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An adult Sinaloan or Goode's Thornscrub Tortoise, *Gopherus evgoodei*, photographed in habitat in the Sonora-Sinaloan dry forest in Alamos, Sonora, Mexico. Photo © 2019 by Eric Hough

featured species

Sinaloan or Goode's Thornscrub Tortoise, *Gopherus evgoodei* (Edwards et al., 2016)

The Sinaloan Thornscrub Tortoise, Buffelgrass, and Climate Change by M. A. Cohen

In 2016, Dr. Taylor Edwards and his co-authors scientifically described the newest of the three "sister species" of desert tortoises, the Sinaloan thornscrub tortoise, *Gopherus evgoodei*. Named in honor of Eric V. Goode, a New York entrepreneur and founder of the Turtle Conservancy, the Sinaloan or Goode's thornscrub tortoise has a conservation status of "Vulnerable" according to the International Union for the Conservation of Nature's Red List of Threatened Species.

The range of the Sinaloan thornscrub tortoise is only 9,266 square miles (24,000 square kilometers), the smallest territory of any of the three recognized desert tortoise species. Its range includes the tropical deciduous forest (TDF) and the thornscrub biomes* in the states of Sonora, Sinaloa, and Chihuahua. *G. evgoodei* is restricted to northwestern Mexico and does not occur elsewhere.

Flora and fauna that occur in limited ranges face serious consequences when their habitats undergo alterations. The modification of such environments by the invasion of nonnative plants has a deleterious effect on the herbivores and omnivores that depend on the native forage to fulfill their nutritional requirements.

*__Biome:__ a large, naturally occurring community of flora and fauna occupying a major habitat.

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In addition to the lower nutritional quality of many invasive plants, these nonnative species alter the habitat itself, out-competing native flora by displacing plant species that provide shade for the native animals.

Reduced shade raises the ambient temperature in the environment, which, in turn, reduces the available periods of activities such as foraging and mating for the animals, especially those whose body temperature depends on temperature in the environment. Because a tortoise is a thermoconformer, meaning its body temperature fluctuates in response to the environmental temperature, it **must** avoid overheating, a condition which can have dire consequences for the animal (Lara-Reséndiz et al, 2022).

This article will review two recent scientific studies that explore some of the reasons for the Vulnerable listing of *G. evgoodei*.

The Tropical Deciduous Forest

Found worldwide between the Tropic of Cancer (at latitude 23° north of the equator) and the Tropic of Capricorn (at latitude 23° south of the equator), tropical deciduous forests (TDF) are also called tropical dry forests because of the alternating periods of seasonal drought and monsoonal rainfall that typify this unique ecosystem.

A juvenile Sinaloan thornscrub tortoise photographed in habitat in Sonora, Mexico. Photo © 2021 by Alvaro Monter Pozos

TDF ecosystems occur worldwide. They are "one of Earth's most overlooked and endangered ecosystems ... (and) account for nearly half of all tropical and subtropical forests worldwide" (Kimbrough, 2025).

Estimates of the degree of decline vary, but ecologists acknowledge that most of the TDFs worldwide have succumbed to agriculture and other forms of development such as roads and housing. These fragmented patches of TDF are subject to the damaging effects of climate change, which, in turn, affects both the plants and animals native to the ecosystem.

Animals in general, and reptiles in particular, tend to have upper and lower limits to the environmental temperatures in which they can exist. As temperatures rise and historical seasonal patterns are disrupted, "catastrophic fires" become increasingly likely to destroy the remaining fragments of TDF and the diversity of lifeforms within them (Kimbrough, 2025).

The intact TDF features a "well-developed canopy (~12 meters [39 feet] high) that provides shade as a thermal refuge." Trees, shrubs, and columnar cacti with an understory of sub-shrubs and woody perennials create a "warm, humid, and shady microclimates" that protect the local wildlife from overheating during the highest tropical temperatures (Lara-Reséndiz et al, 2022).

The southern Sonoran TDF has a primary rainfall season from July to early November and a secondary rainfall season from December to early February (Lara-Reséndiz et.al., 2022).

In the southern Sonoran TDF, a period of drought lasting approximately seven months follows the rainfall seasons, and during the drought many native

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plants become partially or fully drought-deciduous, that is, they resort to dropping their leaves in order to endure the season of comparatively hot, dry weather.

