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Cover: Nancy Kloskowski's drawing of a chorus frog, *Pseudacris* sp., was voted best in show for herp artwork at the June 29 meeting of the Chicago Herpetological Society. The artist explains: "I've been drawing dogs and horses from an early age, but branched out into herps when I joined the CHS in 1976. This chorus frog drawing was done mostly in colored pencil and a bit of ink. The plants are from my imagination."

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Herpetological Sculpture at the Henry Vilas Zoo, Madison, Wisconsin

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The Henry Vilas Park and Zoo is one of the most popular recreational destinations in Madison, Wisconsin, and a site worth visiting. Although the Vilas Zoo does not feature the diverse array of herpetological artwork found at some of the other institutions discussed in previous issues of the CHS *Bulletin*, the zoo does give visitors a chance to encounter some interesting amphibian and reptile sculptures, as well as live animal exhibits.

The Vilas Zoo has a long history. Col. William F. and Anna M. Vilas donated 63 acres of land to the Madison Park and Pleasure Drive Association in June 1904 “for the uses and purposes of a public park and pleasure ground,” with the stipulation that the park always be admission-free. From 1905 through 1910, the Vilas family contributed an additional $42,000 for improvements, the community raised $10,000 in donations, and the “grounds were leveled, streets and walks were laid out and planting of shrubs and trees carefully and artistically done under the direction of a landscape artist.” The resulting park was named in memory of the Vilas’s son, Henry, who died at a young age. In 1911, the first animals—a herd of five white-tailed deer (*Odocoileus virginianus*)—were donated, and 28 acres of the park were partitioned into an animal exhibit, representing the start of the zoo. Dr. C. G. Dwight, who had “a vision of a zoo which should be an attractive, scientific and educational collection, representative of every animal kingdom,” was responsible for much of the initial growth of the animal collection. Today, the animals on exhibit serve as ambassadors for their wild cousins educating more than 500,000 visitors annually and helping zoo scientists protect wildlife around the world.

The first sculpture one encounters when visiting the animal exhibits is a large brass tortoise located between the entrance to the zoo’s Discovery Center / Herpetarium and the outdoor enclosure for the Aldabra giant tortoise (*Aldabrachelys gigantea*) (Figure 1). The nearly five-foot-tall tortoise is a popular spot for photo opportunities. The Madigan Family Trust donated the sculpture, which appears to have originally been part of a water fountain. Although easily overlooked, there is a copper pipe that appears to have been a spigot inside the turtle’s mouth (Figure 1, right). Other living turtles on exhibit include several species native to Wisconsin, desert tortoise (*Gopherus agassizii*), and alligator snapping turtle (*Macrochelys temminckii*).

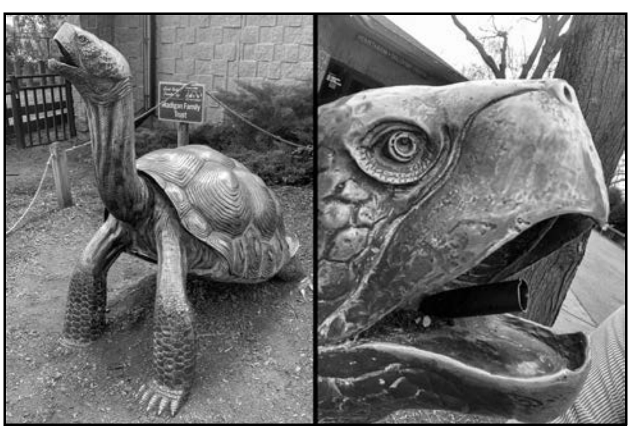

Figure 1. (left) A brass sculpture of a giant tortoise stands outside the entrance to the Henry Vilas Zoo’s Discovery Center / Herpetarium; (right) A close-up of the mouth of the tortoise reveals the presence of a copper spigot. Photographs by the author.

Figure 2. A life-sized model of a Komodo dragon is mounted on a wall above the live animal exhibits in the Vilas Zoo’s herpetarium. Photograph by the author.

