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CALIFORNIA TURTLE & TORTOISE CLUB

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A leopard tortoise, *Stigmochelys pardalis*, photographed in Namibia in Southern Africa. Photo © 2011 by Anagoria

The Tattooed Tortoise by M. A. Cohen

The leopard tortoise, a member of the Testudinidae family of tortoises, has been assigned to four different genera since its description by Thomas Bell (1792-1880) in 1828. Bell assigned the *pardalis* species to the genus *Testudo*.

In 1980, Bour assigned the species to the genus *Geochelone*. In 2002, Bour proposed its assignment to the new genus *Stigmochelys* as the sole species in the genus.

In 2006, Le et al. assigned the *pardalis* species to the tent-tortoise genus *Psammobates*. In 2006, Bonin et al. proposed reassigning the *pardalis* species to the *Stigmochelys* genus. The chelonian community officially accepted the name *Stigmochelys* and currently uses the terminology.

The Meaning of Its Name

The genus name *Stigmochelys* derives via Latin from the Greek word *stigma*, meaning a tattoo, brand, or mark, which is itself derived from *stig–* (the stem of

article continues on page 2 ▶

CONTENTS

The Tattooed Tortoise by M. A. Cohen	1
Tortoise DNA – Implications for Conservation	5
The Turtle's Garden ~ *Lavatera maritima*, Tree Mallow	6
Mike's Turtle Net Picks By Michael J. Connor, Ph.D.	8
NOAA Proposes National Marine Sanctuary in Papahānaumokuākea	9
Registration for the 60th Anniversary Shellabration	10
Letter from the Chair of the CTTC 60th Anniversary Celebration	11
Galápagos Islands Need World Heritage 'In Danger' Status, Groups Say	12
Announcements	13
The Galápagos Comes to Life in New Rochester Institute Technology Press book	15
Meeting Schedule: March/April 2024	16

stizein, meaning to tattoo), and –*ma*, a noun suffix that denotes the result of an action.

The species name *pardalis* is derived from the Latin word *pardus*, meaning leopard, referring to the patterning on its shell that resembles the markings of a leopard, *Panthera pardus*.

Identification

The leopard tortoise is a sizable continental (land) tortoise, second only to the sulcata tortoise, *Centrochelys* (=*Geochelone*) *sulcata* in size. The sulcata tortoise and the leopard tortoise are sympatric (meaning overlapping in their respective ranges) in the northern portion of the leopard tortoise range.

The species displays a high-domed, distinctively marked carapace. Each tortoise has unique carapace markings and may be dark patches, spots, or stripes on a lighter background. Carapace length typically reaches 18 to 25 inches (46 to 64 centimeters). The plastron of the species has a light background with darker patterning.

The leopard tortoise typically weighs 40 to 80 pounds (18 to 36 kilograms). Larger individuals are occasionally found, especially in habitats with higher annual rainfall totals. An individual weighing 88 pounds (40 kilograms) was found in South Africa living in Addo Elephant National Park (Orenstein, 2001).

Hatchlings display sharply contrasting carapace markings that become more muted as the tortoise matures. Leopard tortoises in the southern portions of their range tend to display darker and more contrasting patterns than adults than the paler individuals in the northern portion of the range.

A leopard tortoise photographed in South Africa drinking rainwater from a puddle. Photo © 2018 by Claude LeRoy

The skin on the head of the leopard tortoise is uniformly yellow to tan. The skin of the limbs and tail is typically cream, yellow, or tan with or without darker brown or black patterning.

Subspecies

Two subspecies of *S. pardalis* are generally, but not universally, recognized. Researchers that recognize the two subspecies refer to them as the Western leopard tortoise, *Stigmochelys pardalis pardalis* (Bell, 1828), and the Eastern or common leopard tortoise, *Stigmochelys pardalis babcocki* (Loveridge, 1935).

Some contemporary chelonian researchers feel that the extensive geographic variation of the genus is responsible for the diversity of its physical characteristics and do not recognize the subspecies as valid.

Range and Habitat

S. pardalis is the most widely distributed tortoise in southern Africa. It is native to the eastern and southern portions of sub-Saharan Africa, specifically Angola, Botswana, Burundi, Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Mozambique, Namibia, Rwanda, Somalia, Republic of South Africa, Republic of

article continues on page 3 ▶

South Sudan, Swaziland, Tanzania, Uganda, Zaire, Zambia and Zimbabwe.

This grazing species occupies thorn-scrub shrublands, savannas, and plains within its habitat. Thorn-scrub shrublands are semi-arid regions with open, low-growing vegetation: thorny trees, including many species of *Acacia*, with short trunks and low branches, succulents, and various species of grasses. Typical rainfall within its range is 10 to 20 inches (254 to 508 millimeters) per year.

Savannas are open, semi-arid grassland ecosystems dominated by grasses of the Poaceae family. When present, trees and shrubs may be widely spaced or relatively dense; in some areas trees and shrubs are absent altogether. Savannas are characterized by the seasonal availability of water, with rainfall occurring primarily during a single season.