The Thornscrub Biome

A transitional zone between the tropical deciduous forest and the desert biomes, the thornscrub habitat in North America "looks like a wet desert, and that's essentially what it is," according to the Arizona-Sonora Desert Museum.

The thornscrub biome consists of small trees, shrubs, succulents, and herbaceous plants that are well-adapted to the cycles of rainfall and drought present in such localities. Grasses are largely absent in ***pristine*** thornscrub habitats.

Many thornscrub plants are equipped with thorns that provide some physical defense against damage by foraging herbivores and omnivores. The woody plants within the TDF and thornscrub biomes typically exhibit the property of drought deciduousness, meaning they shed their leaves in response to drought and regrow their foliage when rains arrive.

Many shrubs and small trees in these biomes possess green bark. Its green pigmentation is due to the presence of chlorophyll, the pigment that imparts the green coloration to a plant's leaves and stems. Chlorophyll absorbs energy from light, enabling plants to produce their food by combining water and carbon dioxide through the process of photosynthesis in their stems even in the absence of leaves (Cohen, 2016).

Goode's thornscrub tortoise photographed in habitat in Sinaloa, Mexico. Photo © 2021 by Kenia Reyes

Buffelgrass

Also known as African foxtail grass, buffelgrass (*Cenchrus ciliaris*) is an invasive, non-native, perennial member of the Poaceae family, a.k.a. the Graminae, the family of grasses. Buffelgrass is native to Africa, the Middle East, and tropical Asia, and has naturalized throughout the Old World.

Since its introduction into continental North America in the 1940s for erosion control, buffelgrass has been widely cultivated by ranchers as forage for their grazing livestock.

However, these practical uses for buffelgrass failed to take into consideration some of the more noxious tendencies of buffelgrass, namely its invasion of pristine ecoregions, its ability to out-compete more the more desirable native plants, and its role in fueling destructive grass fires.

G. evgoodei photographed in habitat. Notice the slender green tree trunk to the right of the tortoise. Photo © 2021 by Alvaro Monter Pozos

Buffelgrass is well-adapted to fire, and it is notorious for providing a heavy fuel load that intensifies the fire. It recovers rapidly following the fire and may increase in density as it regrows.

Severe damage occurs in native plant communities that are not adapted to fire and are less able to recover from the devastation caused by it. Terrestrial animals and ground-nesting birds are also at significant risk from these fires.

In Hawaii, abandoned agricultural lands formerly used as sugarcane plantations are often overgrown by buffelgrass and other non-native species. Buffelgrass was one of three nonnative grasses that, coupled with gale-force winds, propelled the deadly wildfires which destroyed much of historic Lahaina on the northwest coast of Maui in 2023 (Kim, 2023).

Australia cites buffelgrass, along with other nonnative grasses, as fueling some of its destructive wildfires. Introduced to Australia over 50 years ago, buffelgrass helped keep down dust and improved forage for the livestock of graziers, ranchers who raise animals for market.

However, many groups in Australia, from Aboriginal people to park rangers to wildlife biologists, warn that buffelgrass is decimating native plant communities, threatening endangered animals dependent on native forage, and

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promoting wildfires (Straight, 2015).

Recent Research

Two recent scientific studies, published in 2022 and 2024, examined the TDF ecosystem that the Sinaloan thornscrub tortoise inhabits relative to invasive plant species and climate change.

Having evolved over 40 million years ago, the North American *Gopherus* species have survived significant environmental trials throughout their many millennia of life. They now face numerous anthropogenic (man-made) challenges as their ecosystems suffer the impacts of habitat degradation and loss, deforestation, drought, and climate change.

Rafael A. Lara-Reséndiz and a team of scientists conducted a 5-year study of the habitat of Goode's thornscrub tortoise and the effects of invasive, fire-cycle plants on the habitat and the tortoise itself, the results of which were published in 2022.

The research team concentrated its *G. evgoodei* study on three types of ecosystems in the southern Sonora, Mexico: (1) pristine, legally protected TDF, (2) a patch of TDF surrounded by introduced buffelgrass, and (3) a buffelgrass pasture area.

The researchers established the average body temperature for the Sinaloan thornscrub tortoise by taking temperature measurements on a group of semi-captive *G. evgoodei* living approximately 3 miles (5 kilometers) from the study site.

