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An Eastern Musk Turtle (*Sternotherus odoratus*), basking on a fallen log in North Carolina. The red dragonfly on the turtle's carapace is an Eastern Amberwing (*Perithemis tenera*). **Photo © 2024 by Paul Bartels**

featured species

Eastern Musk Turtle, *Sternotherus odoratus* (Latreille, 1801)

The Stinkpot Turtle by M. A. Cohen

The Eastern or Common musk turtle, *Sternotherus odoratus*, is a small chelonian species that is native to North America and is a member of the Kinosternidae family of mud and musk turtles.

There are 25 species in four genera of mud and musk turtles. They are small- to medium-sized freshwater animals with one, two or no hinges on their plastrons which are small compared to other turtles. Reclassification within the Kinosternidae family is occurring as DNA and morphology (physical form) studies take place.

French zoologist Pierre André Latreille (1762-1833) scientifically described the species in 1801. The genus name of the Eastern Musk Turtle, *Sternotherus*, derives from the Greek word roots, meaning hinged chest, and the species name, *odoratus*, from a Latin word root meaning a smell. The musk turtle species emit a foul-smelling odor when threatened or disturbed.

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Description

Musk turtles, in general, are 4 to 8 inches (10 to 20 centimeters) in carapace length. In contrast, the Mexican giant musk turtle, *Staurotypus triporcatus*, grows to a shell length of 15 in. (38 cm).

The subject of ***this*** article, the Eastern or common musk turtle, is a small species ranging from 2 to 5.5 in. (5 to 14 cm) in carapace length at maturity. The turtle's carapace is tan, gray, brown, or black, and it often has darker streaks or mottling when the turtle is young that fades as the animal ages.

The carapace coloration may be concealed beneath a layer of algae coating the turtle's shell. This algae provides camouflage for the turtle as it walks along the bottom of its waterbody among aquatic plants, algae-covered stones, and submerged debris.

The adult's high-domed carapace is comparatively smooth, but the juvenile stinkpot turtle has a medial keel and two lateral keels at hatching that flatten as it matures (Andrews, n.d.).

The plastron of *S. odoratus* is reduced in size with narrow bridge areas between the carapace and plastron that result in a greater-than-average range of motion for the turtle's legs. However, the extra soft tissue exposure renders the animal more vulnerable to predators.

The plastron of a stinkpot turtle photographed in North Carolina. Notice the narrow bridge areas connecting its carapace and plastron. **Photo © 2024 by Samuel Cannon**

The species' plastron, ranging from yellow to brown, has an obscure hinge between its pectoral and abdominal scutes. The hatchling typically has a yellow plastron, while the color of the adult's plastron is often dark, with ivory-colored seams in between the scutes (Common Musk Turtle, 2011).

The skin of the stinkpot turtle is black or gray. The large head of the common musk turtle is slightly triangular with distinctive yellow lines running above and below its eyes from the tip of the snout along the turtle's neck.

The throat and neck of the turtle have pairs of barb-like sensory organs called barbels that help the turtle to feel for prey in the dark on the bottom of its waterbody (Common Musk Turtle, 2011).

Differences between males and females, known as sexual dimorphism, exist in the species. While the female stinkpot turtle is typically more sizable than the male, the male's tail is longer and thicker and has a terminal spine. The male has roughened scales on the his inner thighs, and he has more exposed skin between his plastral scutes than the female (Ernst and Lovich, 2009).

When disturbed or captured, *S. odoratus* emits a foul-smelling odor as a defense mechanism, hence the common name "stinkpot." The musky odor derives from a yellow fluid, a form of phenylalkanoic acid, produced by two pairs of glands under the margin of its carapace (Common

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A tiny juvenile stinkpot turtle photographed with a copper penny for scale. Photo © 2003 by loganmoore

Musk Turtle, 2011; Eastern Musk Turtle, Sternotherus odoratus, n.d.).

Subspecies

No officially recognized subspecies of *S. odoratus* exist. There are, however, notable geographic variations among the populations. For example, stinkpot turtles in Florida are typically shorter in carapace length and darker in coloration than those in the northern portions of their range. The southern populations often lack the facial stripes common in northern individuals (Ernst and Lovich, 2009).

Some populations of eastern musk turtles have unusually large heads and powerful jaws, enabling them to crush the strong shells of the mollusks (clams and snails) which are the primary prey items in the turtles' diets.

Range and Habitat

Eastern musk turtles inhabit freshwater habitats in eastern North America from Ontario, Canada south to Florida, and westward from Wisconsin southward to Texas.

