Dedicated to Turtle & Tortoise Conservation, Preservation, and Education Since 1964

California Turtle & Tortoise Club

the Tortuga Gazette

Volume 57, Number 1 • January/February 2021

Marginated tortoise, *Testudo marginata*, photographed in a nature preserve in Macedonia. Photo © 2013 by Alexandros Gassios

featured species

Marginated Tortoise, *Testudo marginata* (Schoepff, 1792)

The Largest of the Mediterranean Tortoises

One of the tortoises known collectively as the Mediterranean species, the marginated tortoise was scientifically described by the German botanist, physician, and zoologist Johann David Schoepff (1752–1800) in 1792. Sometimes in the chelonian literature, the year 1793 is cited as the year of publication.

The "Mediterranean" moniker derives from the native ranges of these tortoises, i.e., regions around the Mediterranean Sea. This group of tortoises is sometimes termed the European tortoises. Its genera include the Hermann's tortoise (*T. hermanni*), the Egyptian tortoise (*T. kleinmanni*), the Greek tortoise (*T. graeca*), and the marginated tortoise (*T. marginata*). Many biologists think the marginated tortoise is most closely related to the Greek, or spur-thighed tortoise (*T. graeca*).

Endemic to Italy, Greece, the Balkan states in southern Europe, and several islands in the Mediterranean Sea, *T. marginata* is a member of the family of tortoises, the Testudinidae, as are the other land-dwelling tortoises.

The genus name *Testudo* derives from the Latin word root *testud-*, meaning 'a turtle,' while the species name *mar-*

article continues on page 2 ▶

CONTENTS

The Largest of the Mediterranean Tortoises by M. A. Cohen	1
Mike's Turtle Net Picks by Michael J. Connor, Ph.D.	6
U. S. Government Provides Critical Support to the Turtle Survival Alliance	7
The Turtle's Garden: *Malva* species, Mallow	8
Sea Turtle Hospital Researches Illness Affecting Green Sea Turtles by Jonathan Simmons	10
Petition Seeks USMCA Review of Mexico's Loggerhead Sea Turtle Deaths	12
2021 California Turtle & Tortoise Club Directory	13

ginata derives from the Latin word root *margin-*, meaning 'a border or edge.' It was likely the distinctively flared rear marginal scutes of the species that inspired Schoepff to assign its species name.

Description

The largest of the Mediterranean tortoise species, *T. marginata* ranges from 10 to 15.7 inches (25 to 40 centimeters) in carapace length and weighs up to 11 pounds (5 kilograms) [Pollock and Kanis, 2015].

The oblong, domed carapace of the marginated tortoise is typically brown to black in coloration, and contrasting patches of pale yellow may be present on the marginal scutes, especially those adjacent to the bridge.

Whether the rear marginals are serrated or comparatively smoother at the edge, they are prominently flared, more so in males of the species than in females.

As for sexual dimorphism, in addition to the pronounced flaring of the rear marginal scutes, male *T. marginata* are typically somewhat larger in size in wild populations, as well as displaying broader heads and longer, thicker tails than the females.

The species' plastron is yellow with darker triangular blotches on the scutes. The head of *T. marginata* is typically black with a gray or yellow chin, and its limbs are brown or yellow-brown with rows of large, overlapping scales on each foreleg (*Testudo marginata*).

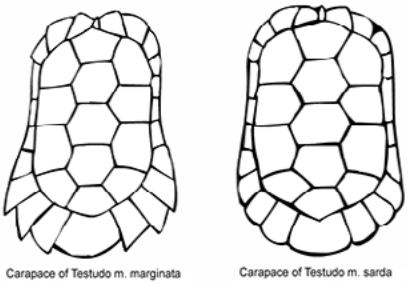
Subspecies

As described below, many chelonian scientists recognize three subspecies of *T. marginata*. The species first described in the literature is currently known as *T. marginata margin-*

Testudo marginata sarda, one of the recognized subspecies. **Photo © 2004 by Richard Mayer**

ata and is commonly called the Greek marginated tortoise.

T. m. sarda is endemic to Sardinia, the second largest island in the Mediterranean Sea. Formally described as a separate subspecies by Mayer in 1992,



Comparison of the carapace shapes of *T. m. marginata* (left) and *T. m. sarda* (right). Image drawn by Richard Mayer from his photograph. Notice the deeply serrated rear marginals on *T. m. marginata* compared to the smoother rear marginals pf *T. m. sarda*. **Image © 2005 by Richard Mayer**

this population is known as the Sardinian marginated tortoise.

At one time, some biologists believed that *T. m. weissingeri* was a separate species of *Testudo*, but subsequent DNA testing has proven otherwise (Fritz, et. al, 2005).