The team fabricated "operative temperature models...constructed to mimic the size and shape of the *G. evgoodei* shell" using copper sheet that was "cut, folded, riveted, and sealed with solder and silicone," in several tortoise-appropriate sizes, for each of the

Adult Goode's thornscrub tortoise photographed in habitat in Sonora, Mexico. **Photo © 2020 by Oscar Leonardo Chavez Torres**

three study sites (Lara-Reséndiz et al., 2022).

The team positioned the copper-sheet shell models in the field based on their observations of wild tortoises during previous fieldwork. The researchers employed six models for each of the three study sites, resulting in a total of 18 models. Data loggers suspended in the center of each copper model were sampled every 30 minutes from October 2012 to September 2017 at each study site.

The study focused on the thermal quality of each of the three study sites in relation to tortoise activities such as foraging, feeding, digestion, growth, and mating. "High environmental temperatures present a serious problem because body temperatures over 104 °F (40 °C) can be lethal." Therefore, tortoise activity "is constrained by high environmental temperatures" (Lara-Reséndiz et al., 2022).

The closed canopy of the TDF provides *G. evgoodei* with a high-quality thermal niche during its seasonal activities, enabling the species to maintain an average body temperature of 84.9°F (29.4°C). At this temperature, the species can efficiently digest the plant tissues it consumes and perform its essential activities without risking overheating.

"The invasion and spread of buffelgrass (since 1940) is catastrophic" because recurrent fires mean the loss of vegetation that provides food, shade, and shelter from predators. Grass fires lead to tortoise mortality by exposing *G. evgoodei* to lethal flames and intense heat. According to studies by other scientists, global climate change increases the risk of buffelgrass invasion, which, in turn, "will make tortoise habitats relatively unfit and increase their local extinction risk" (Lara-Reséndiz et al., 2022).

In 2024 Rafael Lara-Reséndiz and another team of researchers further investigated the role of climate change and reduced shading in the TDF on the activities of Goode's thornscrub tortoise.

Reptiles are ectothermic animals, meaning that they are dependent on external (environmental) sources to maintain a body temperature conducive to survival and reproduction. Comparatively minor changes in environmental temperature can have highly negative consequences for ectotherms, and *G. evgoodei* is no exception.

The Intergovernmental Panel on Climate Change (IPCC) of the United Nations "anticipates a global surface temperature rise of 34.7-35.6 °F (1.5-2 °C) by at least mid-century." The IPCC uses the projection of a 35.24 °F (1.8 °C) increase in surface temperature compared to the current temperature. Such an increase will substantially limit reptile activity

with "decreased activity hours and increased thermal restrictions for ectotherms" (Lara-Reséndiz et al., 2024).

The Sinaloan thornscrub tortoise is most active during the warmer months, from May through October, with July through September being the most active months. This period of most intense activity coincides with the monsoonal rainfall season.

From November through April the species estivates (becomes dormant) because the percentage of shade decreases due to the drought-deciduous strategy of the trees and shrubs and food is scarce.

G. evgoodei seeks shelter in burrows it digs or adapts, or in rock crevices and cavities when surface conditions such as extremely cold or hot temperatures, threats by predators, or wildfires occur. These shelters protect the tortoise from life-threatening situations.

Through sophisticated computer modeling, the research team explored the "intricate relationship between temperature, shade, and the behavior of *G. evgoodei*." Their research revealed that the tortoise is most active when it has access to both direct sunlight and shade. When the amount of available shade decreases, the amount of activity declines.

The impact on "tortoise critical behaviors" such as foraging and mating is significant and negative during periods of thermal stress. Constraints on courtship, mating, and egg production take place, and, because the tortoise is subject to temperature-dependent sex determination, the balance between the male and female members in a given population will become skewed (Lara-Reséndiz et al., 2024).

The nation of Mexico historically had the greatest percentage of TDF in the world. Driven by "demographic, social, and economic pressures ... a 66% decrease" in the amount of forest loss took place in the 20th century and continues to this day. Legal protection from development exists for only 0.2% of the remaining TDF.

Climate change, a direct threat to many reptile species, leads to an increasing restriction in their hours of activity, putting populations of *G. evgoodei*, with their "narrow thermal tolerances," at great risk, endangering their very survival (Lara-Reséndiz et al., 2024).

A Sinaloan thornscrub tortoise photographed in habitat in Alamos, Sonora, Mexico. **Photo © 2015 by naturegirlkh**

Preservation of the complex conditions present in a healthy TDF, particularly the availability of shade, is essential for the survival of *G. evgoodei* and many other endemic species. Legally protecting this fragile forest ecosystem is crucial to its continued existence.