S. odoratus favors shallow, slow-moving waterbodies with soft substrates and ample submerged aquatic vegetation. It does not occur in brackish-water swamps or estuaries because it cannot tolerate saline water.

The stinkpot turtle inhabits bayous, canals, ditches, lakes, oxbows, ponds, streams, and rivers, and it rarely leaves its aquatic habitat.

Females may move overland seasonally to find suitable nesting sites. However, they usually nest close to the water's edge.

An Eastern musk turtle trekking overland in Virginia, most likely a female seeking a suitable nesting site. Photo © 2024 by Andre Knocklein

Natural History

The eastern musk turtle is typically active nocturnally, foraging for food and searching for mates during dusk and nighttime.

The turtle sometimes basks on fallen logs or rock outcroppings in its waterbody. It may bask by floating on the water's surface with the top of its carapace exposed. It spends much of its time underwater, hiding in rock crevices, muskrat or beaver lodges, or buried in the mud of the soft substrate.

Despite its heavily clawed and webbed feet, the stinkpot turtle is ***not*** an adept swimmer. It typically moves around under water by walking on the soft, muddy bottom of the waterbody.

The common musk turtle is skilled at climbing trees and shrubs to defend against predators and bask in safety. They climb "high up" in shrubbery adjacent to their aquatic habitat (Common Musk Turtle, 2011).

When compared to other freshwater turtles, eastern musk turtles mature early. The males become reproductively active at about three years of age and the females at four to seven years.

Populations in the colder, northerly portions of their range brumate as the colder seasons arrive while individuals in warmer, southerly areas remain active throughout the year.

Close-up of a common musk turtle's head photographed near Quebec, Canada. Notice the barbels on its chin and throat. Photo © 2024 by Jean-Marc Vallières

Diet

The eastern musk turtle is an omnivore that consumes various food items. Probing the substrate and decaying vegetation of its waterbody with its snout, the

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This image of a juvenile eastern musk turtle shows its three carapacial keels that flatten out as the turtle matures. Photo © 2006 by Dawson

turtle ferrets out prey in low-light conditions. Olfactory cues are probably important in the detection and capture of prey (Ernst and Lovich, 2009).

The species' prey items include larval and adult insects such as beetles, earthworms, dragonflies, butterflies and moths, crayfish, freshwater mussels, leeches, snails and slugs, worms, small fish and fish eggs, tadpoles, and carrion.

Plant materials consumed include filamentous algae, seeds, seedpods, and other parts of higher plants growing adjacent to their aquatic habitats.

Reproduction

All mating occurs in the water. Female stinkpot turtles leave their aquatic habitats one to four times per year to find a suitable location for nesting, often digging their nests close to the water's edge in leaf litter, rotting stumps, under logs, or in the walls of muskrat houses (Eastern Musk Turtle, Sternotherus Odoratus, n.d.).

Females may lay as few as 1 or as many as 13 eggs per clutch with the average clutch size being 2 to 4. Nesting occurs from 1 to 6 times per season. The tiny hatchlings emerge from their eggs at 0.7 to 1 inch (17 to 25 millimeters) in carapace length.

Stinkpot turtle eggs have a temperature-dependent sex determination pattern. Nest incubation temperatures of 82°F (28°C) and above produce mostly females while incubation temperatures below 77°F (25°C) yield mostly male hatchlings (Ernst & Lovich, 2009).

Predators

S. odoratus eggs, juveniles, and adults are all prey for numerous birds, mammals, and reptiles, including foxes, large wading birds, hawks and eagles, large fish, raccoons, skunks, water snakes, bullfrogs, American alligators, and common snapping turtles, among other predators.

A common musk turtle basking on a fallen log in Louisiana. Photo © 2020 by Cameron Rutt

Threats and Conservation

Last assessed in 2010 by the International Union for the Conservation of Nature, the eastern musk turtle was listed as a species of "least concern" with a stable population trend (van Dijk, 2015). However, habitat destruction (drainage of wetlands and pollution) is a serious threat (Ernst & Lovich, 2009). Ω

This eastern musk turtle was photographed in Maryland with a layer of algae covering its carapace. Photo © 2024 by Ken Clark

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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

Transatlantic Rescue Mission Bringing Endangered Kemp's Ridley Sea Turtle Home

"Boeier" the sea turtle to be released back into the Gulf of Mexico in November after being found stranded in the Netherlands—*U.S. Fish & Wildlife press release*

October 31, 2024—A remarkable story of international collaboration and conservation is coming to a happy ending. With the help of a diverse group of partners and volunteers, a juvenile Kemp's ridley sea turtle (*Lepidochelys kempii*) found stranded in the Netherlands is returning to her home waters in the Gulf of Mexico in early November.