T. m .weissingeri is currently considered to be a subspecies of *T. marginata* that rarely exceeds "8.5 inches (21.5 centimeters)" in carapace length (Pollock and Kanis, 2015). According to Fritz, et. al, this subspecies appears to be a dwarf form of the original species, and "its small size is the result of suboptimal environmental conditions with

article continues on page 3 ▶

The subspecies *T. M. weissingeri* photographed at A Cupulatta Park, a nature preserve in Corsica, the fourth largest island in the Mediterranean Sea. **Photo © 2012 by Evenha**

limited resources," specifically, it "lives in the driest, poorest and hottest part of the distributional range of *T. marginata*" (Fritz, et. al, 2005). According to van Dijk, et. al, the "subspecies *T. m. weissingeri* occurs in west Taygetos mountains of the Peloponnesus, southern Greece, and a small area that stretches for about 31 miles [50 kilometers] North-South, but only 1 to 3 miles [2–5 kilometers] East-West" (van Dijk, et. al, 2004).

Range and Habitat

T. marginata subspecies "occurs mainly in northwestern, central and southern Greece, and adjoining extreme southern Albania, including a number of islands (Kyra Panagia, Valaxa, Paris, Salamis, Sfakythiria, Spetsopoula, and possibly Korfu), as well as northeastern Sardinia and satellite islands, plus Isola di San Pietro off southwestern Sardinia" (van Dijk, et. al, 2004).

Found at elevations from sea level to 4,265 feet (1,300 meters), the marginated tortoise is an adaptable species that typically inhabits ecoregions locally called garrigue or phrygana, comparatively dry, rocky, hillside terrain featuring Mediterranean woodlands and low-growing, thorny, scrub plant communities (*Testudo marginata*).

Often found adjacent to cultivated areas, the species sometimes takes up residence in olive groves. Cultivated fields offer substantial nutrition due to nearby irrigated grasses, so the species generally seeks such localities as it emerges from brumation. Better nesting opportunities may also be available near cultivated fields than on rocky hillsides.

Feeding and Foods

Herbivorous in its dietary preferences, in the wild the marginated tortoise feeds on herbaceous plants such as broadleaf greens, grasses, flowers, and fallen fruit in its environment.

The best strategy for feeding the captive marginated tortoise is to offer a diet approximating that of the wild species, i.e., greens, grasses, flowers, some vegetables, and a small amount of fruit. As with other tortoise species, variety in the diet is the key to captive tortoise health.

Reproduction

Much of the knowledge regarding reproductive behavior in the marginated tortoise derives from captive tortoise observations; little is known about the act of reproduction in wild tortoises.

Captives generally mate in spring from April through June, with nesting and egg deposition occurring in June and July. Clutches vary in size from 3 to 11 eggs per nesting event. Varying depending on soil temperature, the incubation period for *T. marginata* eggs may be as few as 60 or as long as 120 days (Pollock and Kanis, 2015). Hatchlings emerge from their nests from August through October (*Testudo marginata*)

Adult female marginated tortoise with a hatchling marginated tortoise atop her carapace photographed in Sardegna, Italy. **Photo © 2003 by Carmen**

In an interesting study investigating the correlation between vocalizations and courtship intensity, Roberto Sacchi and his team observed the mating behavior of 94 male marginated tortoises.

According to the team's paper published in the journal *Behavioral Ecology and Sociobiology,* "The courtship and mounting behaviour of tortoises is elaborate, and based on a multiple signalling system involving visual, olfactory, and acoustic signals. Vocalizations related to mounting seem to be particularly significant because tortoises vocalize mainly at this time" (Sacchi et.al, 2003).

Following a detailed study

article concludes on page 4 ▶

and analysis of their findings regarding courtship and mating in *T. marginata*, the biologists concluded that males tended to mate with females that are comparable to their own size, whom the males courted with their most intense displays of biting, ramming, and vocalizing behaviors (Sacchi et. al, 2003).

Carapace view of a marginated tortoise. Photo © 2003 by Richard Mayer.

Female tortoises in this study appeared to equate the courtship behavior of "aggressive, dominant males" with the males' "overall vigor" and "quality" as mates (Sacchi et. al, 2003).

Following analysis of observations and recordings, Sacchi and his team noted "that male marginated tortoises emitting more and shorter calls during mounting experienced a higher mating success than males emitting few, long-duration calls" (Sacchi et. al, 2003).

Based on their study, this team of biologists concluded that the volume and duration of the vocalizations of male marginated tortoises, along with the other courtship behaviors, may provide female tortoises with important information about "male condition and mating success" (Sacchi et. al, 2003).

Threats

Echoing the threats to so many other chelonian species are the conditions threatening the marginated species, whose numbers are declining throughout much of their range.

In a study published in 2010, Selfo Oruçi concisely described the threats confronting the species in Albania which appear to apply to the species throughout its range. The threats identified by Oruçi are as follows:

- ecosystem destruction from the grazing and overgrazing of domesticated animals and wildfires in forests and grasslands;
- habitat fragmentation because of infrastructure construction to promote tourism;
- environmental stress from lumber harvesting and collection of medicinal plants;
- harm/death from "working devices," i.e., farm, ranch, construction, and lumbering equipment;
- some (illegal) exploitation of tortoises for the pet trade and other types of domestic usage (Oruçi, 2010).

Conservation Status

When *T. marginata* was last assessed in 2004 by the International Union for the Conservation of Nature (IUCN) for its RedList, it was designated as a species of "least concern." However, an annotation to the IUCN entry indicates that this evaluation "needs updating" (van Dijk, et. al, 2004).