Inside the Herpetarium, visitors encounter life-size models of a Komodo dragon (*Varanus komodoensis*, Figure 2) and a green

Figure 3. (top) A life-sized model of a green anaconda extends over several live animal exhibits in the Vilas Zoo’s herpetarium; (bottom) The anaconda’s stomach lighs up to reveal the outline of a “peccary or wild pig” that it consumed. Photographs by the author.

anaconda (*Eunectes murinus*, Figure 3), mounted on the walls as part of the interpretive displays. These appear to be made of polyresin and fiberglass, respectively. The Komodo dragon is mounted above displays of snakes native to Wisconsin (e.g., foxsnake [*Pantherophis vulpinus*] and gray ratsnake [*Pantherophis spiloides*]) and a ball python (*Python regius*). Signs next to the model offer various facts about the lizard: "Komodo dragons are the largest lizard in the world reaching lengths of 10+ feet and a weight of over 200 pounds," "Adult Komodo dragons can eat an entire deer and then may rest for a week while digesting it," "When Komodo dragons reach a length of 3 feet they are the island's top predators and fear only larger Komodo dragons," and others. Although the zoo does not house a Komodo dragon, the Herpetarium does feature various other lizards (e.g., rhinoceros iguana [*Cyclura cornuta*], Standing's day gecko [*Phelsuma standingi*], mossy leaf-tailed gecko [*Uroplatus sikorae*], gila monster [*Heloderma suspectum*], common chuckwalla [*Sauromalus ater*]).

The anaconda model is mounted above an enclosure that houses a sizable, living green anaconda and extends along the wall to above three smaller enclosures with various species of poison dart frogs (Dendrobatidae). A sign below the model informs visitors that "This is a life-sized model of one of the largest anaconda ever captured, a huge animal that measured 27' 9" long and 44" around." The sign also notes that anacondas seldom exceed 20 feet in length, "but a few have been reported over 30' long." It further notes that anacondas hold the record for weight among snakes, 600 pounds. The center of the anaconda model has a bulge of swallowed prey. A small interpretive sign on the wall next to the viewing windows explains, "Anacondas are constrictors and are capable of swallowing animals twice as big around as the widest part of their body." The sign invites visitors to press a button to "see the outline of a peccary or wild pig native to South America." When the button is pushed, the snake's stomach lights up to reveal the swallowed prey (Figure 3, bottom). Aside from the aforementioned snakes, visitors to the herpetarium can also view a boa constrictor (*Boa constrictor*) and various rattlesnakes (Crotalidae).

Figure 4. (left) A poison dart frog is one option on the Vilas Zoo's Conservation Carousel; (right) A wooden bench on the zoo's Conservation Carousel features two snakes and a crocodilian. Photographs by the author.

With the opening of the refurbished Children's Zoo in 2006, the zoo's "Conservation Carousel" began spinning. Among its diverse array of "charismatic megafauna," the carousel features a poison dart frog (Figure 4, left). One of the wooden benches on the carousel also features carvings of reptiles, two snakes and a crocodilian (Figure 4, right).

Henry Vilas Zoo still charges no admission or parking fees (one of only a few free zoos accredited by the Association of Zoos and Aquariums). The zoo grounds are open daily. To find out more about Henry Vilas Zoo, visit <www.vilaszoo.com/>.

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Erratum

The July 2022 issue of the *Bulletin of the Chicago Herpetological Society* (Volume 57, Number7) included a review by John G. Palis of *Field Guide to Amphibians and Reptiles of Illinois*, Second Edition, by Christopher A. Phillips, John A. Crawford and Andrew R. Kuhns. The review mistakenly listed Don Moll as a co-author of the first edition of this field guide. The actual co-author was Edward O. Moll.

Notes on the Herpetofauna of Western Mexico 28: A Case of Partial Forelimb Regeneration in Buller's Spiny Lizard, *Sceloporus bulleri* (Boulenger, 1895)

Daniel Gachuz-Bracamontes [1], Eduardo Daniel Roldán-Olvera [1], Gerardo Ramos-León [1], David Lazcano [2], Larry David Wilson [3], Lydia Allison Fucsko [4] and Daniel Cruz-Sáenz [5]

Abstract

Reptiles have various predator defense techniques (antipredation strategies), including size, spines, and other morphological modifications or ornaments, as well as autotomization, that is the voluntary release of the tail so that it serves as a decoy, allowing the lizard to flee from its predators. Losing a limb might also be part of this antipredation strategy as a way to avoid capture. Here we document the regeneration of the right posterior limb of a female *Sceloporus bulleri* in the Reserva de la Biosfera Sierra de Manantlán in Jalisco, Mexico.

Resumen

Los reptiles cuentan con diversas técnicas de defensa depredadora (estrategias anti-depredación), incluyendo tamaño, espinas, y otras modificaciones morfológicas u ornamentos, además de la autotomization que es la liberación voluntaria de la cola para que sirva como señuelo, permitiendo que la lagartija huya de sus depredadores, perder una extremidad sería parte de otra estrategia anti-depredación como una forma de evitar también en la captura. Aquí documentamos la regeneración de la extremidad posterior derecha de una hembra de *Sceloporus bulleri* en la Reserva de la Biosfera Sierra de Manantlán en Jalisco, México.