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SHOWTIME! CTTC's May Turtle and Tortoise Shows

May 3: Orange County Chapter's Show at the First Christian Church of Orange

By John Kim

We had about 250 visitors throughout the day despite wet weather in the morning.

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May 17: Chino Chapter's Show at the Chino Girl Scout House

By Rachelle Buck and Lynda Misiak

The Chino Chapter of the CTTC held their annual show on May 17th at the Girl Scout House in Chino.

Lynda Misiak, the Chino Chapter president, was instrumental in organizing the show and live displays. She was available for desert tortoise permitting and answered questions about adoptions while Jim Misiak displayed their Black Mountain Tortoise (*Manouria emys*), Coal. Lynda also brought her beautiful radiated tortoises (*Astrochelys radiata*) to share with guests.

Box turtle species from North America.

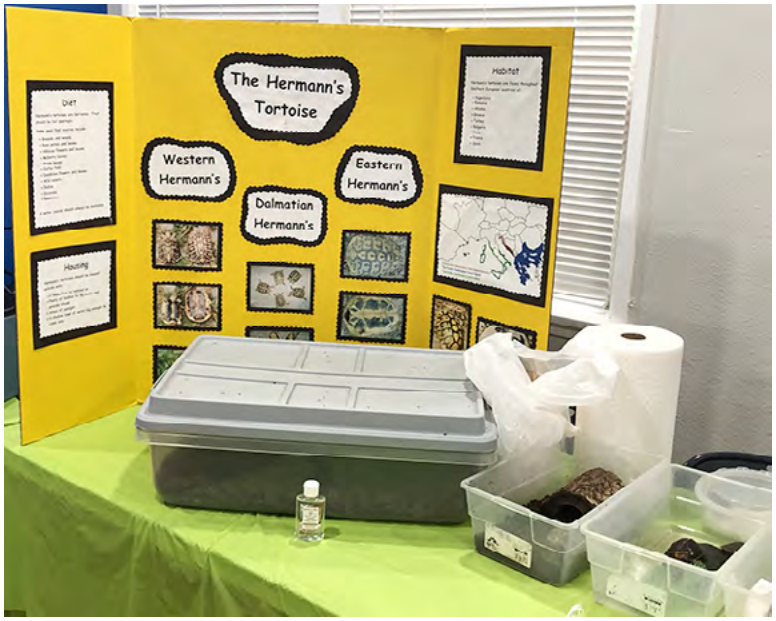
Rachelle Buck brought box turtles, and her display represented all the box turtles found in the United States along with a map of their habitats and their diet requirements. She also brought examples of her three subspecies of Hermann's tortoises (*Testudo hermanni*).

Kristina Sanchez brought a variety of box turtles (*Terrapene* species) to share, including three-toeds, ornates, and gulf coast box turtles. She also shared her cute cherryhead tortoise (*Chelonoidis carbonarius*) and answered many questions about caring for them properly, including information on how to keep them in warm, moist conditions for smooth shell growth. Her father, Sal Cervantes, was the enthusiastic door greeter and also sold his unique woodworking accessories for shelled friends, including an adjustable back scratcher.

Patti Mutz brought her Leopard Tortoise (*Stigmochelys pardalis*) and Desert Tortoise (*Gopherus agassizii*) to share. She had a lot of information to share on poster boards and answered questions about husbandry for both species.

Dave and Wendy Bowman brought their juvenile sulcata, DejaVu, the second sulcata hatchling they have found in their yard. Their pictures included their high humidity set-ups as well as outside pens with kiddy pools for soaking (showcasing their older sulcata, Creme Brulee) [*Centrochelys sulcata*].

Other live exhibits included a Chinese Box Turtle and Redfoot Tortoise (shared by Joe and Cheryl Zappen) [*Cuora flavomarginata* and *C. carbonarius*], Russian tortoises (shared by David Fleischer) [*Agrionemys horsfieldii*] and an amazing Keeled Box Turtle (shared by Kurt and Amy Taylor) [*Cuora mouhotii*].



Three species of Hermann's tortoises.