As of 2017, the Convention on International Trade in Endangered Species (CITES) listed *T. marginata* as Appendix II. According to the CITES website, "Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled" (The CITES Appendices).

References

Fritz, U., Siroky, P., Kami, H., & Wink, M. (2005). Environmentally caused dwarfism or a valid species–is Testudo weissingeri Bour, 1996 a distinct evolutionary lineage? New evidence from mitochondrial and nuclear genomic markers. [Abstract]. https://pubmed.ncbi.nlm.nih.gov/16223676/

Oruci, S. 2010. pmcg.co.me/natura-web/NATURA 9/Data/ARTICLES pdf/Oruci ISEM4.pdf. http://pmcg.co.me/natura-web/NATURA 9/Data/ARTICLES pdf/Oruci ISEM4.pdf

Pollock, DVM, DABVP, C., & Kanis, C. (2015). Basic Information Sheet: Marginated Tortoise. https://lafeber.com/vet/basic-information-sheet-marginated-tortoise/

Sacchi, R., Galeotti, P., Fasolo, M., & Ballasina , D. (2003). Vocalizations and courtship intensity correlate with mounting success in marginated tortoises Testudo marginata.

Testudo marginata. https://turtles.linnaeus.naturalis.nl/linnaeus_ng/app/views/species/taxon.php?id=8181

The CITES Appendices. https://cites.org/eng/app/index.php

vanDijk, P. P., Lymberakis, P., & Böhme, W. (2004). Testudo marginata. https://dx.doi.org/10.2305/IUCN.UK.2004.RLTS.T21653A9307262.en

ZOO MED IS A PROUD SPONSOR OF THE TSA

ZOOMED.COM

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

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 at tortoise.org/turtlenetpicks/turtlenetpicks.html

Proposed Bypass Threatens Utah's Last Remaining Desert Tortoises
"Building the Northern Corridor would be like tossing a burning match into the Reserve.".

Unfortunately for the tortoises, supporters of the bypass "anticipate hearing good news from federal agencies next month concerning the potential approval of the project"

Braden Holtby's Leopards
Maple and Honey, National Hockey League player Braden Holtby's pet leopard tortoises, resulted in him being held up at the Canadian border while USFWS generated an export permit.

Tortoise Research Papers
Desert tortoise husbandry for head starting programs

Conserving leopard tortoises in Ethiopia

Female Yangtze River Giant Softshell Turtle Discovered
Genetic analysis confirms at least one of the two turtles in Vietnam's Dong Mo Lake is a female Yangtze River giant softshell, *Rafetus swinhoei*, lending hope that this critically endangered species may avoid extinction.

The BBC has a video of the Swinhoei's female

Black Softshell Hatchlings Released in Assam
The black softshell turtle, *Nilssonia nigricans*, is currently classified as extinct in the wild in Assam by the IUCN. Hatchlings from temple populations have now been released in Assam's Pobitora Wildlife Sanctuary for the third year in a row.

Mass Hatching of Giant South American River Turtles
Amazing video of tens of thousands of hatchling Giant South American River turtles, *Podocnemis expansa*, emerging from a sandy beach along the Purus River in Brazil.

Pond Turtles and the Bobcat Fire
Biologists "rescued" 8 southwestern pond turtles from the Bobcat Fire burn area in the San Gabriel Mountains.

Covid Pandemic Allows Nature to Breathe
Cancun city officials say that this year, the municipality recorded the largest sea turtle nesting season in 26 years.

Oregon Sea Turtle Strandings
Two olive ridley sea turtles stranded in Oregon..

Massachusetts Strandings
Non-profits in Massachusetts and Texas teamed up to save 120 cold-stunned sea turtles

Pacific Leatherbacks Continue to Decline
Biologists fear illegal or poorly regulated fishing, poaching, and loss of nesting habitat is having a heavy toll on leatherbacks on their year-long treks across the Pacific Ocean

MEDASSET Fights to Protect Eastern Mediterranean Sea Turtle Habitat
Council of Europe warned that sea turtle habitats in coastal Cyprus, Greece and Turkey are insufficiently protected.

Marine Turtle Newsletter
Read the latest issue.

CTTC's Turtle And Tortoise Listserve
CTTC's Turtle and Tortoise list has now moved to io.groups. If you want to talk with other turtle and tortoise fans in a friendly atmosphere just send an email to: **<CTTC-TurtleAndTortoise-list+subscribe@groups.io>**

CTTC on Facebook
For breaking news updates visit and "like" us on Facebook!

U.S. Government Provides Critical Support to the Turtle Survival Alliance

$150,000 grant will ensure the survival of more than 24,000 confiscated tortoises

Antananarivo, Madagascar — 1 December 2020 — The COVID-19 pandemic threatens more than the health and livelihoods of Madagascar's people; it also jeopardizes thousands of critically endangered tortoises currently in the care of the Turtle Survival Alliance (TSA). Facing a projected 80% drop in funding from its largest supporters – zoos and aquariums now shuttered due to COVID-19 – TSA thought it would soon be forced to prematurely release thousands of critically endangered tortoises under its care in Madagascar.

