of the health of the tortoises.



From the Chair...Michael J. Connor, Ph.D., Chair, CTTC Executive Board

## *It's Not Easy Being Green — Industrializing the Mojave Desert*

Now that the reality of global climate change has been accepted by both federal and state administrations there has been an upsurge in interest in “renewable” energy by commercial interests from far and wide. Not so long ago the rallying point for renewable energy was the move to install solar panels on everyone’s roof. A great concept that was: generate renewable energy in the cities where most energy is used at the very sites where it is used, save energy by avoiding transmission losses, and raise public consciousness to boot by directly involving all of us in solving the energy and climate crises we all face. Alas, however, this concept seems to be giving way to yet another “techno-fix”, this time in the form of proposals for the massive industrialization of the Mojave Desert itself.

Recent changes in California law that require utilities to increase the amount of renewable energy they generate have coupled with moves by the Department of Interior to facilitate use of the public lands. The result is a mushrooming of proposals by big business to build huge, landscape level, solar- and wind-power developments all over the Mojave Desert. Solar power plants are being proposed with cumulative coverages of many hundreds of thousands of acres, with single plants threatening to flatten as much as 50,000 acres. For comparison of the scale involved, the BLM’s Desert Tortoise Natural Area (DTNA) is less than 25,000 acres. Lists of specific projects and their footprints are available on the BLM’s California Desert District’s Alternative Energy page at

<[www.blm.gov/ca/st/en/fo/cdd/alternative\\_energy.html](http://www.blm.gov/ca/st/en/fo/cdd/alternative_energy.html)>

### **Pervasive Green-washing**

Many of these projects are being sold as “green” because they “solar-” or “wind-powered.” However, behind these moves to industrialize the Mojave lies the insidious old saw that the desert is a good-for-nothing waste-land that can be sacrificed for some greater good (whatever that may be). For those of us who love the desert, the environmental impacts of these proposed power plants are absolutely staggering. So many creatures in addition to our much beloved Desert Tortoises would be seriously imperiled by these proposals. Whole

plant communities could potentially disappear. Archeological sites and other cultural resources will be lost. Solar plants may even have impact global climate itself since a recent scientific study found that the annual removal of the greenhouse gas carbon dioxide from the atmosphere in the Mojave Desert is on a par with some temperate forests.<sup>1</sup> These massive solar projects are being “green washed” for public consumption but are about as far from being green as are coal-fired and nuclear power plants. We do need clean energy and we do need energy conservation. But we should be doing this closer to home and not using it as an excuse to industrialize pristine desert lands.

Along with green-washed power plants come green-washed transmission lines. On the following page of this issue of the *Tortuga Gazette* is an article from the California Desert Coalition on the impacts that one of the first of these proposed transmission lines will have on the desert tortoise. The California Desert Coalition is a new organization of desert communities banding together to stop “Green Path North” which is being pushed by Los Angeles Department of Water and Power. We wish the Coalition every success in their efforts to circumvent the pervasive green-washing that is going on!

### **Fort Irwin Translocation**

As many of you will have seen from media coverage, the translocation of desert tortoises from Fort Irwin has resulted in a large number of mortalities. Over 40 tortoises have died in the first couple of months including 15 young tortoises that were moved from the much-vaunted head-starting pens at Fort Irwin.

I have been advising folks who have contacted me to e-mail or call in their concerns to the U.S. Fish and Wildlife Services Desert Tortoise Recovery Office (DTRO) based in Reno, Nevada. (Just Google “Desert Tortoise Recovery Office” to get the contact information). Western Watersheds Project and others have requested that the Fish and Wildlife Service take concerted steps to address current problems and adopt

<sup>1</sup> Wohlfahrt, G., Fenstermaker, L. F. and Arnone III, J. A. 2008. Large annual net ecosystem CO<sub>2</sub> uptake of a Mojave Desert ecosystem. *Global Change Biology*. 13 Apr 2008

measures to ensure that future translocations do not run into the same or other foreseeable problems. Western Watersheds Project submitted a letter to the DTRO specifically recommending that:

- (1) They place a hold on all long distance translocations of desert tortoise (i.e. relocation of tortoises to sites outside their home range) and all large-scale translocations until the DTRO develops firm translocation guidelines that fully incorporate contingency plans to accommodate all foreseeable short-term and long-term problems.
- (2) Have all translocation proposals rigorously peer-reviewed by independent scientists/experts that are unrelated to the agencies and/or organizations involved in developing the plans in addition to public and agency review.
- (3) Restrict any further translocations from Fort Irwin or from the Superior Valley expansion area to east of the Fort Irwin Road so that if an outbreak of URTD should result it could be contained by closing the culverts and gaps in the tortoise barrier fencing along the road. If this is not possible, any relocation sites should be located outside the Desert Wildlife Management Areas (DWMA) as recommended in the 1994 Desert Tortoise Recovery Plan.

Copies of my comments can be downloaded them from the California Office page at <[www.westernwatersheds.org/](http://www.westernwatersheds.org/)> or from the conservation page on the Club’s site at <[tortoise.org/conservation.html](http://tortoise.org/conservation.html)>

### **Club Update**

The big news item from the April Executive Board meeting was the vote to establish a CTTC Branch in San Jose. Under our bylaws, the Branch will be eligible for approval as a full-fledged Chapter after one year of successful operation. This would be the Club’s first Bay Area Chapter and so the vote marked an exciting and historic step forward for CTTC. □



# Ten Tortoise Reasons to Stop LADWP Power Lines

by Big Morongo Canyon Preserve <[www.bigmorongo.org/](http://www.bigmorongo.org/)>

When people think of our Preserve, they most often think “birds,” but the Big Morongo Canyon Preserve ACEC (Area of Critical Environmental Concern) is also home to a very special nonbird species that happens to be a reptile, the Desert Tortoise (*Gopherus agassizii*). The Desert Tortoise, rather a symbol for the Mojave Desert, inhabits the drier, more typically desert parts of the ACEC, which turns out to be a lot of territory when you consider that the ACEC extends all the way to the border of Joshua Tree National Park.

We chose to focus on the tortoise at this time because of the looming threat posed by the Los Angeles Department of Water & Power’s (LADWP) Green Path North (GPN) project, an attempt to run a huge corridor of 500 kV high-transmission power lines through the Morongo Basin. LADWP’s right-of-way application to the Bureau of Land Management (BLM) has this massive new energy corridor running right through the heart of the BMCP ACEC.

The Desert Tortoise, this cute little walking tank on four legs, is a federal- and state-listed threatened species under the Endangered Species Acts and is the California state reptile. It deserves our attention. So here goes with our Ten Tortoise Reasons to Stop LADWP Power Lines:

**1. GPN Right-of-Way = 10 Tortoise Miles Wide.** Scientists have shown that even small roads (and GPN is definitely not small) have a major adverse affect on tortoises for 5 miles on either side of the road.

**2. Power Poles = Raven Perches and Nest Sites.** Yep, those highly intelligent ravens know a good thing when they see it, and for this tortoise predator, a 200-foot- tall power pole provides a perfect nesting spot and viewpoint to spot those tasty little tortoise juveniles. Until tortoises are five to seven years old, their shell remains soft enough to be punctured by a ravenous raven. Raven predation is a major threat to tortoises. One study reported finding 250 shells, probably killed over a four-year period, dead beneath one raven nest alone.

**3. Your OHV Just Crushed My OHB (off-highway burrow).** Power line corridors open up areas to extensive illegal off-highway vehicle (OHV) use, leading to crushed tortoise burrows and crushed tortoises. A

tortoise spends 98% of its life underground and is above ground only 153 hours per year. Tortoises have been found crushed in burrows that were collapsed by OHVs. Talk about crushing, how many tortoises could several-ton erection cranes, ready-mix trucks, tractor-trailer big rigs, etc., etc. crush during construction of a new power line?

**4. Territory – A Resident Power Pole Now Has Mine.** LADWP states that close to one acre will be cleared for each GPN power pole, with the existing vegetation on this acre crushed (and the soil completely compacted). This, along with the 24-foot- wide roadways to be constructed, would permanently remove a whole lot of territory from habitation by tortoises.

**5. Introduced Weeds = Tortoise Junk Food.** Nonnative, invasive grasses are opportunists that invade the desert wherever man makes roads and travels, and they really like disturbed soil. GPN would open up pristine areas to tons of exotic grasses, providing tortoises with a low- quality diet to replace the high-quality nutrition of native forbs.