Boeier, the Kemp's ridley sea turtle, is waiting to see the vets at the Houston Zoo after a long flight home from the Netherlands. Photo courtesy of USFWS. Public domain.

The sea turtle was first found thousands of miles from home in October 2023, when a group of commercial fishermen discovered her entangled in their nets off the southwestern coast of the Netherlands. Upon her discovery, "Boeier" (pronounced boo-yare), named after the boat that found her, was transported to the Rotterdam Zoo for medical treatment for minor injuries.

Over the last year, the Zoo oversaw her rehabilitation while staff from the U.S. Fish and Wildlife Service coordinated the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) import permits that she needs to come home. After journeying across the Atlantic in late October, veterinary staff with the Houston Zoo will be evaluating and clearing her for release and the Texas A&M University at Galveston's Gulf Center for Sea Turtle Research will be attaching a tracking device to monitor her future movements.

With the help of Rotterdam Zoo curator Mark de Boer, Boeier will be diving back into her native waters from a Galveston beach lined with supporters, including members of the public and the organizations that helped arrange her long journey home, on Nov. 4, 2024.

"We are so happy that Boeier was rescued, rehabilitated and deemed healthy enough to release so that she can rejoin the reproductive population and potentially contribute to the recovery of the species," said Mary Kay Skoruppa, the Service's Sea Turtle Coordinator for Texas. "An added benefit is the opportunity to increase the Service's and NOAA Fisheries' knowledge about survival and movements of juvenile Kemp's ridley sea turtles that strand in areas far outside of their normal migration routes."

Kemp's ridley sea turtles are the smallest and one of the most endangered species of sea turtles in the world. Primarily found in the Gulf of Mexico and in coastal waters of the Atlantic along eastern North America, the juvenile turtles are occasionally carried across the Atlantic by the powerful Gulf Stream.

While Boeier's journey is a little unusual, she isn't the only sub-tropical sea turtle or even the only Kemp's ridley to be found stranded in European waters last year.

Around the same time as Boeier, the Rotterdam Zoo took in seven cold-stunned loggerhead sea turtles and one other Kemp's ridley named Blof who had been found on Dutch beaches. The Anglesey Sea Zoo in North Wales has also taken in two stranded Kemp's ridleys, including one named "Tally" that was released by partners from Galveston into the Gulf of Mexico last year.

This increase in Kemp's ridley sea turtle strandings isn't just an issue across the pond. In recent years, researchers have found an increasing number of cold-stunned sea turtles in New England, where they are seasonal residents in summer and early fall. Due to the hook shape of Cape Cod, instead of migrating south for the winter the juveniles are becoming trapped within the bay in waters that are too cold for them.

According to Fish and Wildlife Biologist Cynthia Rubio with the Service's Texas Coastal and Central Plains Ecological Services Field Office, Boeier may be an example of what can happen when the juveniles end up too far from home.

"We are starting to see more juvenile Kemp's ridleys off the East Coast, and due to climate change

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the warmer water is pulling them into the Atlantic," Rubio said. "I would bet that Boeier is probably one of those juveniles that was trapped there and drifted across the Atlantic."

According to NOAA Fisheries, the annual average of Massachusetts cold-stunned turtles in the last 5 years is 739, compared to 20 years ago when it was only 139. One reason for this increase is that the Gulf of Maine, including Cape Cod Bay, is warming faster than most other bodies of water in the world. These warm waters likely result in more sea turtles moving into the area, either following currents or prey.

As cold-stunning cases increase, more sea turtles need to be transported to rehabilitation facilities nationwide. These rescue efforts and eventual releases involve significant coordination and collaboration among hundreds of staff and volunteers from various organizations.

Boeier, the Kemp's ridley sea turtle, undergoes a health exam before release back into the Gulf of Mexico. Photo courtesy of the USFWS. Public domain.

"When you have an endangered species, every individual counts," Skoruppa said. "In addition to working with a great group of international partners dedicated to recovering sea turtles, turtles like Boeier, help to educate and spread the word about what everyone in the public can do to help these imperiled species."

Cold-stunning is just one threat sea turtles like Boeier face. Entanglement in fishing gear and marine debris also pose significant dangers. To safeguard these species, everyone can take simple actions like proper waste disposal, avoiding single-use plastics, and cleaning up beaches.