Sexual Dimorphism, Mating and Reproduction

There are subtle differences in physical appearance between adult male and adult female leopard tortoises. The male's tail is noticeably longer and thicker than the female's, and the rear third of his plastron is slightly concave compared to the female's flat plastron. There is little noticeable difference between the size of the adult male and adult female.

In the wild, *S. pardalis* reaches sexual maturity between 12 and 15 years. In captivity, leopard tortoises may attain a breeding age in some six years because where food is typically more abundant.

Courtship in leopard tortoises consists of the aggressive butting and ramming prevalent in many tortoise species. Male leopard tortoises ram competing males as well as their chosen mate. Females may turn aggressive during courtship and ram tortoises of both sexes.

A leopard tortoise photographed in South Africa eating a wild hibiscus flower. **Photo © 2013 by Bernard DuPont**

Nesting takes place from May through October in the wild; depending on locality, nesting may occur throughout the year. Female *S. pardalis* may lay 4 to 7 clutches in a given season. The number of eggs laid varies from 5 to 30 eggs per clutch, and 10 to 12 is the average. Nesting episodes occur in intervals of three to four weeks.

Incubation of the eggs can be a lengthy process. According to Pritchard (1979), hatchlings may emerge from the nest as many as 8 to 18 months after nesting.

Foods and Feeding

S. pardalis is an herbivore. In the wild, it feeds primarily on mixed grasses, the most plentiful plant material in its habitat. The tortoise also feeds on the fruit and pads of *Opuntia* sp. (prickly pear cactus), various other succulent species such as *Cotyledon*, *Crassula,* and *Portulacaria* (elephant's food), as well as fungi, thistles, and the fruit of the Marula tree (*Sclerocarya birrea*) when these plants are available. Leopard tortoises appear to prefer succulent plants, possibly because of their substantial water content.

In a tortoise sighting and feeding study conducted in Tanzania in and around the Serengeti, Lake Manyara National Park, and Tarangire National Park, 51% of the leopard tortoises' feeding occurred on succulent plants, 16.8% on grasses, and 13.5% on legumes. The tortoises in this region consumed a total of 47 plant species from 21 different plant families. (Kabigumila, 2001).

In captivity, the diet of the leopard tortoise should consist primarily of coarse, high-calcium, high-fiber foods; at least 70% grasses and hay is recommended. Weeds such as clover and plantain, as well as the foliage of mulberry, fig, grape, and hibiscus are nutritious additions to the leopard tortoise diet.

Succulents such as *Opuntia* species (pads and fruit of prickly-pear cactus) and *Portalucaria* (elephant's food) are easily grown in warm-weather areas and serve as good forage for captive tortoises. Small amounts of dark, leafy greens such as collard and dandelion greens may supplement the grasses/hay staple diet.

Hatchling and juvenile *S. pardalis* mature quickly. This fact has a considerable survival advantage in the wild; the faster the animal

article continues on page 4 ▶

grows, the better chance it has of surviving predator attacks and savanna wildfires.

Because of its rapid growth rate, the young tortoise requires calcium-rich foods. Calcium supplementation is essential: sprinkle powdered calcium can be sprinkled on all foods and place a cuttlefish bone in the tortoise enclosure to provide additional calcium.

Do not feed leopard tortoises wet foods such as lettuce, tomatoes, and fruit (the only exception to this guideline is cactus fruit), grain-based foods such as bread and pasta, or animal protein. Intestinal problems and growth abnormalities are likely to result from consumption of such foods.

Captive Care

Leopard tortoises will not tolerate excessive humidity, or cold, damp conditions.

In areas where midday temperatures reach 90°F (32°C) and nighttime temperatures stay in the 60°F (16°C) range, it is best to house captive leopard tortoises outdoors in a large, predator-resistant enclosure. Expert tortoise keepers recommend a minimum of 10 feet x 10 feet (3 meters x 3 meters) for an adult tortoise. Do not landscape outdoor tortoise enclosures with plants requiring a lot of water to keep humidity levels down.

In areas where nighttime temperatures are lower than 60°F, it is necessary to provide indoor accommodations or a heated greenhouse. Cooler climates, where seasonal low temperatures put the health of this tropical tortoise at risk, require extraordinary measures to protect the health of this (and other) tropical species.

A juvenile leopard tortoise photographed in Zimbabwe. Photo © 2019 by Lara Antoniades

While there is evidence that some wild leopard tortoises may enter periods of dormancy in the more extreme portions of their range, captive leopards remain active throughout the year. Provisions for their year-round activity are vital to their health.

A large water dish or pan is essential. The dish should be large enough for the tortoise to drink from and soak in but shallow enough to avoid the risk of drowning. Leopard tortoises enjoy a gentle shower from a sprinkler or hose during hot weather to thermoregulate and rehydrate.

More captive care information is available on the following websites:

- https://africantortoise.com/leopard_tortoise.htm
- https://www.chelonia.org/articles/pardaliscare.htm
- https://www.chelonia.org/articles/Mistypardaliscare.htm
- https://leopardtortoises.com/

Threats

Monitor lizards and jackals consume *S. pardalis* eggs. Ground hawks, crows, ravens, ostriches, monkeys, and other predators take hatchlings and juveniles in the wild. Hyenas and honey badgers (known locally as ratels) prey on adult tortoises, and humans hunt them for food and sale to the pet trade.