**6. Look at Me; I’m So Cute.** Human instinct is to want to pick up, and in some cases remove, tortoises. New GPN access roads will open up tortoise territory to increased human-tortoise interactions. Even innocent human actions, such as picking up a tortoise, can be deadly for this water- conserving creature, as handled tortoises tend to void their bladder, losing critical fluids. And, not all human interaction is as innocent, as access roads have led to purposeful killing of tortoises, including running over, chopping off heads, and numerous gunshot mortalities.

**7. Achoo! – More Than Just the Sniffles.** A runny nose is often the sign of potentially fatal upper respiratory tract disease (URTD) in tortoises. Tortoises in wild, remote areas are generally free of URTD, but where tortoise populations come in contact with humans, the disease can spread. People drop off infected pet tortoises using access roads into territory they think will be appropriate for their ex-pet, thus introducing URTD to wild populations.

**8. Nowhere to Hide (from fire).** Power lines create a risk of more wildfires, which are deadly to tortoises. During a wildfire,

both in and out of burrows, tortoises are burned or inhale lethal amounts of smoke.

**9. What did you say? crackle, crackle, crackle.** Tortoises actually communicate verbally, and their hearing is sensitive. They make all sorts of pop, whistle, and eek noises that are part of their social behavior. Okay, the crackle of power lines may not be loud enough to associated with the crackle is a threat to their health). However, the blasting and other loud noises associated with power line construction and the subsequent roar of OHVs can damage tortoise hearing.

**10. No Going Back – Revegetation is Mission Impossible.** LADWP admits that revegetation would be difficult along the 85- mile GPN route, and the utility has no plan as to how this could be accomplished. Previous efforts by the BLM to revegetate illegal roads within the BMCP ACEC were a total failure, with absolutely no plants surviving. Once this important tortoise habitat is destroyed, that’s it, it’s gone forever. Each of these ten power line-imposed threats is serious enough in itself, but the cumulative impact of all these effects is worse yet for the desert tortoise.

The California Desert Coalition has organized to defeat these unnecessary power lines. Please visit their website at <[www.cadesertco.org](http://www.cadesertco.org)> and get involved. You can help protect our beloved Desert Tortoise and all the other Preserve wildlife that would be affected by LADWP GPN power lines. □

## PROTECT OUR TORTOISES & WILDLIFE

Most of the information on which BMCP’s article about threats to the desert tortoise is based can be found summarized in the 2002 report *Threats to Desert Tortoise Populations: A Critical Review of the Literature*, prepared by the USGS specifically for the BLM West Mojave Planning Team. Please write to the BLM requesting that the agency deny LADWP’s request for the Green Path North power line route through the Big Morongo Canyon Preserve ACEC. Let the agency know your concern for our tortoises and other wildlife.

Write to:

John Kalish, Field Manager  
Bureau of Land Management  
Palm Springs Office  
P.O. Box 581260  
North Palm Springs, CA 92258-1260

Reprinted with permission from the Big Morongo Canyon Preserve newsletter Spring/Summer 2008.



planting for chelonians by M. A. Cohen

## Foothill Deervetch *or* Hill Lotus *Lotus humistratus* Greene

*Lotus humistratus* Greene is a flowering annual which is very important to the Desert Tortoise (*Gopherus agassizii*) in its native range. This species has many common names, including Bird's Foot Lotus, Colchita, Deervetch, Foothill Deervetch, Hairy Deervetch, Hill Lotus, Maresfat and Trefoil. A synonym for the species' botanical name is *Hosackia bracycarpa*, but the currently accepted name is *Lotus humistratus*.

Dr. Edward Lee Greene (1843-1915), a botanist who taught at the University of California, Berkeley and at Notre Dame, described the species. Dr. Greene was also an associate in botany at the Smithsonian Institution and wrote several books on botany.

### Natural History

A relatively common annual, Foothill Deervetch is a member of the Fabaceae, the Legume or Pea family. It ranges through Idaho, Oregon, California, Nevada, Arizona, New Mexico and Texas. *L. humistratus* grows below 6,000 ft (2,000 m) elevation in oak and pine woodlands, grasslands, in desert washes and low hills, as well as in disturbed areas and along roadsides.