Anyone who encounters a sick, injured, stranded, or deceased sea turtle should report it immediately to a local stranding network.

Partners involved in the effort to rescue, rehabilitate and return Boeier to the U.S. include the U.S. F.W.S., Sea Animal Rescue Team Foundation (Netherlands), The Friends of Rotterdam Zoo (Vrienden van Blijdorp), Rotterdam Zoo, Houston Zoo, Texas A&M University at Galveston's Gulf Center for Sea Turtle Research, U.S. Customs and Border Protection, Padre Island National Seashore, and the Texas Sea Turtle Stranding and Salvage Network. Ω

More than 200 sea turtles recovering from hypothermia-related conditions at New England Aquarium facility—New England Aquarium press release

Quincy, Massachusetts – 2 December 2024 – The New England Aquarium (NEAQ) is treating more than 200 cold-stunned sea turtles that have washed onto Massachusetts shores in critical condition, an annual phenomenon that has ramped up in the past week.

Staff and volunteers from Massachusetts Audubon Wellfleet Bay Wildlife Sanctuary have been walking the beaches along Cape Cod Bay in search of cold-stunned turtles and transporting the animals to the Aquarium's Sea Turtle Hospital in Quincy, MA, where they are treated for life-threatening medical conditions resulting from hypothermia and the inability to feed.

So far this season, Aquarium staffers have treated 257 live sea turtles: 214 critically endangered Kemp's ridley turtles, 39 green turtles, and four loggerheads. About 100 of those turtles have been rescued in just the last two days.

"With winds increasing and temperatures dropping, we have started to see more sea turtles enter the hospital. NEAQ has developed ways to streamline intakes of these large numbers of patients, allowing us to give the best possible care to all," said Adam Kennedy, the Aquarium's Director of Rescue and Rehabilitation.

The sea turtles are often critically ill and require a variety of medical treatments to ensure they have the best chance for survival. When a sea turtle arrives at the Aquarium's Sea Turtle Hospital, staff evaluate the rescued turtle by performing a thorough physical exam, bloodwork, and X-rays.

"The majority of the turtles arrive with serious ailments such as pneumonia, dehydration, traumatic injuries, or sepsis," said Dr. Melissa Joblon, Director of Animal Health at the Aquarium.

Each fall and early winter, hundreds of cold-stunned sea turtles wash up on the beaches of Cape Cod. Because of the rapidly changing water temperature and wind pattern, many turtles cannot escape the hook-like area of Cape Cod Bay and become hypothermic. Ω

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

Senna (=*Cassia*) *covesii*
Coves' or Desert Senna

Five-petaled blossoms, buds, and leaves of the Desert Senna shrub photographed in Tempe, Arizona. Photo © 2008 by Miwasatoshi

Desert Senna is a subshrub that belongs to the Fabaceae, the Pea or Legume family of plants. The species has several common names in addition to desert senna. It is also known as Coves' Senna, Coues' Senna, rattlebox, rattleweed, and dais, and its Spanish common names include *ejotillo*, *hojasèn*, *daisillo*, *ojosón*, *oyasón*, and *rosamaría* (Sturla, 2022). The common names rattlebox and rattleweed refer to jostling the dried stems and pods of *S. covesii* which creates a sound similar to a rattlesnake's rattle.

> Do not confuse ***Senna covesii*** with another shrub with the common names rattlebox, rattlebush, and poisonbean, and the botanical name ***Sesbania drummondii***. Native to the southeastern U.S. from Texas to Florida, ***S. drummondii* is extremely toxic**.

The species was named in honor of naturalist and ornithologist Elliot Ladd Coues (1842-1899). In the literature, the proper names Coves and Coues are both used preceding Senna because "the Romans did not distinguish between 'u' and 'v,' thereby permitting authors when choosing Latin names to use either interchangeably" (Sturla, 2022).

Taxonomists have recently reclassified some of the *Senna* species **from** the genus *Cassia* **to** the genus *Senna*. However, the relationship between the two genera continues to be a matter of taxonomic debate.

Description

Desert senna is a short-lived, herbaceous, perennial subshrub. Botanically speaking, a subshrub is a small shrub that typically has some woody tissue near the bottom of its many branches. It reaches a mature height of 20 inches (50 centimeters) or more with an equal spread.

Desert senna bears compound leaves comprising two to five pairs of leaflets on a short stalk. Its 1-in. (2.5 cm) leaflets are elliptical (ovate) in shape, with a velvety surface and a minute spine on each leaf's tip.