Bushfires and habitat destruction from overgrazing by livestock and collisions with off-road vehicles take a significant toll on wild populations of *S. pardalis*.

Conservation Status

In 2014 the IUCN Red List evaluated the leopard tortoise as a species of "least concern." CITES lists *S. pardalis* as Appendix II, which includes "species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled."

References

Ernst, C. H., & Barbour, R. W. (1989). Turtles of the World. Smithsonian Books (DC).

Kabigumila, J. (2001). Sighting frequency and food habits of the leopard tortoise, Geochelone pardalis, in northern Tanzania. African Journal of Ecology, 3, 276–285. https://doi.org/10.1046/j.1365-2028.2001.00316.x

Leopard Tortoise Breeding. (2009). Zoo Report. Brno Zoo.

Orenstein, R. I. (2001). Turtles, Tortoises and Terrapins. Firefly Books.

Pritchard, P. C. H. (1979). Encyclopedia of Turtles. TFH Publications.

Portions of this article first appeared in the *Tortuga Gazette* 47(5), September/October 2011.

Tortoise DNA — Implications for Conservation

Galápagos Conservancy press release

15 February 2024—Critical research into the taxonomy of Galápagos giant tortoises, funded by Galápagos Conservancy, is currently being conducted by geneticists at Princeton, Newcastle, Oxford, and Yale universities, as well as several other institutions. This international team is tackling a 300-year-old dilemma: Are the giant tortoises whose populations are scattered across the volcanoes and islands of Galápagos all of a single species or many different species?

This question has been debated for centuries. Given tortoises arrived in the archipelago and spread across its islands and volcanoes over only the last few million years (a "wink of an eye" in evolutionary time), they represent a relatively young evolutionary radiation. In other words, they may not have had enough time to mature into separate species. On the other hand, several populations have been separated by ocean for over a million years and based on their differences in size, shape, and behavior, seem to have become quite different creatures that may well be unable to breed together even if they could reach one another.

Galápagos Conservancy is funding this research because answering the question is key to understanding how we best go about conserving the giant tortoises of Galápagos. The issue is, how do decision-makers decide where to invest their efforts in conserving tortoises if they don't know what is being protected? If, for example, all tortoises are members of a single species, then having a few robust populations somewhere in the archipelago is sufficient to "save the species," a view taken by many biologists today and increasingly embraced by the International Union for the Conservation of Nature. But, if every tortoise population on every island and volcano represents a unique species, then all should be protected equally, a view long taken by the Galápagos National Park Directorate and many conservationists.

The international team recently published preliminary outcomes of their investigation, the title of which foreshadows their key finding: "Whole-genome sequencing confirms multiple species of Galápagos giant tortoises." The team managed to sequence the entire genome of 38 tortoises from all 13 populations present today (and even a few that are functionally extinct, using DNA harvested from museum specimens). They found strong evidence that Galápagos giant tortoises belong to as few as five and as many as 13 species, depending on how rigorously they parsed the data.

However, the real picture is more nuanced than simply "single or many" species. Because the tortoises are relatively recent arrivals to Galápagos, each island and volcano represents a different stage in the process of speciation, with some taxa further along in that evolutionary process than others. Consider, for example, an Española tortoise (small, flat, saddle-backed, and sedentary) and an Alcedo Volcano tortoise (large, round, and migratory), separated from each other for at least a million years and clearly different species. Others, though, are still in the process of splitting, such as all the tortoises scattered across the volcanoes large and small on southern Isabela Island — tortoises virtually indistinguishable from one another in size, shape, and behavior.

The key takeaway is that the giant tortoises of Galápagos cannot be considered a single species, and regarding them as such is dangerous for conservation. This finding provides further foundation and justification for the Government of Ecuador to continue its efforts to protect and restore giant tortoises "island-by-island" and "volcano-by-volcano." Such an approach aims to save the entire swath of diversity and evolutionary history represented in the giant tortoise dynasty of Galápagos, which together represent the highest concentration of tortoise diversity on Earth.

Española giant tortoise, *Chelonoidis niger* ssp. *hoodensis*. **Photo © 2021 Jorge Carrión Tacuri**

Alcedo Volcano giant tortoise, *Chelonoidis niger* ssp. *vandenburghi*. **Photo © 2023 by Giff Beaton**

the Turtle's Garden
planting for chelonians
by M A Cohen

Lavatera maritima
Tree Mallow, Bush Mallow

A tree mallow blossom with leaves photographed in the Botanical Garden Berlin in Germany. Photo © 2006 by Fritz Geller-Grimm

The common name "Tree Mallow" is applied to several mallow family members, the Malvaceae. All tree mallows are medium to large shrubs bearing edible flowers relished by herbivorous tortoises and other animals.

The mallow family consists of many species with edible leaves and flowers, including hibiscus, blue hibiscus, Chinese lantern, hollyhock, and others.

The current article will profile *Lavatera maritima*. Synonyms for *L. maritima* include *Lavatera bicolor, L. m.* var. *bicolor,* and *L. m. 'Bicolor'*. This species is now officially known as *Malva subovata*, but *L. maritima* is still widely used in the industry.