In response to the crisis, the U.S. Government, through the United States Agency for International Development (USAID) and the U.S. Department of Interior's International Technical Assistance Program (DOI-ITAP), is proud to announce a $150,000 grant for TSA to care for rescued tortoises until their safe return to the wild.

Biodiversity conservation and combating wildlife trafficking are major priorities for the U.S. Government, making its work with TSA a natural partnership. Under the **Eliminate, Neutralize, and Disrupt (END) Wildlife**

article concludes on page 7 ▶

Trafficking Act, the United States has designated Madagascar as a "Focus Country" and "Country of Concern" and is working with the Government of Madagascar to fight illegal trade of natural resources and related official corruption.

"The Turtle Survival Alliance provides a vital service to the protection of Madagascar's endemic tortoises," said USAID Mission Director John Dunlop. "With this grant, we are supporting the Turtle Survival Alliance to collect tortoises recovered from wildlife traffickers, bring them to rehabilitation centers, restore them to health, prepare them for reintroduction to the wild, and ultimately release them at carefully selected, secure locations."

The U.S. Government also addresses wildlife trafficking through two USAID cornerstone projects, USAID Hay Tao and USAID Mikajy, which invest a combined $45 million into environmental activities. USAID Hay Tao works with government and civil society to strengthen policies against wildlife crimes, advocate for environmental justice, and fight corruption and wildlife trafficking. USAID Mikajy is a site-based conservation project that empowers local communities, regional civil society organizations, and forestry agents to address illegal logging and wildlife trafficking in Menabe and the MaMaBay (Masoala-Makira-Bay of Antongil) areas.

TSA is a global leader in tortoise conservation and currently has more than 24,000 tortoises in their Madagascar rehabilitation facilities, including four critically endangered species. These tortoises are endemic to Madagascar and are popular attractions for the country's ecotourism industry. Unfortunately, their value in illicit markets also makes them a significant target for domestic and international wildlife trafficking.

A radiated tortoise, *Astrochelys radiata*, photographed in the Tsimanapetsotsa National Park on the southwest coast of Madagascar. **Photo © 2016 by Charles J. Sharp**

TSA has made a bold commitment to zero turtle extinctions in the 21st century. TSA Madagascar's National Coordinator Dr. Herilala Randriamahazo explains, "We have what we consider a sacred obligation to care for these animals and have invested too much in their rescue and rehabilitation to release them without proper planning and acclimation." This new partnership allows TSA to continue to honor its commitment to conserving Madagascar's unique natural resources.

The bulk of TSA's facilities are in Madagascar's southern region, where tortoise poaching is fady (taboo). Historically, this fady has protected tortoises, but according to Dr. Randriamahazo, the tradition is fading. TSA's unique community-based management approach trains community members to care for tortoises at local rehabilitation centers and teaches them the importance of biodiversity conservation. This strengthens the community's sense of responsibility for protecting tortoises from wildlife traffickers and poachers and is part of the reason the survival rate of tortoises at TSA facilities is an impressive 95%.

The United States Government, through USAID, has been working together with the Government of Madagascar and local partners for 36 years to promote the health and prosperity of the Malagasy people. Last year USAID assistance totaled $114 million, including $62 million in activities for the health sector, where the U.S. is the largest single country donor, and $40 million for food security, where the U.S. has been the leading provider of food assistance to the drought-stricken south since 2015.

— USAID press release

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

Malva species, Mallow

Malva alcea,
Hollyhock mallow
Malva moschata,
Musk mallow
Malva sylvestris
Common mallow

Flowers and leaves of *Malva sylvestris mauritania*, a variety of common mallow. Photo by Hardyplants. Public domain.

Members of the mallow family, the Malvaceae, exist in temperate, subtropical, and tropical climates worldwide with nearly 250 genera and thousands of species. These include important agricultural crops such as cacao, coffee, cotton, and okra, as well as familiar horticultural ornamentals such as tropical hibiscus, hollyhock, Chinese lantern, tree mallow, etc.

Botanists recognize some 25 to 30 species of annual, biennial, and perennial *Malva* that originated in Africa, Asia, and Europe. Adaptable to a variety of climates and soils, *Malva* species have naturalized throughout many regions beyond their native ranges.

While some *Malva* species wear out their welcome and become invasive pests, others are prized as garden ornamentals. This article will focus on three ornamental perennials that are widely grown in gardens in the western United States.

Malva alcea

Known by the common name hollyhock mallow, *M. alcea* bears blossoms with five petals that are pink in color, single in form, about 2 inches (5 centimeters) in diameter. Flowers resemble those of the hollyhock, *Alcea rosea* (*Malva alcea*).

An herbaceous perennial, hollyhock mallow can grow to a height of 4 feet (1.2 meters) with a spread of about 2 feet (0.6 meter). Easy to grow, the species is low maintenance when planted in the proper garden conditions. As with many other plants, removal of the spent flowers, a process known as deadheading, will promote more flowering throughout the season.

With its upright growth habit, the hollyhock mallow is an excellent choice for a border planting, a backdrop to a wildflower meadow, or an informal cottage garden (Johnstone, 2020).

Light-to-medium green, the leaves of *M. alcea* are, comparatively narrow, and generally have five to seven lobes per leaf. The plant's lower leaves are not as deeply lobed as its upper leaves.