Flowering from April to October throughout its range, desert senna bears attractive, pale or bright yellow, five-petaled blossoms with prominent veins. Each petal grows up to 1.5 in (3.8 cm) in length. Flowers appear in clusters of three to seven blossoms on each inflorescence (flower stalk).

Following flowering, long, fuzzy, brown seedpods form. As the pods dry and the seeds mature,

Ripening seedpods of *S. covesii* photographed in San Diego County, California. Photo © 2019 by lagoondon

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the pods become woody and twisted. When fully mature, the dried seedpods split in half, and the tiny seeds remain in the pod until an animal or the wind jostles the pod (Senna Covesii—Coues' Cassia, 2022). Known as "pop and drop", this seed dispersal method allows the seeds to scatter and take root away from the parent plant (Bird, n.d.).

Range and Habitat

The species inhabits desert and grassland ecosystems in the Mojave and Sonoran Deserts in Arizona, California, New Mexico, Baja California, and northwestern Mexico. It also occurs in extreme southern Nevada and western Texas.

Desert senna grows in desert grasslands, dry, rocky slopes, and gravel-filled washes from 1,000 to 3,000 feet (304 to 914 meters) of elevation.

Cultivation

Desert senna grows in various soil types if the soil's drainage is good. It requires full sun for optimal growth. During its first year in the garden, regular garden watering helps desert senna develop a robust root system.

Once it is established, the shrub is drought-tolerant. However, it is drought-deciduous and loses some leaves and stems during prolonged drought but usually resumes growth when seasonal rains or irrigation occurs.

S. covesii is a low-maintenance plant once it is actively growing, requiring minimal water use and no need for fertilizer or pruning.

While the species is a short-lived perennial, it will reseed freely in a landscape setting. It is easy to grow by sowing its seed directly into the landscape.

Leaves and buds of *S. covesii* photographed in the Eastern Mojave desert in the Turtle Mountains, San Bernardino County, California, U.S. **Photo © 2010 by Steve Matson**

Often planted in rock and cactus gardens, many roadside wildflower plantings in the southwest include the shrub.

Wildlife

S. covesii attracts many types of wildlife seeking food and shelter. Native *Senna* species are hosts to the larvae of many butterflies and provide pollen to many species of native bees such as carpenter bees and bumblebees.

Cloudless Sulphur, *Phoebis sennae,* and other sulfur and skipper butterflies and their caterpillars are attracted to desert senna. Female butterflies lay their eggs on the shrub, and their larvae hatch out to an ample supply of food provided by its flowers, leaves, and seeds.

Deborah Bird of the Sabino Canyon Naturalists write that desert senna is vital to its habitat because it "provides food for birds and mammals, shelter and shade for animals and smaller plants, and [its] root systems help prevent erosion."

Granivorous (grain-eating) birds, small mammals, and other animals consume flowers, leaves, and seeds from the desert senna, and hummingbirds sip its nectar.

Conservation Status

While it is common in Joshua Tree National Park in southeastern California, *S. covesii* is "rare or endangered" in the wild in California according to the California Native Plant Society (Sturla, 2022). Ω

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A Desert Senna shrub growing wild in Arizona. **Photo © 2003 by Mike**

Endangered Bolson Tortoises Released into the Wild

By Steve Mull, Sierra County *Sentinel*, Truth or Consequences, New Mexico

8 October 2024—The first relocation of Bolson Tortoises occurred recently as a group of the animals were moved off of Turner Reserves land and placed in the Sevilleta National Wildlife Refuge north of Socorro [New Mexico]. Representatives from the Turner Endangered Species Fund and Turner Biodiversity Divisions, the U.S. Fish and Wildlife Service, the Albuquerque BioPark and the Desert Tortoise Council were on hand to release the tortoises. Each tortoise was fitted with a transmitter that will track their habits and movements.

Turner Biodiversity writes that "population decline and contraction of the bolson tortoise range is due to climate change; habitat fragmentation, degradation and loss; and collection for food. Recent estimates suggest that fewer than 2,000 bolson tortoises remain in the wild." (As of 2019).

Bolson turtles have been listed as endangered under the endangered species act and Mexican Wildlife Law, and critically endangered by the International Union for Conservation of Nature.