The horticultural community uses all these names interchangeably depending on the source consulted. Horticulturists agree that the "bicolor" form is a cultivar (cultivated variety) of uncertain parentage. It is beyond the scope of this article to split horticultural hairs.

Following the *Sunset Western Garden Book* conventions, this article uses the common name tree mallow and the botanical name *Lavatera maritima*. The ancestors of *L. maritima* are native to the Western Mediterranean Basin and possibly North Africa. The species is well-adapted to Mediterranean climates worldwide, and it can also be grown in other climates with proper placement and care.

A tree mallow in full bloom photographed in the Jardín Botánico de Barcelona in Spain. Photo © 2012 by Consultaplantas

Height and Spread

Tree mallow, sometimes called bush mallow or sea mallow, is a fast-growing semi-evergreen perennial that will reach a mature height of 6 to 12 feet (2 to 4 meters) with a spread of 6 feet (2 meters) or more. Its growth habit is mounding, upright and spreading with an open, multi-trunked structure.

As with many fast-growing shrubs, *L. maritima* is comparatively short-lived. Plants typically need to be replaced about every five years. This shrub can grow 6 feet (2 meters) in a single season. With exceptional care, the tree mallow may live more than five years.

article continues on page 7 ▶

Foliage

The leaves of *L. maritima* are bright green to gray-green and palmate in shape with five lobes like a maple leaf. The typical leaf size is 2 inches (5 centimeters) wide by 1.6 inches (4 centimeters) long.

The texture of the leaf's surface is tomentose, meaning it is woolly or velvety. The leaf margin is known in botany as crenate, defined as round-toothed or scalloped with a serrated edge.

Flowers

Tree mallow bears a profusion of beautiful, colorful, edible blossoms. The peak bloom occurs from early spring through late fall, with blooming occurring throughout the year in ideal conditions.

The flowers of the tree mallow are 2 to 3 inches (5 to 7.6 centimeters) in diameter. The tips of the five petals are white, lavender, or pale pink with dark rose veining and dark purple centers.

L. maritima blossoms have no noticeable scent. They are attractive to beneficial insects, bees, birds, butterflies, and hummingbirds.

Pruning

Consistent pruning of *L. maritima* is essential for compact growth, abundant flowering, and encouraging fresh growth.

Lightly pruning the tree mallow following the main flowering period is beneficial. Hard pruning in late winter is ideal to promote healthy new growth during the following season. Tip-pruning any time of year is beneficial for compact growth.

Cultivation

Tree mallow is tolerant of a variety of soils. A neutral to mildly alkaline soil is ideal, but many gardeners report that the species grows well in poor soil as long as the soil has good drainage.

Horticulturists recommend full sun for the most profuse flowering except in hot, dry low-desert locations, where filtered sunlight or full shade promotes the best growth.

Weekly watering during establishment promotes a robust root system. Once established, tree mallow is drought-tolerant. Fast growers like tree mallow typically become established in the garden in a single growing season.

During periods of intensely hot weather or drought, *L. maritima* benefits from some supplemental irrigation.

L. maritima is pest-free and deer-resistant. It is, however subject to diseases like stem rot and rust if subjected to poor drainage and overwatering.

Tree mallow is adaptable and fits nicely into various garden situations, including flower borders, coastal gardens, informal cottage gardens, slopes, patio plantings, and containers.

A lavender flower bud and gray-green, tomentose leaves of the tree mallow photographed in Spain. **Photo © 2023 by Inma Torres**

In addition to drought, the tree mallow tolerates heat, salt spray, and wind. Overall, *L. maritima* is durable and easy to grow.

An unusual pure-white flower on a tree mallow photographed in Spain. **Photo © 2021 by faluke**

References

The Editors of Sunset. (2012). The New Sunset Western Garden Book. Sunset.

Lavatera aff maritima "Bicolor." (n.d.). The Lavatera Pages. https://www.malvaceæ.info/Genera/Lavatera/bicolor.html

Lavatera maritima (Tree Mallow). (n.d.). Gardenia. Retrieved February 18, 2024, from https://www.gardenia.net/plant/lavatera-maritima-tree-mallow

Perry, R. L. (1992). Landscape Plants for Western Regions. Land Design Publishing.

Tree Mallow "Bicolor" (Lavatera maritima). (n.d.). Mygardenlife.Com. https://mygardenlife.com/plant-library/tree-mallow-bicolor-lavatera-maritima

Portions of this article first appeared in the *Tortuga Gazette* 47(5), September/October 2011.

Mike's Turtle Net Picks by Michael J. Connor, Ph.D.

A varied selection of recent articles, stories and sites on the Web that some of you may find as interesting as I did. This list is also posted online at tortoise.org/turtlenetpicks/turtlenetpicks.html

Dear readers: I started my Turtle Net Picks column in 2008 and sixteen years later have reached my 100th mark. I think 100 of anything is a good place to stop so this column will be my last. I want to thank all of you who sent me links, suggestions, and encouragement over the years. And I cannot leave without offering my thanks and kudos to my friend Mary Cohen for her incredible work on the *Tortuga Gazette*.