Blossoms, leaves, and clusters of buds on a hollyhock mallow. Photo © 2013 by AnRo0002

Adaptable to many soil types; *M. alcea* grows best in full sun, in well-drained soil with regular watering. In areas with hot afternoon sun, hollyhock mallow grows and flowers best in partially shaded locations. Mallows typically flower from summer through fall. To keep growth compact, prune the flowering stems in the fall after the flowering period ends (*Malva alcea*).

For gardeners who want to invite pollinators to their gardens, hollyhock mallow is attractive to both bees and butterflies.

Malva moschata

The common name musk mallow derives from the "pleasant musky" fragrance of both its flowers and foliage when one brushes against the plant (*Malva moschata rosea*).

Growing to a height of 3 feet (1 meter) with a spread of 2 feet (0.6 meter), *M. moscha-*

article concludes on page 9 ▶

ta has an upright, branching growth habit (Brenzel, ed., 2012). An herbaceous perennial, musk mallow is comparatively short-lived, but will often self-sow with new plants appearing the following spring. When the seedlings are still small, they can be easily transplanted into other locations if desired.

Musk mallow bears pink, lavender, or white five-petaled flowers, each about 2.5 inches (6 centimeters) in diameter. Flowers are borne singly or in clusters. Blooming from early summer through early fall, musk mallow adds an abundance of showy flowers to any border planting, cottage garden, or wildflower meadow.

Medium- to deep-green in color, the stems and leaves of *M. moschata* may be unlobed or palmately lobed.

Growing best in full sun, musk mallow tolerates a variety of soil types providing the soil has good drainage. A hard pruning after flowering ends enables overwintering and prolongs the life of the plant.

Malva sylvestris in full bloom photographed in Italy. **Photo 2012 by Irene Grassi**

Musk mallow attracts pollinators such as bees, butterflies, and hummingbirds.

Malva sylvestris

Common mallow, the common name of *Malva sylvestris*, may be a perennial with a life cycle of several years. However, it can also be biennial with a two-year life cycle, growing vegetatively its first year, flowering and dying in its second year.

Like the other mallows profiled in this article, common mallow tolerates many types of soil as long as drainage is good, and it grows best in full sun or partial shade with regular watering.

Common mallow has an upright, shrubby growth habit, reaching a height of 2 to 4 feet (0.6 to 1.2 meters) with a spread of 2 feet. Its rounded leaves have many shallow lobes and are medium green in coloration (*Malva sylvestris*).

The flowers of common mallow have five petals, and are about 2 inches (5 centimeters) across. Flower colors are shades of pink or lavender with darker contrasting stripes on each petal. *M. sylvestris* blooms from early summer until the first frost, and its flowers attract a variety of pollinators.

Clusters of blossoms and buds on a *Malva moschata* in Austria. **Photo © 2016 by Uoaei1**

Edibility

Providing the mallows are not grown with chemical fertilizers high in nitrogen, their flowers, leaves, roots, and seeds are edible and nutritious.

Flowers and younger leaves are typically used raw in salads, while older leaves are cooked as leafy greens, added to soup, or cooked into a green sauce. Seeds are described as having a nut-like flavor. *Malva* leaves can substitute for grape leaves when making dolmas, leaves stuffed with a variety of ingredients and wrapped tightly.

References

Brenzel, ed., K. N. (2012). The Sunset Western Garden Book. Time Home Entertainment.

Johnstone, G. (2020). How to Grow Hollyhock Mallow. https://www.thespruce.com/hollyhock-mallow-plant-care-5079136

Malva alcea. https://www.onlineflowergarden.com/2020/11/11/gardening/perennial-plants/malva-alcea/

Malva moschata rosea. http://www.perennials.com/plants/malva-moschata-rosea.html

Malva sylvestris. https://www.gardenia.net/plant/malva-sylvestris

Sea Turtle Hospital researches illness affecting green sea turtles

Fibropapillomatosis causes tumors on the turtles' soft tissue, impeding their movement and leaving them vulnerable to tangling in fishing gear.

By: Jonathan Simmons, News Editor, Palm Coast Observer

A woman in blue scrubs slipped a bag-valve mask over patient Leanne's nose after her surgery and gave her a few slow breaths — one ... two ... three — while a colleague held the patient behind her flipper.

"Since they're reptiles, they need a little encouragement to breathe," said Catherine Eastman, the sea turtle program manager at the Sea Turtle Hospital at the University of Florida's Whitney Laboratory for Marine Bioscience.

Leanne, a green sea turtle, is the latest patient at the Sea Turtle Hospital to undergo surgery to remove tumors caused by an illness called Fibropapillomatosis. The illness, which the hospital specializes in treating and studying, leaves lesions on the flippers, necks and faces of sea turtles in Florida and elsewhere.

A green turtle (*Chelonia mydas*) in Hawaii with large tumors caused by fibropapillomatosis. Photo by George Balasz, a zoologist with NOAA. Public domain.

A fundraising event on Oct. 27 brought in $8,350 for the hospital from Coastal Cloud, the Hammock Beach Resort and other sponsors — money that will help pay for the turtles' food and for the veterinarians and vet techs that treat them.