Photo copyright © 2005 Steve Matson. Printed by permission from the photographer. Source: CalPhotos <calphotos.berkeley.edu>

The growth habit of Foothill Deervetch is a low-growing (<2 in [5 cm] tall) mat-forming herb (non-woody plant) spreading 3 to 14 in (8 to 36 cm) in diameter. Seedlings appear with winter rainfall. The plant's compound leaves are somewhat fleshy and villous (covered with soft hairs), hence one of its common names, "Hairy Deervetch."

Flowering starts in March and April. Numerous small yellow blossoms are borne, each tucked into an axil, the juncture of a leaf with its stem. Its seedpods are small peapod structures each containing a few seeds. The annual's life cycle is complete with the onset of heat and drought in late spring or early summer.

### The Importance of PEP

PEP, shorthand for "potassium excretory potential" is a term coined by animal nutritionist Olav T. Oftedal, a researcher with the National Zoological Park, Smithsonian Institution, Washington D.C. PEP is an important concept in Desert Tortoise biology. The desert is a highly alkaline



Photo copyright © 2005 Steve Matson. Printed by permission from the photographer. Source: CalPhotos <calphotos.berkeley.edu>

environment and most desert plants have a high potassium content. To help balance potassium levels, tortoises seek out and eat high-PEP plants like *L. humistratus*. High-PEP plants typically have high water and protein contents, and lower potassium. See Mark Massar's article titled "Forage Preferences and Feeding Behavior" on page 7 of this issue.

The Desert Tortoise, Dr. Oftedal hypothesizes, colonized winter rainfall deserts such as the Mojave and Colorado Deserts because it could regularly find high-PEP plants such as *L. humistratus* on which to feed. Hill Lotus has a relatively low potassium level with high moisture and nitrogen content that help tortoises control potassium levels. The plant also provides the Desert Tortoise with a protein source, essential for growth, reproduction and resistance to disease.

In bite-count observation studies conducted by wildlife biologists, nearly 30% of the tortoise bites were taken from Foothill Deervetch. *L. humistratus* is a preferred as well as important source of nutrition for the wild Desert Tortoise. □

### REFERENCES

- Berry, Kristin H. Alien Annual Plants and the Desert Tortoise. <[www.tortoise-tracks.org/publications/weeds.html](http://www.tortoise-tracks.org/publications/weeds.html)>  
Bowers, Janice Emily. 100 Desert Wildflowers of the Southwest. Tucson, AZ: Southwest Parks and Monuments Association. 1989.  
Oftedal, Olav T. et al. Are Desert Tortoises Nutritionally Constrained By A Shortage Of High PEP Plants, And If So, What Do We Do? <[www.deserttortoise.org/abstract/abstracts2003](http://www.deserttortoise.org/abstract/abstracts2003)>



# The Story of the Tortoise and the Hare



**WARE** built if for the Hare

**\$69.99**

**\*Plus shipping**

and **TOO SLO** told us

It's perfect for a Tortoise.

\*Size 53"L x 24"W x 21" High.



- Tortoises can recieve beneficial UVB
- Great outdoor pasture for grazing in the yard
- Perfect shaded area and hideout



**Carry about handles  
make relocation  
Quick and Easy!**



Available online from  
[www.critter-cages.com](http://www.critter-cages.com)  
Phone: 310 832-9981



# California Turtle and Tortoise Club Inland Empire Chapter

**A Non-Profit Organization**  
is having their

## Annual Turtle & Tortoise Show

**Saturday, August 9, 2008**

10:00 am – 4:00 pm

Admission: **FREE**

- ❖ Live Exhibits
- ❖ Adoption Information
- ❖ Educational Displays
- ❖ Fund Raising Table
- ❖ Raffle
- ❖ Baked Goods & Soft Drinks

Redlands Senior Citizen Center  
111 W. Lugonia Ave.  
Redlands, CA

**COME JOIN THE FUN!**

For information call: (951) 785-6991  
or  
Check out: [www.tortoise.org](http://www.tortoise.org)



## New CTTC Branch Formed in San Jose, CA

At its April 19, 2008 meeting the Club's Executive Board resoundingly approved the formation of the California Turtle and Tortoise Club San Jose Branch. The San Jose Branch will be CTTC's first Bay Area venture.