Chuckwalla Bench Conservation

Moves are afoot to protect one of my old stomping grounds – the Chuckwalla Bench – as a National Monument.

Red Cliffs Desert Tortoises Declining

Adult desert tortoises in the core of the reserve have dropped from 33 per square kilometer in 1998 to about 12 per square kilometer in 2019.

Survival of Head-started Desert Tortoises

Biologists studied survival and behavior of 60 released desert tortoises reared under different head-starting regimes. (pdf).

Karoo Dwarf Tortoise

Illustrated overview of the diminutive Karoo dwarf tortoise, *Chersobius boulengeri*, and its ecological role.

Galápagos Tortoises Drive Española Ecological Comeback

Española's reintroduced giant tortoises are bringing back native grasses, cacti, and open savannas.

Aldabra Giant Tortoises Introduced to Madagascar

The Madagascar giant tortoise *Aldabrachelys abrupta* was killed off 600 years ago. A six-year-old project aims to return giant tortoises to Madagascar by introducing *Aldabrachelys gigantea*.

Elongated Tortoise Conservation in Cambodia

After 9 months in an acclimatization pen, the first cohort of 100 captive-bred, head-started elongated tortoises is now free.

Turtles Return to the Kalamazoo River

Turtles have returned ten years after the disastrous Kalamazoo River oil spill.

Cantor's Giant Softshell

The first nesting site in India of the endangered Cantor's giant softshell, *Pelochelys cantorii*, was found on the banks of the Chandragiri River.

Western Swamp Turtle News

A head-started western swamp turtle, *Pseudemydura umbrina*, was found alive five years after translocation to a cooler, wetter habitat.

Twinning in Namoi River Bell's Turtles

Seven *Myuchelys bellii* hatched out of six eggs at an Australian hatchery...

Monitoring the Health of Australian Turtles

Video of biologists monitoring turtle health along the Murray Darling River.

Taiwan Yellow Pond Turtles

Fireman "rescued" a couple of *Mauremys mutica* seen crossing a busy highway.

Goa Reports Record Number of Olive Ridley Nests

After 30 years of conservation Goa (India) had a record number of olive Ridley turtle nests this season.

Abu Dhabi Green Sea Turtle Nesting

Abu Dhabi recorded its first green sea turtle nest.

Leatherbacks Tracked To Previously Unknown Atlantic Foraging Locations

Fifty two leatherback sea turtles fitted with satellite trackers reveal new information on key habitats.

column continues on page 9 ▶

Chersobius boulengeri, known as Boulenger's Cape Tortoise or the Karoo padloper, photographed in habitat in South Africa by Marius Burger. Public domain.

Panama Leatherbacks
Conservation biologists work to conserve leatherbacks nesting near Armila, 125 to 150 miles east of the Panama Canal.

Holden Beach Turtle Watch Celebrates 35 Years
Locals at Holden Beach, North Carolina, have monitored nesting sea turtles since 1989.

Cook Islands Green Sea Turtle Conservation
Cook Islands citizen science project wants the local public to submit photographs of green sea turtles with a clear view of the left side of their face for a turtle facial recognition effort.

African Journal of Sea Turtle Biology & Conservation
Latest issue of this open access journal is now available.

Museum Specimen DNA Aids Tortoise Conservation
DNA from long dead tortoises is helping boost efforts to recover species such as the Floreana tortoise.

Matisse Turtle
St. Louis Art Museum's "Matisse and the Sea" examines the significance of the sea and related imagery to his work with *Bathers with a Turtle* as the centerpiece.

CTTC On Facebook
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NOAA proposes national marine sanctuary in Papahānaumokuākea

29 February 2024—Today, following input from state and federal agencies, local communities and the public, NOAA released for public comment its draft proposal to designate marine portions of Papahānaumokuākea Marine National Monument as a national marine sanctuary. The proposed Papahānaumokuākea National Marine Sanctuary would supplement and complement existing authorities, including the area's designation as a marine national monument.

Sanctuary designation would provide clarity and comprehensive protections for Papahānaumokuākea's ecosystems, wildlife and cultural and maritime heritage resources. NOAA and the State of Hawaii would co-manage the proposed sanctuary, complementing the existing management structure for the monument. The monument is currently jointly administered by four Co-Trustees—the Department of Commerce, the Department of the Interior, the State of Hawaii and the Office of Hawaiian Affairs.

"This proposed designation furthers the Biden-Harris Administration's steadfast commitment to conserving and protecting vital marine ecosystems," said NOAA Administrator Rick Spinrad, Ph.D. "NOAA looks forward to continuing our work with partners and co-managers to strengthen the conservation of Papahānaumokuākea's natural, cultural and historic treasures."

Papahānaumokuākea Marine National Monument, in the Northwestern Hawaiian Islands, is the largest contiguous, fully protected conservation area (582,578 square miles) under the U.S. flag, and one of the largest marine conservation areas in the world. Home to the endangered Hawaiian monk seal, threatened green sea turtles and many species found nowhere else on Earth, the complex and highly productive marine ecosystems of the monument are significant contributors to the biological diversity of the ocean.