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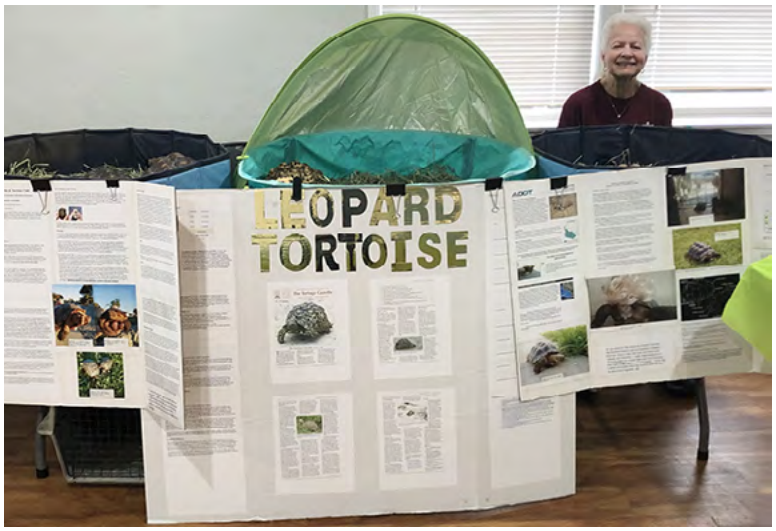

Leopard tortoise and desert tortoise information.

The bake sale table, including cupcakes with white chocolate turtles) was staffed by Susan Matter. Wendy Bowman also worked the sales table with items such as jewelry, turtle stickers, knickknacks, and even turtle-themed soap.

The 2025 Chino Chapter annual show was a great, educational event that was enjoyed by many visitors.

May 17: Kern County Turtle & Tortoise Club's Show at the C.A.L.M. Zoo

By Heather Ponek, Kern County Turtle & Tortoise Club President

Bakersfield is fortunate to have a California Native Animals & Plants Zoo. The California Living Museum, C.A.L.M., is located by the beautiful Hart Park, 10500 Alfred Harrell Highway. This 14-acre park has over 80 species, 250+ animals, including many desert tortoises (*Gopherus agassizii*).

Kern County Turtle & Tortoise Club (KCTTC) is part of the show each May. We show up early, setting up multiple tables, a canopy, our signs, and our live tortoises. Hundreds of visitors come by, and we do our best to engage with them and answer their questions about the care of tortoises.

The 2025 KCTTC display at the C.A.L.M. Zoo event. Author Heather Ponek (in the blue shirt) stands in front of the display.

Heather with two young friends.

We are grateful to be outside and let the public carefully touch the desert tortoises; some for the first time. *This year, for the first time, we had prizes – tortoise on key chain, stickers and tortoise toys. Kendra is helping: answer a question on the board and you get a prize. This worked very well as there are lots of children wanting to learn.

Heather and Kam enjoy a quite moment with Cinnamon the Bear

A young visitor gently touching the upper shell of a desert tortoise.

Angela (in the pink shirt) teaching visitors about the shell of a tortoise.

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Showing How to "Pet" a Tortoise

Jolene, KCTTC treasurer.

Cindy, KCTTC Adoption Chair, and member Joel.

Madellyn, KCTTC Secretary.

Tim, KCTTC Vice President and Habitat Chair.

We walked around, enjoying the Zoo festivities and handing out pamphlets about KCTTC.

We are thankful for all our volunteers who helped out with another successful outreach show sharing the world of tortoises!

I will close with this question – how many club members does it take to fold up a canopy? …we are still figuring it out. Maria and Mark lending a hand with the canopy.

May 17: Valley Chapter Annual Show at Woodland Hills Christian Church

Story by Karen Berry with photos by Cristina Perovich and Will Shanahan

Valley Chapter holds an annual educational and fundraising show to showcase various species of turtles and tortoises and educate the public on care and conservation issues. We promote our adoption program, and the show also benefits the "sick and injured" turtle fund to help with needed veterinary expenses.

The 2025 show was held on May 17th, which coincided with Armed Forces Day. We were fortunate to have other conservation and wildlife organizations with similar missions join us.

- **CTTC's Santa Barbara/Ventura Chapter,** https://www.tortoise.org/santabarbara, members, now Valley show veterans, participated in the show, provided a lot of care and other information on various kinds of turtles and tortoises, and promoted their chapter.
- **Friends of California Condors Wild and Free**, affiliated with U.S. Fish & Wildlife, teaches people about the preservation of these magnificent birds, and assists in efforts to increase their numbers in the wild. https://www.friendsofcondors.org
- **Southwestern Herpetologists Society** is dedicated to education regarding reptiles and amphibians, their preservation and rescue. Members brought snakes, lizards and amphibians for all to see and enjoy. https://www.facebook.com/groups/SWHS1/about
- **Vicki Anderholt,** https://www.adoptabunnyrabbit.org**,** not only rescues and adopts bunnies, but provides education on rabbits' needs and care, plus boarding service for bunnies when you're on vacation. www.bunnygroomer.com
- **Dr. Andy Anderson of Anza Animal Clinic** in Westlake Village, https://anzaanimalclinic.com, manned our "Ask the Vet" booth. Dr. Anderson loves all pets, but holds a special fondness for exotics, including turtles and tortoises. He is also certified in veterinary pain management.