Breeding programs on Turner properties have hatched over 400 juvenile tortoises since 2006. Hatchlings and juveniles are being kept on native forage in outdoor, predator-proof enclosures until they are large enough to be released. This recent relocation marks the first time that the Bolson turtles have been released out of the secure area. Ω

An adult bolson tortoise, *Gopherus flavomarginatus*, rests under a native shrub the Chihuahua Desert in Mexico. **Photo © 2022 by Gerardo Manzanarez-Villasana**

This article originally appeared in the Sierra County *Sentinel*, and is reprinted with permission from the author and the staff of the newspaper.

Sevilleta National Wildlife Refuge

One of the largest wildlife refuges in the lower 48 states, the Sevilleta National Wildlife Refuge, established in 1973, is located in the Chihuahuan Desert north of Socorro County, New Mexico.

Owned and managed by the U.S. Fish & Wildlife Service, the 230,000-acre Refuge features over seven miles of trails that are open to the public for hiking and photography from sunrise to sunset. Camping and picnicking are not allowed. Most of the Refuge is off limits except for scientific research only with a valid permit.

Two rivers, the Rio Salada and the Rio Grande, run through the Refuge. Four biomes intersect within the Refuge: Colorado Plateau Shrub Steppe, Great Plains Short Grass Prairie, the Chihuahuan Desert, and the Pinyon-Juniper Woodland. Each biome features distinctive varieties of animals and vegetation inhabiting their specific ecosystems.

For more information, call the Visitor's Center at (505) 864-4021.

The Bolson Tortoise, *Gopherus flavomarginatus*

The Bolson tortoise is the largest ***land*** reptile in North America and the largest and rarest of the six *Gopherus* tortoise species. *G. flavomarginatus* currently inhabits the grasslands of north-central Mexico.

Historically, its range was much larger and encompassed regions of the southwestern United States including Texas, Arizona, New Mexico, and Oklahoma in addition to northern Mexico.

A juvenile Bolson tortoise photographed in Mexico. **Photo © 2006 by Juan Cruzado Cortés**

For more information about the Turner Endangered Species Fund's Bolson tortoise breeding program, click **TESF Bolson Tortoise Project**.

For a profile of this remarkable species, click **The Chihuahuan Desert Tortoise**.

Lawsuit Aims to Protect North America's Tiniest Turtle in Southern Appalachia

Suit Also Seeks Decision for Critically Endangered Southern Fish — *Center for Biological Diversity press release*

Asheville, North Carolina—25 November 2024—The Center for Biological Diversity sued the U.S. Fish and Wildlife Service today for delaying critically needed Endangered Species Act protections for the southern bog turtle [*Glyptemys muhlenbergii*] and roughhead shiner [*Notropis semperasper*].

Bog turtles are North America's smallest turtles, measuring about the length of a human thumb. They're also one of the world's most imperiled turtles: Their southern population has declined by 50% since 2000, and fewer than 2,000 individuals are left.

In response to the Center's petition, the Service announced in October 2022 that southern bog turtles may warrant protection under the Endangered Species Act. The agency was required to decide more than a year ago whether to officially list the turtles.

"These tiny turtles are on the brink of extinction, and they need federal protection now," said Will Harlan, Southeast director at the Center. "They've spent 20 million years in the Appalachian Mountains, but we could lose them in our lifetime if the Fish and Wildlife Service doesn't act soon."

A bog turtle in its sphagnum moss wetlands habitat photographed by Nathanael Stanek/Turtle Conservancy. Reprinted with permission.

Bog turtles live in mountain wetlands that are being drained for development. Only 500 acres of mountain bog habitat remain across the turtles' entire southern range, and many of the bog turtles' remaining wetlands have recently lost federal and state protections. Only 14 viable sites are left across the turtles' range in Virginia, North Carolina, South Carolina, Tennessee and Georgia.

Today's lawsuit also challenges the Service's delay in issuing a decision for the roughhead shiner, an olive minnow named for the bumps on its head. They're found only in the upper James River watershed in western Virginia, where they're being displaced by an invasive fish.

The shiner was first identified as threatened 50 years ago and was put on a waiting list for Endangered Species Act protection in 1994. The Center petitioned for protection for the fish in 2022, and in March 2023 the Fish and Wildlife Service announced that the species may warrant listing. A decision on whether to list the shiner was due on March 21.

"Time is running out for both roughhead shiners and bog turtles, and the many threats they face are only getting worse," said Harlan. "They can't wait any longer for urgently needed protections."