"We are so lucky to have this amazing research facility in our community ... and the Sea Turtle Hospital is just one piece of that," Sara Hale, who co-founded and manages Coastal Cloud with her husband Tim Hale, said on WNZF Radio's "Free For All Friday" program on Oct. 30. "We've been happy to help them raise their membership and get donations and volunteers in any way that we can there. But everyone should know that the hospital does need donations and sponsorships to help keep it running, so anyone who also loves sea turtles and wants to help should reach out and help this amazing hospital that we have right here in our community."

Meanwhile, the lab has raised $14.5 million for a new lab building and is hoping the state will match it.

"We have professors getting these really hard-to-get grants, and they expect your facility to be at a certain level," said Jessica Long, the Whitney Lab's senior director of advancement.

The Illness

Fibropapillomatosis, or FP, was part of the impetus for the creation of the Sea Turtle Hospital, which had its fifth anniversary in October.

"It was a disease we weren't used to seeing in this part of the state," said Eastman.

Eastman has been working with sea turtles since the 1990s, when she began doing nesting surveys as a student at Florida Atlantic University.

"They're almost the canary in the coal mine — they demonstrate the health of the ecosystem," she said.

The hospital's 36th patient this year, named Richard, was released on Nov. 4. The hospital usually has about 45 long-term patients per year.

In Florida, FP was first noticed in turtles around the Keys, then became prevalent in the Indian River Lagoon in the 1990s. There's a virus involved, but it's not clear how it's transmitted from turtle to turtle, and the few hardy critters that eat sea turtles don't seem to contract it.

FP can be debilitating: One turtle at the hospital, named Victor Frankenstein (the hospital has started naming its turtles after famous scientists, including fictional ones), had lesions around both eyes, impairing vision.

Others have flipper lesions that impede swimming or leave the turtle prone to tangling in fishing gear. The hospital has had to amputate flippers for that reason.

Staff try to strike a balance between science and conservation. Sea turtles' endangered

article concludes on page 11 ▶

Sea Turtle Hospital releases its first satellite-tagged turtle

Staff at the Sea Turtle Hospital at the UF Whitney Laboratory released the hospital's first satellite-tagged sea turtle on Nov. 4.

Named "Richard Dawkins" after the evolutionary biologist, the mid-sized juvenile was the hospital's 36th this year, and became a patient after becoming stranded on a beach on April 22, according to a news release from the hospital.

The turtle had tumors caused by the Fibropapillomatosis disease, which the hospital treats and researches. The hospital's staff hope that tracking Richard will provide important data about where turtles Richard's size go in the winter, and where they eat.

"We are lucky to have a 'large-for-us' sized turtle that fit the size requirements for a satellite tag. It's exciting to see Richard's movements so far and share his journey with the public," said Catherine Eastman, Sea Turtle Hospital Program Manager. "We are proud to partner with Dan Evans with Sea Turtle Conservancy and Mike Arendt with South Carolina Department of Natural Resources on this tagging effort. Let's hope Richard keeps pinging through the winter!"

To track Richard, visit - https://www.whitney.ufl.edu/conservation–sea-turtle-hospital/sea-turtle-tracking/

status means that experimentation that might answer some of the open questions about FP must go through a permitting process.

The Patients

The typical turtle patient stays 6 to 9 months at the hospital before release, spending most of its time outside the operating room in one of a handful of large white tanks onsite.

The Sea Turtle Hospital attaches greens to PVC before dropping them into the turtles' tanks so that the veggies will sink to the bottom, where the turtles can graze on them.

Staff and volunteers feed them a daily diet of seafood, greens and vitamins. (The older green sea turtles are exclusively vegetarian.)

Some young turtles are puppy-like in their curiosity about the people who dole out their meals, while others fear people and their unfamiliar surroundings, swimming their tanks frantically and prompting staff and volunteers to construct turtle hides out of plastic and PVC.

"If they freak out, we try a little shelter," Eastman said.

Staff made imitation kelp out of the sliced-up strips of tough, cloth-like material used to clean cars in mechanical car washes, tying the material to bases of PVC.

Most of the seven turtles in the tanks on Nov. 10 were young — about 5–7 years.

"As they age and they get older, they become more and more wild," Eastman said. The hospital recently released an older patient, she added, "And that animal didn't want anything to do with us."

The hospital also tends to washbacks, newly hatched sea turtles that have been pushed back to shore by a storm.

It's not clear how much of a threat FP poses at the population level. Hospital staff are grateful for being able to save the patients they can.

"Is it enough to say it helps the population?" Eastman said. "No, but every little bit helps."

Originally published in the *Palm Coast Observer* on 12 November 2020. Reprinted with permission from the author.

§ § §

Fibropapillomatosis (FP) is a disease that is likely caused by the chelonid alphaherpesvirus 5, as confirmed by the presence of the virus within the tumors. The disease was first described in Hawaiian green turtles in 1929.

FP primarily attacks green turtles, and occasionally affects other sea turtle species as well. FP is a debilitating disease, impairing the turtles' ability to swim, find food, and fight off infections and internal parasites.

Some 30% of sea turtles that develop the disease will recover. Turtles with severe cases suffer immunosuppression which leads to secondary bacterial infections, and the turtles generally do not survive.