Introduction

Reptiles have various anti-redation strategies, including size, spines, and other morphological modifications or ornaments. Another defense technique is autotomization; that is, the voluntary release of the tail so that it serves as a decoy, allowing the lizard to flee from its predators. Such autotomization is followed by the regeneration of the tail, which is well documented in many species of lizards; however, there are organisms that cannot only regenerate the tail but also limbs. Fewer cases of limb regeneration, however, are documented. Natural limb regeneration has been reported for *Lacerta vivipara* (Avel and Verrier, 1930; Poyntz and Bellairs, 1965) and for *Liolaemus altissimus* (Hellmich, 1951). There is also a case of the regeneration of a limb in *Lygosoma laterale* (= *Scincella lateralis*; Simpson, 1961). This regeneration of tails has been documented in genera such as *Anolis, Lacerta, Liolaemus, Podarcis*, and many others (Bateman and Fleming, 2009). There are many parameters that influence this phenomenon, such as those having to do with population density and the presence of different predators in their habitat (Diego-Rasilla, 2003), or habitat conditions and temperature (Pianka and Pianka, 1976; Pianka and Huey, 1978; Jaksiæand Fuentes, 1980), that seem to influence the increase in these events (tail and limb loss). Tail and limb tissue regeneration at the cellular morphological level is a very complicated process that has to do with many changes peculiar to each individual or species (Bryant et al., 2002; Higham et al., 2013). Few cases of limb regeneration are known within the family Phrynosomatidae, but include the case reported by Mather (1978), in which is reported the regeneration of a leg in an individual of *Sceloporus variabilis* in Uvalde, Texas.

Background on the species (*Sceloporus bulleri*, 1894)

Sceloporus bulleri is a conspicuous diurnal species inhabiting boreal-tropical forests and tropical deciduous forests in the Sierra Madre Occidental of western Mexico, from southern Sinaloa and southwestern Durango to the highlands of Jalisco between 1000 and 2000 masl (Webb, 1967; Köhler and Heimes, 2002).

Sceloporus bulleri is a large and robust species of the *torquatus* group with a maximum snout–vent length (SVL) of 166 mm. Males are slightly larger than females. This species' dorsal scales are smaller than those of *Sceloporus torquatus*, i.e., 35–44 scales along the dorsal midline to the tail. Supraocular scales are in one row On either side, it has 13–21 femoral pores. The dorsum of males is bluish-green, olive or bronze , with a sometimes indistinct copperish-brown central stripe, depending on the locality. There is a pattern of dispersed black dots on the dorsal surface (of both males and females). The dorsal surface

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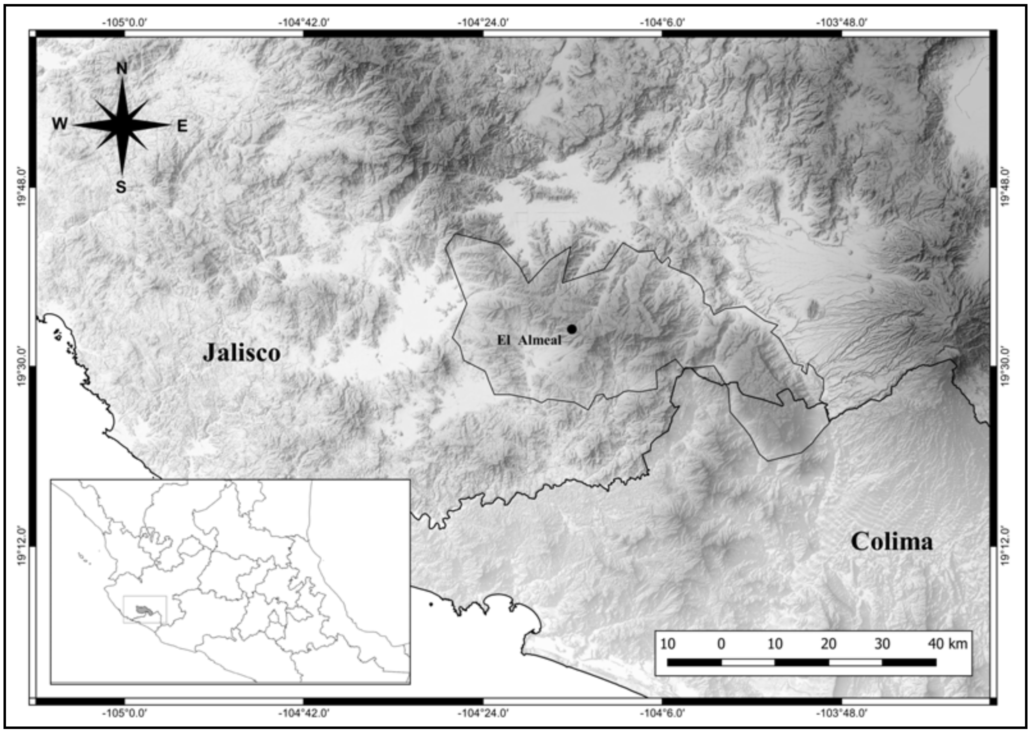