The southeastern United States is a **global hotspot of diversity** for fish, turtles and other freshwater species. More than 40% of the country's fish and turtles are at risk of extinction, primarily because of habitat loss and development, pollution, poaching, invasive species and climate change. Ω

The North American Coastal Plain—a Global Hotspot of Diversity

The Critical Ecosystem Partnership Fund (CEPF) has designated 36 biogeographic regions worldwide as Global Hotspots of Diversity. To qualify for this designation, an area must have at least 1,500 species of vascular plants found ***nowhere*** else in the world (i.e., endemic), and the area must have lost at least 70% of its "original habitat", according to the World Atlas.

The North American Coastal Plain (NACP) is the 36th area in the world to be recognized as a Global Hotspot of Diversity in 2016. The NACP extends from a small section of northeastern Mexico eastward along the Gulf of Mexico and northward up the East Coast to southeastern Massachusetts.

A total of 113 species of endemic reptiles inhabit the NACP, including four comparatively rare chelonian species:

- Gopher tortoise (*Gopherus polyphemus*)
- Chicken turtle (*Deirochelys reticularia)*
- Apalachicola snapping turtle (*Macrochelys apalachicolae*)
- Suwannee snapping turtle (*Macrochelys suwanniensis*).

CTTC Directory 2025

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.*

Postal address: **P.O. Box 7300, Van Nuys, CA 91409-7300.**
Information: CTTCEBOfficers@tortoise.org
Chief executive officer: **John Kim**
Vice chief executive officer: **Gerald Rezes**
Chief financial officer: **Virginia Doepping**
Secretary: **Heather Ponek**

Chino Valley Chapter

Postal address: **P.O. Box 1753, Chino, CA 91708-1753.**
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 St., Chino, CA 91710.

Foothill Chapter

Postal address: **P.O. Box 51002, Pasadena, CA 91115-1002.**
President: Joanna Bolt
Vice president: Art Garcia
Secretary: Mardy Graves
Treasurer/Membership: Jeanette Lea
Meeting: Fourth Friday at 7:30 PM in the Palm Room, Los Angeles County Arboretum, 301 North Baldwin Ave., Arcadia, CA 91007.

High Desert Chapter

Postal address: **P.O. Box 163, Victorville, CA 92392.**
President: Regene Fonville
Vice president: Dave Cheney
Secretary/Adoptions: Erica Shafer
Treasurer: Jose Zamudio
Meeting: Second Monday at 6:00 PM at the Sterling Inn Regency Room, 17738 Francesca Road, Victorville, CA 92392.

Inland Empire Chapter

Postal address: **P.O. Box 7205, Redlands, CA 92375.**
Information: CTTCIE@tortoise.org
President: **Phuc Huynh**
Vice president: **Eunice "Sal" Bautista**
Corresponding Secretary: **Amy Taylor**
Recording Secretary: **Robyn Kohr**
Treasurer: **Gerald Rezes**
Meeting: First Friday, 7:30 PM at "The Ark" Church of the Nazarenes in the Fellowship Hall in Young Hall, 1307 East Citrus Ave., Redlands, CA 92374.

Kern County Chapter

Postal address: **P.O. Box 81772, Bakersfield, CA 93380-1772.**
Information: KernCTTC@tortoise.org
President/membership: Heather Ponek
Vice president: Tim Brennan
Treasurer: Kathy Studer
Meeting: Second Monday at 6:30 PM. Contact chapter for location information.

Low Desert Chapter

Postal address: **P.O. Box 4156, Palm Desert, CA 92261.**
General Information: Tony Vaninetti
Secretary: Marlies Dietrich
Adoptions: Bill Powers
Meeting: Meetings to be announced.

Orange County Chapter

Postal address: **P.O. Box 11124, Santa Ana, CA 92711.**
Information: OrangeCounty@tortoise.org
President: **John Kim**
Vice president/Membership: **Linda Grunnet**
Secretary: **Joyce Keyak**
Treasurer/membership: **Virginia Doepping**
Adoptions: Adoptions Questions
Meeting: First Friday at 7:30 PM at the First Christian Church of Orange, 1130 E. Walnut Ave., Orange, CA 92867.

Ridgecrest Chapter

Postal address: **P.O. Box 1272, Ridgecrest, CA 93555.**
President: Robert Parker
Secretary: Sue Parker
Adoptions: Montynne Yates
Meeting: Second Monday at 7:30 PM at the Maturango Museum, 100 E. Las Flores Ave., Ridgecrest, CA 93555. There are NO meetings in July or August.

Santa Barbara-Ventura Chapter

Postal address: **P.O. Box 3086, Camarillo, CA 93011-3086.**
Information: SB.Ventura@tortoise.org
President: **Wendy Dasgupta**
Vice president: **Christina Vanarelli**
Treasurer/Membership: **Sue Alvarez**
Secretary: **Chuck Alvarez**
Meeting: Planned quarterly meetings in January, April, July, and October. Dates and locations to be announced.