Carlo (left) & Jodi (right) Inzerella greet attendees at the front gate and collect admission fees. Jodi is 92 years young, has been working the front gate for well over 10 years, and proudly shows off her turtle bracelet.

Will Shanahan, chapter secretary Cathy Carpenter's grandson, donned the new turtle costume, visited with the attendees, took photos of the event, and helped out in the gift shop. He also created a knowledge scavenger hunt for the younger children.

Waffle in the show corral. He is a foster tortoise awaiting a new home.

Tim Perovich (left) and new member Natasha Waldorf (right) staffed the ticket booth for the raffle.

Mortoise the tortoise was adopted by members Cori Maass and Jeremy Padot last year.

Alexander the Great–"Why is Waffle getting all the attention? I know I'm old, but I need love and a new home, too."

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First time show participants Heather Evans (left) and John Witt (right) staffed the ceramic and unusual items table in the expanded Tortuga Gift Shop.

Bubba, chapter member Kirk Weber's sulcata tortoise (*Centrochelys sulcata*)–"I am the official greeter. I finished that job, it's cold, so I'm getting comfy."

Carol Witt (in the tan vest) created and ran "Hatchling Island" where smaller children could learn about turtles and tortoises through coloring and crafts with their families.

CTTC Santa Barbara/Ventura Chapter joined us again this year to help promote CTTC, educate the public and promote their chapter. From left, Treasurer Susan Alvarez and President Wendy Dasgupta.

The turtles and tortoises were the stars of the show, especially a very deformed young desert tortoise named "Waffle." The raffle featured a nice selection of interesting and unique prizes. The Tortuga Gift Shop was able to expand this year, selling various knick-knacks, jewelry, stuffed animals, and other gift items. We also had something new this year, "Hatchling Island", where smaller children could learn about turtles and tortoises through coloring and crafts.

Vicki Anderholt, Adopt a Bunny Rabbit, and volunteers brought 2 adorable bunnies, an Angora (Gandolf, pictured above) and a Dwarf, and plenty of information about adopting a bunny that needs a new home.

The hatchling and juvenile booth is one of the most popular at the show. It was a cold day, so most stayed inside the shelter.

Laurel, a desert tortoise (*Gopherus agassizii*) kept by chapter vice president Robert Hazard.

Southwestern Herpetologists Society brought some beautiful snakes and other reptiles and amphibians. They are always a hit of the show and everybody looks forward to them joining us for the day.

Helen Johnson from Friends of Condors Wild & Free shows the hand "puppet" that is used to feed chicks in the captive breeding program. It simulates being fed by a parent and keeps the chick from becoming too close to humans.

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Dr. Andy Anderson from the Anza Animal Clinic helps attendees with information and answers to questions on tortoise veterinary treatment and care.

Waffle – "You like me, you really like me...!!!!"

There is a lot of hard work involved in putting together a show. It takes a lot of planning, and it wouldn't be a show without the turtles and tortoises of course. But it's the hard work of both veterans and new members that makes it a success. We had a great crew again this year, and a big thank-you goes out to all who worked the specialty areas, did set-up and clean-up, and especially the exhibitors who gave our visitors the opportunity to see "living dinosaurs" in person.

Two of chapter president Maria Kennedy's Russian tortoises (*Agrionemys horsfieldii*).

First-time participants Cori Maass and Jeremy Padot learn about tortoise housing from chapter VP Bob Hazard, aka "Bob the Builder."

Many thanks to all four CTTC chapters for their contributions to this show pictorial !

A male desert tortoise (*Gopherus agassizii*) and a beavertail cactus (*Opuntia basilaris* var. *basilaris*) photographed at the Desert National Wildlife Refuge in Nevada. Photo by Joshua Contois, USFWS. Public domain.

In Memoriam

Mary Ervin Dutro (1933-2024)

Mary Dutro. Photo courtesy of the Dutro family.