Sea turtles in ecosystems described as "degraded" typically develop FP more often than those living in more pristine environments. The reasons for this are currently under investigation.

— Information based on the USGS website titled "Sea Turtles Diseases."

Petition Seeks USMCA Review of Mexico's Loggerhead Sea Turtle Deaths

Hundreds of Sea Turtles Die Every Year as Bycatch in Fishing Gear

Montreal, Canada—17 December 2020—The Center for Biological Diversity and the Mexican Center for Environmental Law (Cemda) filed a petition today under the United States-Mexico-Canada Agreement [USMCA] over the government of Mexico's failure to protect endangered north Pacific loggerhead sea turtles from fishing gear entanglements.

Today's USMCA petition to the Commission for Environmental Cooperation notes that loggerheads frequently drown in fishing nets off the Mexican coast. The reptiles are born in Japan and migrate to U.S. and Mexican waters.

"The Mexican government's failure to protect loggerheads from deadly entanglements could bring a tragic end to their millions of years of migrating to our coast," said Alejandro Olivera, senior scientist and Mexico representative for the Center for Biological Diversity. "If Mexico keeps letting fishing gear kill these magnificent animals by the hundreds, they face a real threat of extinction. Under the USMCA agreement, Mexican officials have a legal obligation to stop this carnage."

According to Mexico's official data, 889 dead loggerheads were found on the west coast of Baja California Sur from 2017 to 2019. While statistics for 2020 have not yet been fully released, between just January to June this year, 351 more loggerheads were found dead. Thousands of these turtles have likely died in the past decade because of entanglement in gillnet and longline gear.

Because of Mexico's failure to effectively apply existing environmental legislation to protect the loggerheads, the groups filed a Submission on Enforcement Matters petition with the commission under Chapter 24 of the USCMA, the renegotiated NAFTA treaty between Mexico, the United States and Canada.

"The Mexican authorities have failed to protect and conserve the endangered loggerhead sea turtle," said Mario Sánchez, Cemda's representative in the northwest. "Now we are looking to raise this issue under the new USMCA provisions, given that this sea turtles also inhabit U.S. waters."

As part of the process, today's petition and the loggerhead bycatch problem will be discussed by high-level environmental authorities from each nation. If the petition is accepted, the commission will develop a detailed "factual record" that assesses Mexico's compliance with the environmental law.

— Center for Biological Diversity press release

Herpetology 2020 — abstract prepared by the staff of the Chicago Herpetological Society

Conservation of the Coahuila Box Turtle

originally published in the *Bulletin of the Chicago Herpetological Society* 55(9):186, 2020

G. Castañeda Gaytan et al. [Chelonian Conservation and Biology 19(1):14–21] note that the Coahuila box turtle (*Terrapene coahuila*) is an endangered species of chelonian endemic to the Cuatro Ciénegas valley in northern Mexico. It is the only aquatic member of the genus *Terrapene* and is dependent on permanent and seasonal wetlands. Over the past several decades, *T. coahuila* populations have declined from habitat loss as the wetlands have dried due to human modifications of the valley. The authors conducted a survey of the status of the species from 2011 to 2018, updating previous estimates of population density and overall population size. They also collected data on sex ratio in each of the eight wetland study areas in the valley and report a strongly male-biased sex ratio. The results indicate a total population size of approximately 1,791 individuals based on recorded densities from 0.24 to 3.3 individuals/hectare [2.5 acres] among 539.76 hectares [1,333.77 acres] of suitable habitat in the 8 wetland areas. This estimate is lower than previous studies indicated, implying direct effects of habitat loss on *T. coahuila*. If habitat loss due to lowering of the water table continues, this species will become extinct. The authors recommend conservation measures including upgrading the species' International Union of Conservation Red List status to Critically Endangered, protecting and restoring key wetlands in the valley, and establishing captive assurance colonies in Mexico.

— Reprinted with CHS permission

2021 California Turtle & Tortoise Club Directory

Executive Board

Important note: The Executive Board is strictly an administrative body for the corporate portion of CTTC, and does not handle animals or adoptions.
General Information:
CTTCEBOfficers@tortoise.org
Chair: **Don Williams**
Vice-chair: **Robyn Kohr**
Treasurer: **Javier Gonzalez**
Secretary: **Stephanie Roberts**

Chino Chapter

President: **Lynda Misiak**
Vice president: **David Bowman**
Secretary: **Rachelle Buck**
Adoptions: **Jim Misiak**
Meeting: Third Friday, 7:30 PM at Chino Girl Scout House, 5007 Center Street, Chino, CA 91710.

Foothill Chapter

President: **Joanna Bolt**
Secretary: **Mardy Graves**
Treasurer/Membership:
Jeanette Lea
Meeting: Fourth Friday, 7:30 PM at Los Angeles County Arboretum, 301 No. Baldwin Avenue, Arcadia, CA 91007.

High Desert Chapter

President: **Regene Fonville**
Vice president: **Dave Zantiny**
Secretary: **Mary Dutro**
Treasurer: **Jose Zamudio**
Meeting: Second Monday, 7:00 PM at Sterling Inn Regency Room, 17738 Francesca Road, Victorville, CA 92395.