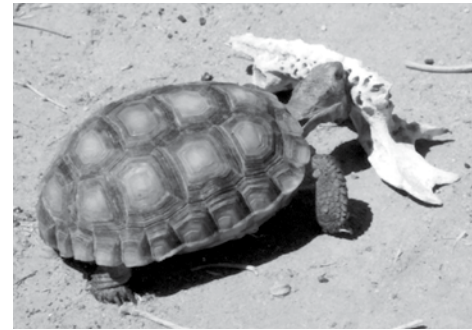
The San Jose Branch will be meeting at Baldwin Elementary School Cafeteria, 280 Martinvale Lane, San Jose, CA 95119.

If you are interested in more information or in helping with the new branch, please feel free to contact any of the following:

- ◆ Jerry Gach (408) 227-5267  
<thewormdude@comcast.net>
- ◆ Gilbert & Dorothy Castro (408) 745-7469  
<minitank.tortoises@earthlink.net>
- ◆ John Best (310) 753-0471  
<john.p.best@gmail.com>

John Best is Adoption Chair for the San Jose Branch. Check the Branch webpage for more updated information: <[www.tortoise.org/sanjose](http://www.tortoise.org/sanjose)>

The San Jose Branch is under the sponsorship of CTTC's TOOSLO (San Luis Obispo) Chapter.



Juvenile Desert Tortoise gnawing on a deer bone for calcium. Photo by Wanda Hadlock.

To keep every cog and wheel is the first precaution of intelligent tinkering.

— Aldo Leopold, American conservationist, 1887-1948

## Online [www.tortoise.org](http://www.tortoise.org)

Webmaster Michael J. Connor <[mconnor@tortoise.org](mailto:mconnor@tortoise.org)>

The California Turtle & Tortoise Club invites you to visit its award-winning website to learn more about turtles.

- ❑ CTTC membership information
- ❑ Calendar of events
- ❑ Turtle help line and species care sheets
- ❑ Conservation news and information
- ❑ Turtle photo gallery and audio files of tortoise calls
- ❑ Chelonian archives
- ❑ Recommended reading and bookstore
- ❑ Links to turtle and tortoise resources worldwide
- ❑ Sign up for the CTTC\_Turtle\_And\_Tortoise List

**Support CTTC by purchasing books, magazines, music and software!**

Click on the special links to [Amazon.com](http://Amazon.com) or [Barnes and Noble.com](http://Barnes and Noble.com) to make your purchases. CTTC will receive commissions which help maintain its website and support its educational, humane and conservation activities.

## Classified Advertisements

Advertisements run for one issue at \$5<sup>00</sup> for four lines or less, \$30<sup>00</sup> for 1/4 page, and are accepted at the discretion of the Editor. Ads are available to members and subscribers only. Advertisements are run as a service to our members. California Turtle & Tortoise Club is not responsible for merchandise placed for sale in the *Tortuga Gazette*. Please send ad fee to:

CTTC *Tortuga Gazette*, attn Treasurer, P. O. Box 7300, Van Nuys, CA 91409-7300.

Mail fee with advertisement to the *Tortuga Gazette* mailing address **OR** Mail fee to mailing address and email advertisement to <[gazette@tortoise.org](mailto:gazette@tortoise.org)>

**For Sale:** Captive Bred Tortoise Babies: Redfoots: \$75-\$125 each; Russians: \$125 each. Shipping available, email for more info. Contact Reid at: [cheloniandork@cox.net](mailto:cheloniandork@cox.net)

## Membership

Annual membership in the California Turtle & Tortoise Club and subscription to the *Tortuga Gazette* are handled through the CTTC Chapters. Members are free to join any chapter. Many members in California choose to join a nearby chapter to participate in chapter meetings and other activities. Membership forms can be printed from the CTTC website <[www.tortoise.org](http://www.tortoise.org)> and mailed to the chapter of your choice. The Chapter Directory on the following page has contact information and mailing addresses for each chapter.