Santa Clarita Chapter

Postal address: **P.O. Box 4012, Castaic, CA 91310.**
Information: Abigail DeSesa
President: **George Ordway**
Treasurer/membership/adoptions: Abigail DeSesa
Secretary: **Jennifer Fields**
Meeting: Meetings to be announced.

TOOSLO Chapter

Postal address: **P.O. Box 763, Grover Beach, CA 93483.**
Chapter Information: TOOSLO@tortoise.org
President: **Brandon Froelicher**
Vice president: **Emma White**
Treasurer: **Diane Olear**
Meeting: Fourth Tuesday of January, March, May, July, September, and November at 6:00 PM at Ludwick Community Center, 864 Santa Rosa Street, San Luis Obispo, CA 93401.

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Turtle & Tortoise Care Society
Postal address: **P.O. Box 15953, Long Beach, CA 90815.**
President: **Richard Roosman**
Vice president: John Kim
Secretary/Treasurer: **Yolanda Keh**
Adoptions: Adoptions Inquiries
Meeting: Third Saturday at 7:30 PM at St. Gregory's Episcopal Church, 6201 E. Willow St., Long Beach, CA. 90815.

Valley Chapter
Postal address: **P.O. Box 7364, Van Nuys, CA 91409-7364.**
President: Maria Kennedy
Vice president: Bob Hazard
Recording Secretary: Cathy Carpenter
Corresponding Secretary: Barbara DeVries
Treasurer: Karen Berry
Adoptions: Valley Adoption Team
Meeting: Third Friday at 7:00 PM at Woodland Hills Christian Church, 5920 Shoup Ave., Woodland Hills, CA 91367-3327.

Mojave National Preserve saves desert tortoises from cars and ravens

18 October 2024—Desert tortoises are vulnerable to vehicles as they slowly cross Preserve roads, with dozens killed or injured every year. Although these reptiles spend about 95 percent of their life in burrows, they are most active during spring and summer rains and can be seen eating wildflowers, drinking water from puddles or looking for mates.

"Tortoise fencing" is exclusionary metal fencing about 2 feet in height that is installed along road shoulders to prevent these creatures from entering onto roads during their out of burrow adventures.

"Roadkill should be a thing of the past. We want desert tortoises to thrive in Mojave National Preserve," said Mojave National Preserve Superintendent Ray McPadden. "Our team is making a huge investment in tortoise survival through these projects, and we'll continue to be leaders in on-the-ground conservation of this keystone species."

Cima Road is the first road to have tortoise safety measures in place, and the Preserve plans to install over dozens of more miles of this fencing on roads that intersect prime tortoise habitat.

The exclusionary "tortoise fencing" being installed along the road shoulders in Mojave National Preserve to protect desert tortoises from vehicular traffic. Photo courtesy of the National Park Service. Public domain.

"Desert tortoises face multiple threats to their persistence throughout their range," said Wildlife Biologist Neal Darby. "Mojave National Preserve has addressed most, but the science community believes tortoise exclusion fencing and removal of raven subsidies could be the primary management actions that will provide the best protection."

Raven populations are thriving in the Mojave Desert; juvenile desert tortoise in particular are susceptible to predation by ravens as their slowly developing soft shells aren't hard enough to protect them. Removing utility poles takes away advantageous nesting sites and perches for ravens looking for an easy juvenile desert tortoise snack. These utility poles date back to the 1940's and their removal is a triumph to returning the desert landscape to its natural scenic beauty.

On October 31st Mojave National Preserve has even more to celebrate with its 30th birthday, thanks to the California Desert Protection Act of 1994. Ω

—Mojave National Preserve press release

Meeting Schedule: January/February 2025

Check your chapter website for program information.

Chino Valley
January 17; February 21

Foothill
January 24; February 28

High Desert
January 13; February 10

Inland Empire
January 3; February 7

Kern County
January 13; February 10

Low Desert
Meeting information to be announced.

Orange County
January 3; February 7

Ridgecrest
January 13; February 10

Santa Barbara-Ventura
Meeting information to be announced.

Santa Clarita
Meeting information to be announced.

TOOSLO (San Luis Obispo)
January 28

TTCS (Long Beach)
January 18; February 15

Valley
January 17; February 21

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

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.

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

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

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

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

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

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

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California Turtle & Tortoise Club
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