Location of “El Almeal” in the Reserva de la Biósfera Sierra de Manantlán.

of females has white-spotted scales or blurred dark brown spots. The tail is patterned with brown bands. The dorsal surface of the head is olive or reddish-brown; white spots are present on the head and the anterior portion of the neck, usually absent in large males, which have a distinct black nuchal collar, usually about four scales wide, and sometimes interrupted middorsally. In adult males the chin and throat are bluish-black, often with a dark blue spot. The lateral portions of the body are dark blue, and the center of the abdomen is usually black. The chin and throat in adult females are gray or bluish-gray, with blue spots and individual white scales on the blue and slightly gray lateral portions. In the young the dorsum is brown with many white-spotted scales dispersed throughout. (Webb, 1967; Köhler and Heimes, 2002).

This species can be observed on large boulders and steep-sided rock walls, logs, and upright deciduous or pine trees in rocky valleys, in spots where it can receive considerable sunlight (Webb, 1967; Köhler and Heimes, 2002).

Although the distribution of *S. bulleri* is well documented and it is an abundant species in montane habitats (Webb, 1967), various aspects of its life history are unknown. In a tropical deciduous forest locality in the municipality of San Sebastian, in the western portion of the state of Jalisco, Mexico, Escobedo-Galván et al. (2017) provided data on the reproductive biology of females and males, clutch size, and egg attributes of *S. bulleri*. This sceloporine lizard has been shown to be viviparous by Méndez-de la Cruz et al. (1998).

This species of *Sceloporus* is one of 26 members of the genus found in the state of Jalisco, and is endemic to Mexico. Unfortunately, however, it is not protected by the environmental law (SEMARNAT, 2010). Otherwise, it is judged as a species of Least Concern by the IUCN (International Union for Conservation of Nature) and is provided an Environmental Vulnerability Score of 15 (Wilson et al., 2013a, b; Cruz-Sáenz et al., 2017), placing it in the lower portion of the high vulnerability category.