Mary Dutro was born in Galveston, Texas in 1933 and moved to Southern California as a child. She lived in Southern California until 2023 when she relocated to Indiana.

She lived in Apple Valley, CA for most of her adult life, having moved there in 1958 with her husband Harold and their four children. She was a grandmother with three grandchildren. Harold passed away in 1990.

Mary had a six-decade career in the profession of nursing. She spent 30 years at St. Mary Desert Valley Hospital in Apple Valley, CA where she served as a nurse in the emergency room, operating room, and the intensive care unit. She spent the next 30 years as a nursing supervisor at Amar Medical Associates prior to retiring in 2022.

She took part in many community activities and organizations and was best known as "The Tortoise Lady." She was a member of the High Desert Chapter of the California Turtle & Tortoise Club and worked energetically in its Adoptions program to rehome the endangered desert tortoises that the Chapter took in.

The High Desert Chapter has renamed a portion of its Lucerne Valley tortoise sanctuary "Mary's Garden" in her honor. Ω

In Memoriam

Virginia White (1930-2025)

Born in 1930 in Santa Ana, California, Virginia Marie Taylor grew up in Santa Paula, CA. She married Lloyd White in 1952, and in 1956 they moved to Fullerton, CA where they lived until 2023 and then moved to Hanford. Virginia passed away in January of 2025 in Visalia.

Virginia and Lloyd had a daughter and two sons, as well as five grandchildren, and several nieces and nephews.

She was a teacher by profession and throughout her life. She taught first grade until she began her own family. She taught her own children, and taught Sunday School classes at the First United Methodist Church in Fullerton. She also taught beginning swimming classes at the North Orange County YMCA. Virginia taught computer classes through several continuing education programs.

She was a lifelong volunteer and a member of community service organizations. She also working word games and puzzles and was an avid reader.

Virginia loved animals and had a particular interest in turtles and tortoises. She acquired at large collection of species during her lifetime. She was an early and possibly a founding member of the Foothill chapter of the California Turtle & Tortoise Club, and she became a member of the Orange County chapter following its formation. Ω

Virginia White. Photo courtesy of the White family.

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The correct high fiber diet for all GRASSLAND TORTOISE species such as: Russian, Sulcata, Leopard, Pancake, Greek, Hermann's, Desert Tortoises, etc.
Net Wt. 50 lbs. (22.7 kg)
No artificial preservatives, colors, or flavors

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A CRITICALLY ENDANGERED TORTOISE ENJOYS ZOO MED GRASSLAND TORTOISE FOOD

The Radiated Tortoise *(Astrochelys radiata)* is the 6th rarest tortoise in the world, and the heroes at Turtle Survival Alliance (TSA) are fighting for its future. As a non-profit, the TSA relies on support from the community. Zoo Med has pledged to donate pallets of their Natural Grassland Tortoise Food to TSA's Madagascar location 3 times a year. This food prevents shell and spinal growth deformities by matching the nutrient profile and high fiber content of a wild tortoise diet.

Join Zoo Med in supporting the TSA's conservation efforts; visit their website to learn more and how to contribute: turtlesurvival.org

TSA
turtle survival alliance

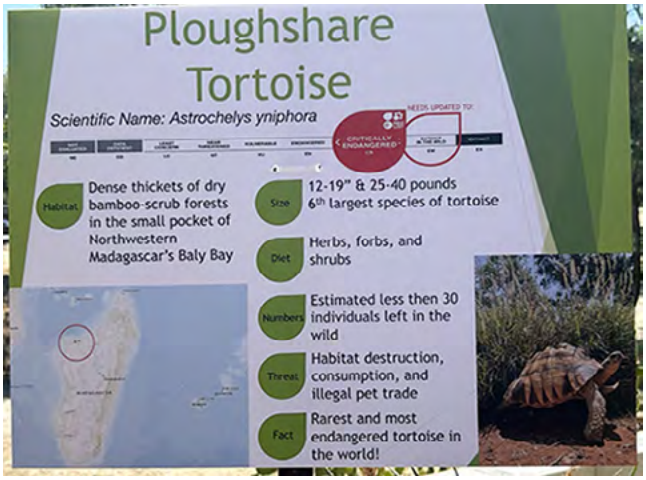
CTTC Executive Board Takes a Field Trip by Erica Shafer

On Saturday, June 14th, 2025, CTTC Executive Board members were invited to enjoy "Tacos and Tortoises" at Carapace Conservation, a nonprofit organization working to save endangered turtles and tortoises from extinction.