Papahānaumokuākea is of great importance to Native Hawaiians, and Hawaiian culture is a foundational element in the management of Papahānaumokuākea. The monument is also home to a variety of post-Western-contact historic resources, such as 19th-century commercial whaling shipwrecks and artifacts and those associated with World War II's Battle of Midway.

"NOAA has worked for decades with partners to incorporate Native Hawaiian heritage, knowledge and values into co-management of Papahānaumokuākea Marine National Monument," said NOAA's National Ocean Service Assistant Administrator Nicole LeBoeuf. "A sanctuary designation would continue to honor spiritual and cultural relationships with this special place."

A detailed description of the proposed sanctuary, as well as additional information about opportunities to provide public comment, can be found on the website for the proposed Papahānaumokuākea National Marine Sanctuary. The public can submit comments until May 7, 2024, through the Federal eRulemaking Portal. The docket number is NOAA-NOS-2021-0114 and comments will be accepted in both English and ʻōlelo Hawaiʻi (Hawaiian language).

For more information, visit **https://sanctuaries.noaa.gov/papahanaumokuakea/**.

—NOAA press release

Registration Form for the CTTC 60th Anniversary Celebration

To register for the CTTC 60th Anniversary Celebration **by mail**, please print this Registration Form, fill it out completely, and mail it with a check for the fees to the address at the bottom of the form.

To register for the CTTC 60th Anniversary Celebration **online**, please click on this official registration link:
https://forms.gle/ArWHHUPdWqAuzgAN9

CA TURTLE & TORTOISE CLUB
60TH ANNIVERSARY SHELLABRATION

EVENT INFORMATION AND REGISTRATION

Deadline Extended! The deadline for the meal discount is now March 13. After March 13 the meal cost will be $45.00

Please join us as we celebrate the 60th anniversary of the CA Turtle & Tortoise Club! The event is being hosted at the **DoubleTree Hilton in Norwalk** on **April 13, 2024**. We will enjoy a buffet lunch together starting at 1:30 pm and then have a series of presentations. Please note, the meal will be $35/person until **Mar. 13. After Mar. 13 the meal cost will increase to $45/person**. Limited edition T-shirts are being offered for an additional $15 each with registration. Every registered participant will receive a gift bag!
Questions: Contact Heather Ponek (turtletortoiseclubkern@gmail.com)

Full Name _____

Chapter _____

Total Number of People _____ (Including you)

T-Shirt Quantities _____ Small _____ Medium _____ Large _____ XL _____ 2X L

Email Address _____

Phone Number _____

OPTIONAL: HOTEL ACCOMODATIONS

You have the option to spend Fri and/or Sat night at the hotel for **$110 per night.**
Room availability is limited and first come, first served.
Please indicate below the **number of rooms per night** you would like to request.

_____ Friday, 4/12/24 _____ Saturday, 4/13/24

Registration Instructions
Please mail this completed registration form along with appropriate payment to:
PO Box 11124
Santa Ana, CA 92711
Check payable to: CA Turtle & Tortoise Club

Amount Calculation:
Participants ($35/$45ea): _____
Shirts ($15ea): _____
Rooms ($110ea): _____
Total: _____

We're going to have a Shellebration!

The California Turtle & Tortoise Club is turning 60, and we are having a Shellebration.

You are invited!!

Saturday April 13, 2024

Where: DoubleTree Hilton
13111 Sycamore Drive
Norwalk, CA 90650

Schedule: Check-in: 12:30 PM
Chapter display set-up: Noon
Gourmet Lunch: 1:30-3PM

Then entertainment begins–speakers, sprinkled with raffles, music and goodness. Shellebration goes until 7 PM.

Speakers: Michael Tuma, Ed LaRue, Ron Berger.

There will be entertainment! Music by Joe Marx, Extraordinary Raffles, Chapter Baskets and each Chapter will have the opportunity to display their Chapter Events, happenings and pictures.

We will honor those who have passed and the wonderful members who make our organization great.

FANTASTIC Goodie bag with special gifts inside included with registration. Beautiful commemorative blue T-shirts with stunning logo only $15, until March 13th; then you can still order and we will have extra shirts available for purchase only $20. Sizes XS – 5 XL!

We still need help setting up, please contact us we love the support. Each Chapter will have the opportunity to create a gift basket for a raffle, and a table display.

Registration is limited, so be sure to sign up! We have online (below) and mail-in (page 10) registration options. There is an Early Registration discount until **MARCH 13th**.

https://forms.gle/ArWHHUPdWqAuzgAN9

If you have ANY questions, please contact me at TurtleTortoiseClubKern@gmail.com

I am honored to help out. It will be a great event. This is one not to miss!

Heather Ponek
60th CTTC Shellebration Chair

Galápagos Islands Need World Heritage 'In Danger' Status, Groups Say

—On Charles Darwin Day, Little to Celebrate as Islands Suffer Illegal Fishing, Tourism, Invasives

Paris, France—12 February 2024— Conservation groups formally requested today that the Galápagos Islands World Heritage site be listed as "in danger" under the World Heritage Convention.

The petition, submitted on Charles Darwin Day and Galapágos Day, notes that the unique archipelago is facing threats from illegal fishing, irresponsible tourism, pollution, invasive species and poor management. The islands are a province of Ecuador.