### Membership fees

- ◆ Individual/family . . . \$20<sup>00</sup> ◆ Canada/Mexico...\$25<sup>00</sup>
- ◆ Foreign . . . \$40<sup>00</sup> ◆ Life membership . . . \$500<sup>00</sup>



# CTTC Directory

All CTTC chapters now have websites. Please visit your chapter website for the officers' current email addresses.

## **Cen-Val Chapter** <[www.tortoise.org/cen-val](http://www.tortoise.org/cen-val)>

☒ P.O. Box 16418, Fresno, CA 93755-6418  
 Pres Robert Scott (559) 439-6690  
 Sec/Treas Diana Gatti degatti@sbcglobal.com  
 Meeting: First Thursday, 7:00 pm @ Del Mar Elementary School, 4122 No. Del Mar, Fresno, CA 93704

## **Chino Valley Chapter** <[www.tortoise.org/chino](http://www.tortoise.org/chino)>

☒ P. O. Box 1753, Chino, CA 91708-1753  
 Pres Jim Misiak (909) 627-0424  
 Corr Sec/Treas Penny Hyde (951) 734-3119  
 Adopt Lynda Misiak (909) 627-0424  
 Meeting: Third Friday, 7:30 pm @ Chino Community Building, 5443 "B" Street, Chino, CA 91710

## **Foothill Chapter** <[www.tortoise.org/foothill](http://www.tortoise.org/foothill)>

☒ P. O. Box 51002, Pasadena, CA 91115-1002  
 Pres Dianne Huwaldt (626) 798-9227  
 Mem/Treas Pam Eliassen (626) 798-2744  
 Adopt Linda Crawford (626) 836-0399  
 Meeting: Fourth Friday, 7:30 pm @ Los Angeles County Arboretum, 301 No. Baldwin Ave, Arcadia, CA 91007

## **High Desert Chapter** <[www.tortoise.org/highdesert](http://www.tortoise.org/highdesert)>

☒ P. O. Box 163, Victorville, CA 92393  
 Pres Pam Stich (760) 949-6568  
 V-P/Adopt Dave Zantiny (760) 242-5198  
 Sec Mary Dutro (760) 247-2364  
 Meeting: Second Monday, 7:00 pm @ Sterling Inn Regency Room, 17738 Francesca Road, Victorville, CA 92395

## **Inland Empire Chapter** <[www.tortoise.org/inlandempire](http://www.tortoise.org/inlandempire)>

☒ P. O. Box 2371, San Bernardino, CA 92406  
 Pres Tim Anderson (909) 224-4898  
 V-P Mary Burrows (909) 793-0518  
 Corr Sec Vendy Martin (909) 864-0978  
 Meeting: First Friday, 7:30 pm @ San Bernardino County Museum, 2024 Orange Tree Lane, Redlands, CA 92374

## **Kern County Chapter** <[www.kerncttc.org](http://www.kerncttc.org)>

☒ P. O. Box 81772, Bakersfield, CA 93380-1772  
 Pres Leonard Plunkett (661) 809-5527  
 V-P/Adopt Don Williams (661) 391-8791  
 Treas/Memb Linda Moore (661) 391-0220  
 Meeting: Third Tuesday, 7:00 pm @ Rasmussen Senior Center, 115 E. Roberts Lane, Bakersfield, CA 93308

## **Low Desert Chapter** <[www.tortoise.org/lowdesert](http://www.tortoise.org/lowdesert)>

☒ P. O. Box 4156, Palm Desert, CA 92261  
 Pres Tony Vaninetti (760) 328-7650  
 Sec Carol Wilcox (760) 329-0036  
 Adopt Bill Powers (760) 346-5694 ext. 2201  
 Meeting: First Monday of every even month, 7:00 pm @ The Living Desert, 47-900 Portola, Palm Desert, CA 92260

## **CTTC Executive Board** <[mconnor@tortoise.org](mailto:mconnor@tortoise.org)>

☒ CTTC, P. O. Box 7300, Van Nuys, CA 91409-7300  
 Chair Michael J. Connor, Ph.D. (818) 345-0425  
 Vice-Chair Johnny Rodriguez (805) 489-1401  
 Secretary Lynda Bagley (714) 437-7042  
 Treasurer Larry Reiners (818) 787-8683