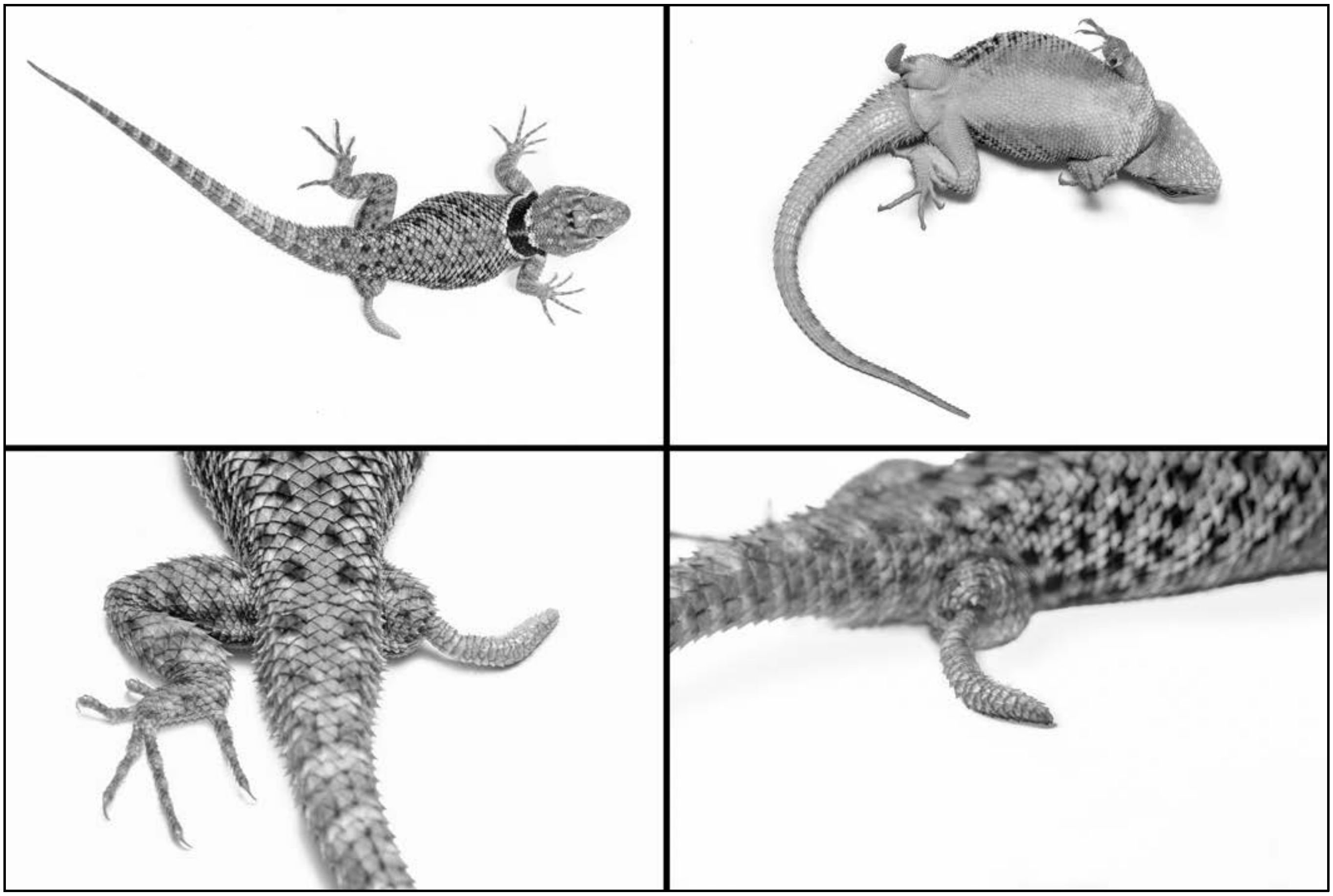
Background on the study site

The Reserva de la Biósfera Sierra de Manantlán was established by decree of the Federal Executive in March 1987, in order to protect biological diversity and promote the sustainable use of the natural resources of this mountainous area located in southern Jalisco and northwestern Colima. This reserve covers about 150,000 ha, and includes various vegetation types, such as cloud forest, pine forest, oak forest, tropical rain forest, and tropical dry forest. (INE, 2000).

Sierra de Manantlán is located in an area of transitional contact among several biogeographic provinces, i.e., Sinaloense, Sierra Madre Occidental, Volcánica Transversal, and Nayarit-Guerrero (González-Quintero, 1974).

The soil of the region is formed by extrusive igneous rocks (UNESCO, 2012), and its relief is complex, consisting principally of a plain, succeeded by ravines with very steep slopes and large cliffs, forming a viewpoint toward the coast.

In particular, “El Almeal” is an area located in the municipality of Cuautitlán de García Barragán, Jalisco, within the core area Manantlán-Las Joyas, Reserva de la Biósfera Sierra de Manantlán. The vegetation in “El Almeal” consists of patches of pine, pine-oak, mesophilic forest, and secondary vegetation. The geocoordinates of this area are 19.56234, -104.25300, and it is located at an altitude of 1920 masl. The southern part of the sierra, where Cuautitlán is located, has an annual rainfall greater than 1700 mm, with an average annual temperature ranging from 10° to 22°C (UNESCO, 2012). The core area of Las Joyas has registered 10 species of amphibians and 22 of reptiles (Ramos-León et al., 2021).



Hind limb regeneration by a female Buller's spiny lizard (*Sceloporus bulleri*) from the locality of "El Almeal," in the protected area of La Reserva de la Biosfera Sierra de Manantlán Jalisco, Mexico. Photographs by Daniel Roldán Olvera.

Methods and results

On 13 May 2020, while undertaking a herpetological survey in the natural protected area "Reserva de la Biósfera Sierra de Manantlán," we captured a Buller's spiny lizard (*Sceloporus bulleri*) and, as it was being handled, we noticed that one of the hind legs was missing, and in this missing section there was the beginning of the regeneration of the limb. The individual was an adult female with a SVL of 74.1 mm and total length 155.1 mm. The length of the left posterior thigh was 19.3 mm and the regenerated right limb was 14.2 mm. The individual was observed in a locality called "El Almeal" (19°33'44" N; 104°14'57" W) at an elevation of 2136 masl. The dominant vegetation type was pine forest. The lizard was perched on a thorn scrub. Unfortunately, we observed the specimen *in situ,* and did not weigh it nor bring it in for a bone scan (X-ray) to diagnose the regenerative process.

Discussion and conclusions

The loss of a limb has an energetic cost to the animal. In many cases the cost can be high, as its ability to escape from a potential predator is reduced significantly. Loss of a leg or tail can significantly impair running, walking, gliding, balance, swimming, diving, and/or underwater propulsion dynamics, as documented by a number of authors (Ballinger, 1973; Ballinger et al., 1979; Ballinger and Tinkle, 1979; Punzo, 1982; Daniels, 1984; Arnold, 1988; Brown et al., 1995; Martin and Avery, 1997; Martín and Avery, 1998; Cooper et al., 2004; Alibardi, 2017a, 2017b, 2022). The impaired locomotory performance of the individual involved can translate into decreased survivorship or decreased ability to forage/capture prey (Smith, 1996; Fox and McCoy, 2000; Cooper, 2003) or escape from predators (Dial, 1978; Dial and Fitzpatrick, 1981; Vitt and Cooper, 1986; Formanowicz et al., 1990; Wilson, 1992; Downes and Shine, 2001).