"The World Heritage Committee has long been aware of these growing threats to the Galapagos Islands, and it's time for action," said Alejandro Olivera, a senior scientist at the Center for Biological Diversity. "Ecuador is failing this irreplaceable, biodiversity-rich treasure by not doing enough to restrict tourism and fight illegal fishing. The Father of Evolution would be deeply disappointed."

The Galápagos Islands are already vulnerable because of their delicate and biodiversity-rich ecosystem. Illegal, unreported and unregulated fishing activities, particularly by Chinese-flagged fishing vessels, are straining the area further.

A Western Santa Cruz giant tortoise, *Chelonoidis niger* spp. *porteri* photographed by Jean Paul Boerekamps. Public domain.

In one recent incident, a fleet of Chinese fishing vessels anchored just outside the Galápagos marine park, and many turned off their monitoring devices for periods to avoid detection. It was impossible for officials to ensure the vessels were not fishing illegally inside the park during those periods.

A marine iguana, *Amblyrhynchus cristatus*, the only known sea-going lizard in the world, photographed off Santa Cruz Island, Galápagos. **Photo © 2008 by robertgbrown**

Today's petition was submitted by the Center for Biological Diversity, Círculo de Políticas Ambientales, SOS Galápagos, Turtle Island Restoration Network and World Heritage Watch.

The organizations have also urged UNESCO authorities to request that China collaborate with Ecuador to address its escalating illegal fishing problem, as much of the evidence suggests that Chinese vessels are contributing significantly to the issue.

The Galápagos Islands are also threatened by an influx of tourists, who can damage the island's environment and spread invasive plants that threaten the islands' unique cloud forests and iconic Darwin's finches. In recent years, several animals at the site have been infected by H5N1 virus, or avian flu. These factors combined significantly threaten the ecological balance of the islands.

The Galápagos National Park, inscribed in the UNESCO World Heritage List in 1978, is home to one of the most productive marine ecosystems in the world. Among the most famous species on the islands are the giant tortoises, which are unique to this region, and the marine iguana, the only sea-going lizard in the world. Nearly 20% of marine life in the Galápagos is found nowhere else on Earth.

The Galápagos Islands were inscribed on the List of World Heritage in Danger in 2007 because of a variety of threats. In 2010, however, the site was removed from the 'In Danger' list after Ecuador showed signs of better practices.

At the time, World Heritage authorities urged Ecuador to continue to strengthen its efforts to tackle numerous threats. Unfortunately, Ecuador has failed to adequately address the issues, and the threats have grown.

Feb. 12 is the birthday of Charles Darwin, often referred to as the "Father of Evolution." The English naturalist's studies in the Galápagos led to groundbreaking theories on evolution and natural selection. On that same day in 1832 the Galápagos Islands were incorporated into Ecuadorian territory, and Feb. 12 became Galápagos Day as well as Charles Darwin Day.

—Center for Biological Diversity press release

CTTC Valley Chapter

Turtle & Tortoise Show

Saturday, May 18, 2024

11:00 AM ~ 4:00 PM

Woodland Hills Christian Church
5920 Shoup Avenue, Woodland Hills, CA 91367

- Live turtles and tortoises
- Information on adoptions, care, and conservation
- Tortuga Gift Shop
- Raffle
- 'Ask the Vet' booth

For more information, contact:
Show Chair: Karen Berry theflyingturtle1953@gmail.com
Co-Chair: Cristina Perovich cribetti@gmail.com

ADMISSION FEES

Adults	$3.00	Children under 5	FREE
Seniors 60+	2.00	Active Military & Veterans	FREE
Children 6+	2.00	First Responders	FREE

In honor of Armed Services Day, we are offering free admission to our active military, veterans, and first responders.

Sponsored by CTTC Valley Chapter, P.O. Box 7364, Van Nuys, CA 91409-7364.
CTTC is a not-for-profit 501(c)(3) organization. https://www.tortoise.org/valley

The California Turtle & Tortoise Club
CHINO VALLEY CHAPTER

TURTLE AND TORTOISE SHOW IN CHINO

SATURDAY, MAY 4, 2024
10:00am to 3:00pm

ADMISSION $2.00

** LIVE EXHIBITS - EDUCATIONAL MATERIAL & DISPLAYS**
ADOPTION INFORMATION

CHINO GIRL SCOUT HOUSE
5007 Center Street, Chino, CA 91710
Come support our Chapter, fee supports our turtle care and vet expenses

From the 60 freeway exit Central Ave. and go south to Riverside Drive then go right. Take Riverside Drive to Third Street (1st signal) and turn right. The Girl Scout House in on the corner of Third and Center Streets

E-MAIL: jlcalif2@aol.com OR CALL LYNDA AT 909/263-4629 FOR MORE SHOW INFORMATION

California Turtle and Tortoise Club
Inland Empire Chapter

A Non-Profit Organization

AIR-CONDITIONED ROOM!!!