## **Tortuga Gazette** <[gazette@tortoise.org](mailto:gazette@tortoise.org)>

Editor Mary A. Cohen editor@tortoise.org  
 Distribution Jane Roth janer909@aol.com

## **CTTC Website** <[www.tortoise.org](http://www.tortoise.org)> <[mconnor@tortoise.org](mailto:mconnor@tortoise.org)>

Webmaster Michael J. Connor, Ph.D. (818) 345-0425

## **Orange County Chapter** <[www.tortoise.org/orangecounty](http://www.tortoise.org/orangecounty)>

☒ P. O. Box 11124, Santa Ana, CA 92711  
 Pres/V-P Tom/Sharon Paquette (714) 671-1467  
 Treas Lynda Bagley (714) 437-7042  
 Adopt contact chapter <occhaptercttc@hotmail.com>  
 Meeting: Second Friday, 7:30 pm @ Chapman University Science Center, rm 127, 346 No. Center St., Orange, CA 92866

## **San Jose Branch** <[www.tortoise.org/sanjose](http://www.tortoise.org/sanjose)>

☒ P. O. Box 14222, San Luis Obispo, CA 93406  
 Contact Jerry Gach (408) 227-5267  
 Adoptions John Best john.p.best@gmail.com  
 Meeting: contact Jerry or John for day and time @ Baldwin Elementary School Cafeteria, 280 Martinvale Lane, San Jose, CA 95119

## **Santa Barbara-Ventura Chapter** <[www.tortoise.org/santabarbara](http://www.tortoise.org/santabarbara)>

☒ P. O. Box 60745, Santa Barbara, CA 93160  
 Pres Dave Friend (805) 649-4713  
 V-P/Adopt Wes Shipway (805) 491-2580  
 Meeting: Now meets in members' homes; check the chapter website for meeting time and location.

## **TOOSLO (San Luis Obispo) Chapter** <[www.tooslo.org](http://www.tooslo.org)>

☒ P. O. Box 14222, San Luis Obispo, CA 93406  
 Pres Johnny Rodriguez (805) 489-1401  
 V-P Wesley Mello (805) 748-8927  
 Adopt Bob Thomas (805) 481-5222  
 Meeting: Second Wednesday, 7:00 pm @ PG&E Community Center, 6588 Ontario Rd, San Luis Obispo, CA 93405

## **Turtle & Tortoise Care Society** <[www.tortoise.org/ttcs](http://www.tortoise.org/ttcs)>

☒ P. O. Box 15965, Long Beach, CA 90815-0965  
 Pres Ralph Hoekstra (714) 962-0624  
 Treas Judy Leong Belcher (562) 425-6798  
 Adopt Peggy Nichols (562) 429-8002  
 Meeting: Third Friday, 7:30 pm @ University Baptist Church, 3434 Chatwin, Long Beach, CA 90808

## **Valley Chapter** <[valleycttc@yahoo.com](mailto:valleycttc@yahoo.com)>

☒ P. O. Box 2896, Canoga Park, CA 91396  
 Pres Larry Reiners (818) 787-8683  
 V-P Stephanie Pappas (805) 901-8746  
 Adopt Cory Lagusker (661) 312-6311  
 Meeting: Third Friday, 7:30 pm @ Woodland Hills Christian Church, 5920 Shoup, Woodland Hills, CA 91367

The California Turtle & Tortoise Club is a non-profit 501(c)(3) corporation. Contributions are tax deductible to the full extent of the law. Please pay by USA funds only (US bank check, money order, or International Postal Order. Your renewal date (month/year) and chapter are indicated on the address label. Mail your new or renewal membership subscription to the chapter of your choice. Chapter mailing addresses are listed above beside the ☒ icon.