The regenerated appendages are often adequate enough to enhance survival rates, and restore some of the social status, as well as locomotory and foraging, reproductive, or metabolic abilities that had been reduced when the animals lost their appendage (Fox and Rostker, 1982; Daniels, 1984; Fox et al., 1990; Martin and Avery, 1997; Martín and Avery, 1998; Martín and Salvador, 1993a, b; Chapple and Swain, 2002).

Limb regeneration has not previously been documented for lizard species in Mexico, nor is information available on the effect on the animals' survivability, so these studies remain to be undertaken.

Acknowledgments

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Notes on Reproduction of Upland Chorus Frogs, *Pseudacris feriarum* (Anura: Hylidae), from Virginia

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Abstract

I conducted a histological examination of gonadal material from 27 *Pseudacris feriarum* adults from Virginia consisting of 16 adult males and 11 adult females. No histology was done on one unsexed subadult bringing my sample to 28. The smallest mature male (sperm in lumina of seminiferous tubules) measured 23 mm SVL. The smallest mature female (in spawning condition) measured 26 mm SVL. As previously reported for *P. feriarum*, reproduction occurs in the early part of the year. The presence of ripening follicles (vitellogenesis) and concurrent postovulatory follicles (from a recent spawning) in the same ovary, suggests that *P. feriarum* females may spawn more than once in the same reproductive period.

The upland chorus frog, *Pseudacris feriarum* (Baird, 1954) occurs from central Pennsylvania and western Kentucky south to eastern Mississippi, southern Alabama and southern Georgia, avoiding the coastal plain, except in South Carolina (Frost, 2022). Breeding occurs in winter and spring, depending upon environmental conditions (Dodd, 2013). Ethier et al. (2021) reported breeding occurs February to May. Breeding sites are typically small temporary pools and puddles in grassy fields; they do not breed in permanent water (Dodd, 2013). Developing ova are seen in autumn (Dodd, 2013). Males of *P. feriarum* begin calling in November adults are 20–35 mm long and are seldom seen after the breeding season (Murphy, 1963). In this paper, I present data from a histological examination of *P. feriarum* gonadal material from Virginia. Utilization of museum collections for obtaining reproductive information avoids removing additional animals from the wild.

A sample of 28 *P. feriarum* from Virginia (Appendix) collected 1940 to 1994 consisting of 16 adult males (mean snout–vent length (SVL) = 27.1 mm ± 2.1 SD, range = 23–30 mm), 11 adult females (mean SVL= 29.0 mm ± 1.8 SD, range = 26–32 mm), and one unsexed juvenile, SVL = 18 mm was examined from the herpetology collection of the Carnegie Museum (CM), Pittsburgh, Pennsylvania, USA.

A small incision was made in the lower part of the abdomen; the left testis was removed from adult males and a piece of the left ovary from adult females. Gonads were embedded in paraffin, sections were cut at 5 μm and stained with Harris hematoxylin followed by eosin counterstain (Presnell and Schreibman, 1997). Histology slides were deposited at CM. An unpaired *t*-test was used to test for differences between male and female SVLs (Instat, vers. 3.0b, Graphpad Software, San Diego, CA).

Testes of *P. feriarum* are surrounded by black pigment as previously reported for *P. crucifer* by Rugh (1941) and Oplinger (1966). Otherwise, the testicular morphology of *P. feriarum* is similar to that of other anurans as described in Ogielska and Bartmañska (2009a). Within the seminiferous tubules, spermiogenesis occurs in cysts which are closed until the late spermatid stage is reached; cysts then open and differentiating sperm reach the lumina of the seminiferous tubules (Ogielska and Bartmañska, 2009a). There was typically a tangled mass of spermatozoa in the lumen of each seminiferous tubule. All males were undergoing spermiogenesis. By month, numbers of *P. feriarum* males (N = 16) were: February (N = 8), March (N = 7), May (N = 1). These findings reflect *P. feriarum* being a winter–spring breeder (Dodd, 2013). The smallest mature male (sperm in lumina of seminiferous tubules) measured 23 mm SVL and was from March (CM 55966). Wright and Wright (1933) reported adult *P. feriarum* (as *Pseudacris nigrita feriarum*) males ranged from 21 to 30 mm in body size.

I am unable to speculate when the unsexed *P. feriarum* juvenile from August (SVL = 18 mm, CM 152789) would have reached adult size.