While at the event, we got up close and personal with Galápagos tortoises (*Chelonoidis nigra*), saw radiated tortoises (*Astrochelys radiata*), star tortoises (*Geochelone elegans*), and various other endangered tortoise species. Carapace Conservation also has a ploughshare tortoise (*A. yniphora*), which is the most endangered tortoise species on the planet, and Galápagos babies that were successfully hatched under their care last year.

Amber and Chris Rodriguez, founders of Carapace Conservation, were very welcoming and put on a lovely event. Meeting some of their tortoise species was a once in a lifetime opportunity that I am so grateful for. This organization needs as much support from the public as possible in order to further help these shelled creatures.

Thank you to Carapace Conservation and the Rodriguez family for an amazing day. Ω



USGS Captive Desert Tortoise Project

By Erica Shafer

The U.S. Geological Survey (USGS) is conducting a research project on captive desert tortoises. They are looking for **captive** Mojave desert tortoises (*Gopherus agassizii*) in California, 17 years of age or older, whose exact age is known. USGS wants blood samples from these tortoises to determine if age can be distinguished from DNA methylation levels.

The information USGS gathers could play a key role in the success of the *G. agassizii* species and the more participants in the project the better.

For more information, and to take the quiz to see if your tortoise(s) qualify for this project, please visit this link:

U.S.G.S. Captive Desert Tortoise Study

Chapter Meeting Schedule: July/August 2025

Check your chapter website for program information.

Chino Valley
July 18; August 15

Foothill
July 25; August 22

High Desert
July 14; August 11

Inland Empire
NO July Meeting; August 1

Kern County
July 14; August 11

Low Desert
Meeting information to be announced.

Orange County
NO July meeting; August 1

Ridgecrest
NO chapter meetings in July or August

Santa Barbara-Ventura
Meeting information to be announced.

Santa Clarita
Meeting information to be announced.

TOOSLO (San Luis Obispo)
July 22

TTCS (Long Beach)
July 19: Plant Auction Fundraiser; August 16

Valley
July 18; August 15

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

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CTTC Memberships and Renewals

Each chapter handles its own memberships/renewals.

There are three options for membership renewal:

1. Send a check to the mailing address of your chapter. In the panel below, you will find the current membership fees and the mailing addresses for each chapter.
2. Renew your membership in person at your chapter's meeting.
3. Some chapters have PayPal accounts that enable their members to renew memberships online.

The California Turtle & Tortoise Club (CTTC) 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).

Membership in the CTTC and subscriptions to the *Tortuga Gazette* are handled through the CTTC Chapters. The Chapters also manage membership renewals (see postal addresses to the right).

Many members choose to join a nearby Chapter to participate in Chapter meetings and other activities. Print membership forms from the CTTC website.

Your Chapter and your renewal date (month/year) are displayed on your newsletter notification. Mail your new or renewal membership/subscription to the Chapter of your choice.

Membership fees

- Student membership 15^{00}
- Individual membership 25^{00}
- Family membership 35^{00}
- Life membership 500^{00}

CTTC Chapter Mailing Addresses

Chino Valley Chapter: P.O. Box 1753, Chino, CA 91708-1753

Foothill Chapter: P.O. Box 51002, Pasadena, CA 91115-1002

High Desert Chapter: P.O. Box 163, Victorville, CA 92393

Inland Empire Chapter: P.O. Box 7205, Redlands, CA 92375

Kern County Chapter: P.O. Box 81772, Bakersfield, CA 93380-1772

Low Desert Chapter: P.O. Box 4156, Palm Desert, CA 92261

Orange County Chapter: P.O. Box 11124, Santa Ana, CA 92711

Ridgecrest Chapter: P.O. Box 1272, Ridgecrest, CA 93555

Santa Barbara-Ventura Chapter: P.O. Box 3086, Camarillo, CA 93011-3086

Santa Clarita Chapter: P.O. Box 4012, Castaic, CA 91310

TOOSLO Chapter: P.O. Box 763, Grover Beach, CA 93483

Turtle & Tortoise Care Society Chapter: PO Box 15952, Long Beach, CA 90815

Valley Chapter: P.O. Box 7364, Van Nuys, CA 91409-7364

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California Turtle & Tortoise Club
P.O. Box 7300
Van Nuys, California 91409-7300

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