California Turtle & Tortoise Club  
Executive Board  
Post Office Box 7300  
Van Nuys, CA 91409-7300  
CTTC Online <[www.tortoise.org](http://www.tortoise.org)>

Non-profit Org.  
U. S. Postage  
PAID  
Van Nuys, CA  
Permit No. 877

Address Service Requested



————— **Moving?**  
please send us your  
change of address

**the Tortuga Gazette**

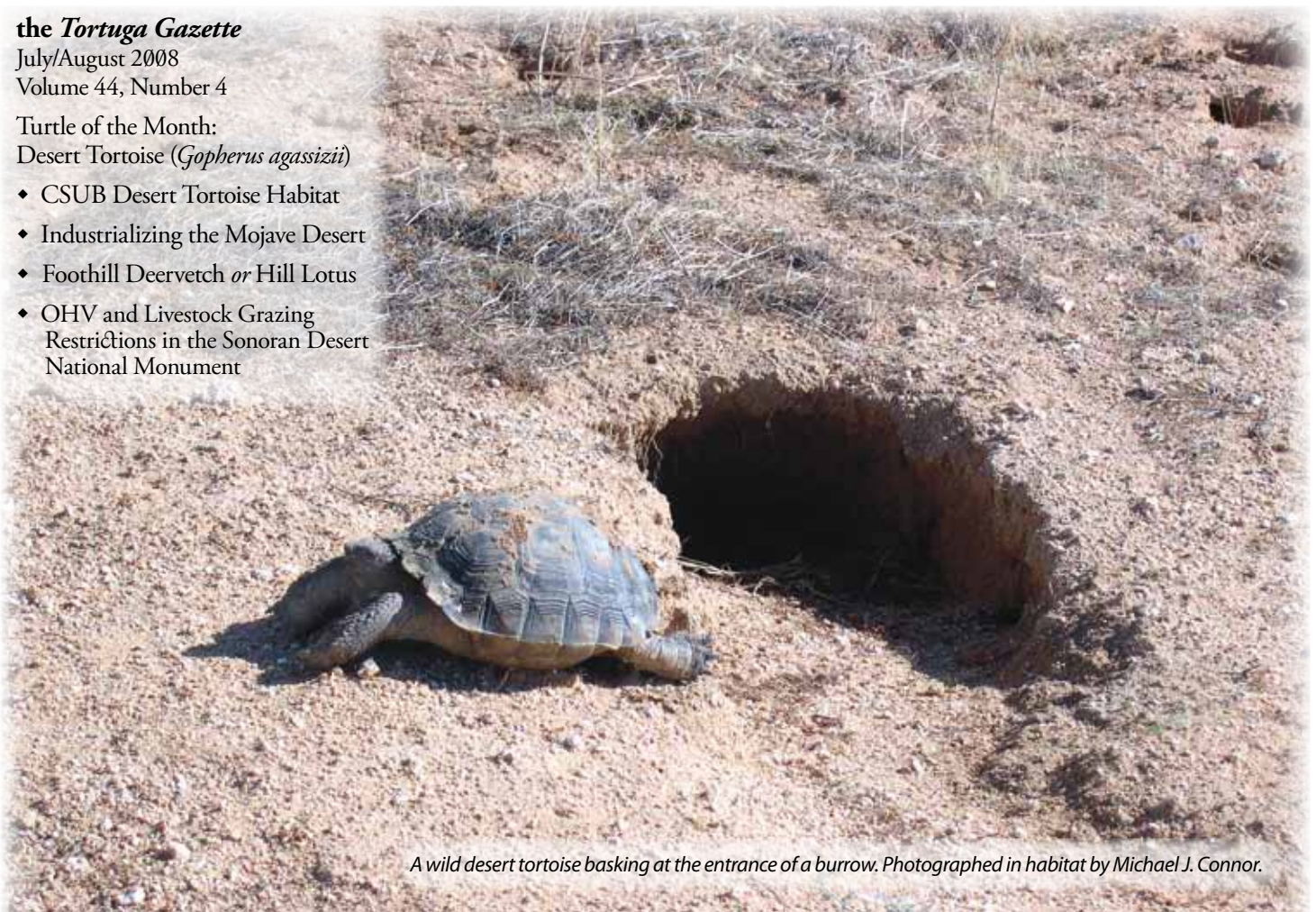
July/August 2008

Volume 44, Number 4

Turtle of the Month:

Desert Tortoise (*Gopherus agassizii*)

- ♦ CSUB Desert Tortoise Habitat
- ♦ Industrializing the Mojave Desert
- ♦ Foothill Deervetch *or* Hill Lotus
- ♦ OHV and Livestock Grazing Restrictions in the Sonoran Desert National Monument



*A wild desert tortoise basking at the entrance of a burrow. Photographed in habitat by Michael J. Connor.*