The mean SVL of *P. feriarum a*dult females was significantly larger than that of males ($t = 2.4$, df = 25, $P = 0.024$). The ovaries of *P. feriarum* are similar to those of other anurans in being paired organs lying on the ventral sides of the kidneys; in adults the ovaries are filled with diplotene oocytes in various stages of development (Ogielska and Bartmañska, 2009b). Mature oocytes are filled with yolk droplets; the layer of surrounding follicular cells is thinly stretched. Three stages were noted in the ovarian cycle of *P. feriarum* (Table 2): Stage 1 (Spawning Condition) in which mature oocytes predominated: Stage 2 (Vitellogenesis) in which follicles were accumulating yolk, comparable to "secondary growth Stage 5" (see Uribe Aranzábal, 2011); Stage 3 (Not in Spawning Condition) in which atretic follicles and early diplotene oocytes predominated. The smallest mature *P. feriarum* female (spawning condition) in my sample measured 26 mm SVL (CM 129257). Wright and

Table 1. Three monthly stages in the ovarian cycle of 11 adult female *P. feriarum* from Virginia.

Month	*n*	Spawning Condition	Vitellogenesis*	Not in Spawning Condition
February	2	2	0	0
March	3	2	1	0
June	1	0	0	1
September	1	1	0	0
October	2	2	0	0
November	2	2	0	0

* = yolking follicles and postovulatory follicles *sensu* Redshaw (1972).

Table 2. Months of breeding by locality for *Pseudacris feriarum*.

Location	Breeding Period	Source
Alabama*	winter and early spring	Mount, 1975
Carolinas and Virginia	December to March (south); February to May (north)	Beane et al., 2010
Florida	December to March	Krysko et al., 2019
Georgia	Winter to early spring	Jensen et al., 2008
Illinois	late February to May	Phillips et al., 2022
Maryland	February and early March	Cunningham and Nazdrowicz, 2018
North Carolina	late winter to early spring	Murphy, 1963
North Carolina	call in winter and early spring	Dorcas et al., 2007
Pennsylvania*	mid-March to May	Hulse et al., 2001
Southeast	active winter and early spring	Dorcas and Gibbons, 2008
West Virginia*	February–March	Green and Pauley, 1987
Tennessee	January into April	Niemiller and Reynolds, 2011

* as *Pseudacris triseriata feriarum*

Wright (1933) reported adult females of *P. feriarum* (as *P. nigrita feriarum*) ranged from 22 to 33 mm.

Postovulatory follicles (evidence of a recent spawning) were noted in one *P. feriarum* females from March (CM 127408). Postovulatory follicles form when the ruptured follicle collapses after ovulation; the follicular lumen disappears and proliferating granulosa cells are surrounded by a fibrous capsule (Redshaw, 1972). Postovulatory follicles are short–lived in most anuran species and are resorbed after a few weeks (Redshaw, 1972). The presence of ripening (yolking) follicles for a subsequent spawning, comparable to "Secondary Growth Stage 5" (progressive accumulation of yolk platelets) in Uribe Aranzábal (2011), with concurrent postovulatory follicles from a recent spawning, in the same ovary, suggests *P. feriarum* may spawn a second time during the same reproductive period.

Of the 11 adult females in my *P. feriarum* sample, one (9%) (CM 152651, from June) contained abundant late stage atretic oocytes, many of which had deteriorated into compact black masses (stage D of Ogielska and Bartmañska, 2009b). Atresia is a widespread process occurring in the ovaries of all vertebrates (Uribe Aranzábal, 2009). It is common in the amphibian ovary (Saidapur, 1978) and is the spontaneous digestion of a diplotene oocyte by its own hypertrophied and phagocytic follicle cells which invade the follicle and eventually degenerate after accumulating dark pigment (Ogielska and Bartmañska, 2009b). See Saidapur and Nadkarni (1973) and Ogielska et al. (2010) for a detailed description of the stages of follicular atresia in the frog ovary. Atresia may influence the number of ovulated oocytes (Uribe Aranzábal, 2011) and can remove females from the breeding population (Goldberg, 2017, 2019).

In conclusion, my data supports previous studies indicating *P. feriarum* reproduces in winter–spring as reported by Dodd (2013) and Table 2. The presence of ripening follicles (upcoming spawning) and concurrent postovulatory follicles (from a recent spawning) in the same ovary, suggests that *P. feriarum* females may spawn more than once in the same reproductive period. This was also noted in the congeneric species, *Pseudacris streckeri* (Goldberg, 2020) and *Pseudacris fouquetti* (Goldberg, 2021). Histological examination of additional *Pseudacris* species is warranted to ascertain if they also can spawn a second time during the same reproductive period.