Inland Empire Chapter

President: **Monica Dirac**
Vice president: **Richard Roosman**
Corresponding Secretary: **Amy Taylor**
Recording Secretary: **Gerald Rezes**
Treasurer: **Robyn Kohr**
Meeting: First Friday, 7:30 PM at "The Ark" Church of the Nazarenes in the Fellowship Hall in Young Hall, 1307 East Citrus Avenue, Redlands, CA 92374.

Kern County Chapter

General information:
TurtleTortoiseClubKern@gmail.com
President/membership:
Heather Ponek
Vice president: **Tim Brennan**
Secretary: **Lisa Marriott-Smith**
Treasurer: **Kathy Studer**
Adoptions: **Richard Marriott-Smith**
Meeting: Second Monday, 6:30 PM at St. Philip of the Apostle Church, St. Ann's Room (east side of the church), 7100 Stockdale Hwy (on the north side, between Ashe and Gosford), Bakersfield, CA 93309.

Low Desert Chapter

General Information: **Tony Vaninetti**
Secretary: **Marlies Dietrich**
Adoptions: **Bill Powers**
Meeting: First Monday of even-numbered months 7:00 PM at The Living Desert Reserve, 47-900 Portola, Palm Desert, CA 92260-6156.

Orange County Chapter

General Information email
President: **Sharon Paquette**
Vice president: **John Kim**
Secretary: **Joyce Keyak**
Treasurer/membership:
Virginia Doepping
Adoptions email
Meeting: Second Friday, 7:30 PM at Grand Street Center (First Presbyterian Church), 146 N. Grand Street, Orange, CA 92866

Ridgecrest Chapter

President: **Robert Parker**
Vice president: **Sue Parker**
Adoptions: **Montynne Yates**
Meeting: Second Monday, 7:30 PM at Maturango Museum, 100 East Las Flores Ave., Ridgecrest, CA 93555.

Santa Barbara-Ventura Chapter

President: **Don Williams**
Meeting: Contact the Chapter for meeting information.

Santa Clarita Chapter

General Information:
Abigail DeSesa
President: **George Ordway**
Treasurer/membership/adoptions:
Abigail DeSesa
Secretary: **Jennifer Fields**
Meeting: Third Saturday of odd-numbered months at 6:30 PM at Valencia United Methodist Church, 25718 McBean Pkwy, Valencia, California 91355.

TOOSLO (San Luis Obispo) Chapter

President: **Brandon Froelicher**
Vice president: **Brian Kusko**
Treasurer: **Diane O'Leary**
Meeting: Second Wednesday, 7:00 PM at Ludwick Community Center Meeting Room. 864 Santa Rosa St., San Luis Obispo, CA 93401.

Turtle & Tortoise Care Society Chapter

President: **John Kim**
Vice president: **Casey Quinn**
Secretary/Co-Treasurer:
Yolanda Keh
Treasurer: **John Wong**
Adoptions Inquiries
Meeting: Third Saturday, 7:30 PM at St. Gregory's Episcopal Church, 6201 East Willow Street, Long Beach, Ca. 90815.

Valley Chapter

President: **Bob Hazard**
Treasurer: **Karen Berry**
Adoptions:
Valley Chapter Adoption Team
Meeting: Third Friday, 7:30 PM at Woodland Hills Christian Church, 5920 Shoup Ave., Woodland Hills, CA 91367-3327.

NOTE: The postal mailing addresses for each Chapter are listed on the last page of this newsletter.

Meetings and Programs

Click on your Chapter's website link for the latest program information. Programs may be scheduled after newsletter publication.

Chino Valley
15 January; 19 February

Foothill
22 January; 26 February

High Desert
11 January; 8 February

Inland Empire
January; 5 February

Kern County
11 January; 8 February

Low Desert
1 February

Orange County
8 January;12 February

Ridgecrest
11 January; 8 February

Santa Barbara-Ventura
Contact the chapter for meeting information.

Santa Clarita
16 January

TOOSLO (San Luis Obispo)
19 January; 16 February

TTCS (Long Beach)
16 January; 20 February

Valley
15 January; 19 February

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 Non-native Turtles and Tortoises.

Classified Advertisements

Classified advertisements run for one issue at 5^{00} for up to four lines. Ads are accepted at the discretion of the Editor. Classified ads are available to members and subscribers only and 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 make your check payable to the California Turtle & Tortoise Club.

Please send ad fee to: CTTC *Tortuga Gazette*, attn Treasurer, P. O. Box 7300, Van Nuys, CA 91409-7300.

Mail fee with ad copy to the *Tortuga Gazette* mailing address; OR, mail fee to the postal address above, and email the ad copy to the **Gazette Editor**.

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.

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 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 2371, San Bernardino, CA 92406-2371

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: P O Box 15953, Long Beach, CA 90815

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

Tortuga Gazette
California Turtle & Tortoise Club
Post Office Box 7300
Van Nuys, California 91409-7300

Is your email address changing?

Update your email address through your MailChimp account by clicking the "Update Your Preferences" link on your newsletter notice. Or send your changes and corrections to tgdistribution@tortoise.org