FREE Turtle & Tortoise Show

Saturday, September 21, 2024
10:00am – 3:00pm
Admission: FREE

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

The Ark Church Fellowship Hall
1307 E Citrus Ave
Redlands, CA 92374

COME JOIN THE FUN !!
For show information
Check out: www.tortoise.org/inlandempire

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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

The Galápagos Comes to Life in New Rochester Institute Technology Press book

Author Robert Rothman visited the archipelago more than 30 times

8 February 2024—Natural scientist and author Robert Rothman takes readers on a reptillian tour of the Galápagos Islands in his new book, *A Paradise for Reptiles: Lizards, Snakes, and Giant Tortoises of the Galápagos Islands Vol. 1: Tortoises, Geckos, and Snakes*, published by RIT Press.

For more than 30 years, Rothman has led hundreds of Rochester Institute of Technology students on tours to the Galápagos Islands to observe the wildlife and landscape that inspired Charles Darwin's theory of evolution by natural selection. Rothman's *A Paradise for Reptiles*, an homage to the 19th century scientist, is an accessibly written guide for anyone interested in Darwin, the Galápagos, and reptiles in general.

"It's the only real synthesis of research that's been done on those reptiles," said Rothman, RIT emeritus professor, whose photography illustrates the book. "What I've tried to do is, while being scientifically rigorous, make it accessible to anyone who is interested in the Galápagos."

The story of Galápagos reptiles is tied to the unique geography of the archipelago, and Rothman's account begins with the geologic processes that formed the chain of volcanic islands. Plants and wildlife reached the islands from South America, adapted to the different habitats, and evolved independently.

An understanding of the habitat leads to a comprehensive review of the giant tortoise, the beloved ambassador of the Galápagos. At one time 18 different types of Galápagos tortoises lived on the islands. That number has dropped, and scientists have used recent DNA analysis to discover hybrid tortoises related to two extinct species.

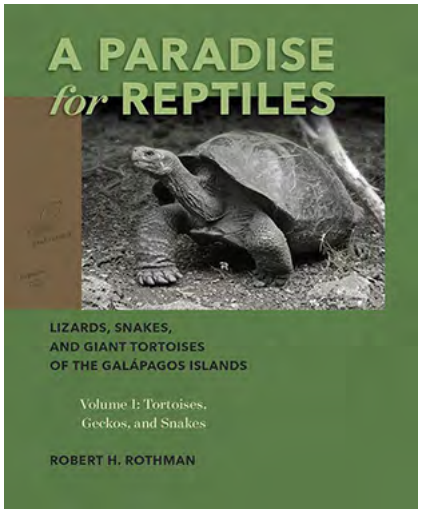
Buccaneers, mariners, and scientists over hunted giant tortoises for centuries. Now, conservation and repatriation efforts are trying to preserve them, Rothman said. Lonesome George, the last Pinta Island tortoise, held celebrity status at the Charles Darwin Research Station and became a mascot shared by the Galápagos National Park Directorate. Efforts to breed Lonesome George were unsuccessful and the species disappeared with his death in 2012.

"Lonesome George was the symbol of the extreme fragility of the Galápagos Islands and a reminder of the need for vigilance and conservation," Rothman said. "He is an icon for the finality of extinction."

A Paradise for Reptiles also includes two shorter sections discussing Galápagos geckos and racer snakes. The Galápagos geckos' nocturnal existence contributes to their large absence from the scientific literature, Rothman said. Darwin collected related gecko specimens while visiting nearby Patagonia, but none from the archipelago.

Visitors today rarely see Galápagos geckos because their nocturnal activity conflicts with tourist hours on the islands. Tourists must leave the island by 6 p.m., Rothman said. People staying in hotels on the major islands typically see a different type of gecko.

"The geckos come out in force in the evening, but it is the introduced species that are generally seen," Rothman said.



Rothman concludes his book with findings from the few research studies about the elusive racer snakes. Although Darwin returned from the Galápagos with snake specimens, these reptiles remain obscure.

"Snakes are the least studied and least understood reptile in the Galápagos," Rothman said.

The archipelago encapsulates Rothman's lifelong interest in vertebrate paleontology, evolution, and the history of science, as well as Darwin's discoveries. As an RIT professor of biology and genetics, he taught one of the university's longest running study abroad programs to the Galápagos Islands.

"When you visit a place once, the way you see it is the way you think it is," Rothman writes. "However, by returning so many times, I have seen the Galápagos in its many moods."

To purchase a copy of *A Paradise for Reptiles: Lizards, Snakes, and Giant Tortoises of the Galápagos Islands Vol. 1: Tortoises, Geckos, and Snakes* online, **contact RIT Press**.

Meeting Schedule: March/April 2024

Check your chapter website for program information.

Chino Valley
March 15; April 19

Foothill
March 22; April 26

High Desert
March 11; April 8

Inland Empire
March 1; April 5

Kern County
March 11; April 8

Low Desert
Meeting information to be announced.

Orange County
March 1; April 5

Ridgecrest
March 11; April 8

Santa Barbara-Ventura
Meeting information to be announced.

Santa Clarita
Meeting information to be announced.

TOOSLO (San Luis Obispo)
Contact the chapter for meeting information.

TTCS (Long Beach)
March 16; April 20

Valley
March 15; April 19

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 near the top of 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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