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Appendix

Twenty-eight *P. feriarum* from Virginia examined (by county) from the herpetology collection of the Carnegie Museum (CM), Pittsburgh, Pennsylvania, USA. **Cumberland**: CM 152346, 152371, 152436, 152455, 152471, 152473, 152651, 152789, 153016, **Fairfax**: CM 113255, 139934; **Hanover**: CM148183; **James City**: CM 113581, 113586, 113587; **New Kent** CM 18647I, 18647M, 18647JJ, 18648F, 18648V, 18648CC; **Newport News**: CM 158089; **Rockingham:** CM 55966; **Scott**: CM 129598; **Sussex** CM 127408, 128228, 128240, 129257.

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Keeping Track of the Neighbors (Part Three)

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The setting sun told me that it was very late in the day, but also confused me: This was the middle of December, and the temperature was still in the low 80s. I really haven't adapted to Florida, and so once again I was thrown off between what seven decades in the upper Midwest led me to expect about the seasons and what I was experiencing. Anyway, my wife and I were going out to dinner—and then I saw it.

Crawling across the condominium's parking lot was a big Florida Softshell Turtle, its shell 15 or 16 inches in length. It was moving slowly, methodically, until it noticed I was watching; then it receded into its shell. My first experience with softshell turtles of any kind had been along Crescent Boulevard in Glen Ellyn in the late '70s. I had gotten out of my car to move it out of harm's way, but when the turtle saw me, it bolted a dozen yards back into the DuPage River from where it came, completely dispelling any preconceived and unfounded assumptions I had about turtles being slow. Over the decades, my encounters with softshells in Illinois reinforced my view that they were one fast critter (book-learning and other herpers also taught me that this turtle's jaws merited the greatest respect). This evening I wasn't about to test that learning.

So I was a little surprised when this Florida softshell retreated into its shell. By this time my wife joined me and offered to watch the turtle while I went back to our condo for my camera. The turtle hadn't moved when I returned, although it slowly had emerged from its shell. I took a few photos while my human neighbors walked by, too involved with their phones to pay attention to what was in their parking lot. I steered around the turtle and drove to dinner. When we returned, the turtle was gone.

A few months earlier I had encountered a Peninsula Cooter digging a nest at the base of the fence that encloses the community. Most of the lake our community is built around is rimmed with riprap, and I suspect the sharp-edge stones deter a turtle's ingress and egress. The southeast corner of the lake, though, has a very shallow section and is surrounded by smaller, rounder rocks. The cooter could have easily left the lake and crawled the hundred or so yards to lay her eggs at the base of the fence. This was in the late afternoon, and while the turtle noticed my presence and retreated partially into her shell, she continued digging. The next morning I went out to look for the nest—and couldn't find it.

Softshells and cooters were among the first reptile neighbors with whom I made an acquaintance after we bought the condo. It took several months and a lot of photographs before I recognized either for what it was. The softshell especially had me confused. I had seen something swimming in the lake: From what I could see, I thought it was a baby alligator. Over time I learned I was seeing the protruding eyes and snout tip of a softshell turtle. Now that I recognize them for what they are, I often see the turtles cruising the shoreline, but several yards out over the deep water.

Just outside our community, a drainage ditch runs for miles along Airport Road, a highly trafficked four-lane road. Along much of its length it is bordered on the east side by a ditch many feet below the road surface, bordered with steep sides that have deterred me from venturing to the water's edge. Tannin has dyed the water deep brown, and trash floats on the surface and fouls the shoreline. Despite its appearance, though, the ditch has provided interesting opportunities for me to observe and study Florida nature. I enjoy walking, camera in hand, the half-mile from our condo to the ditch. Along the way I photograph birds such as Northern Mockingbird, Brown Thrasher, Mourning and Collared Doves, and Palm Warblers. Occasionally I am able to photograph a Zebra Longwing, a very exotic-looking butterfly. When I reach the ditch, I photograph Snowy Egrets and Tricolored Herons, as well as an assortment of dragonflies and ever-present White Peacock, a butterfly related to the Red Admiral and several other species found in the Chicago area.

I learned to scout the banks of the ditch as I walk along: Cooters, sometimes a dozen or more, bask on the sun-exposed west side of the ditch. I quickly learned how cautious these turtles were: Even when I am a couple dozen yards away, once

This cooter crawled several hundred yards to lay her eggs along a roadway. (All photographs by the author.)

These basking cooters share their pond with several large alligators in a Naples park.

they realize I am there (separated by a 20-foot-wide ditch to boot!) they dive en masse into the ditch, disappearing in the tea-colored water.

Generally I walk south along the ditch, but occasionally I head north. Cooters there bask on the east bank of the ditch: A section of the bank is much less steep, so perhaps it is easier for them to haul out. At any rate, they are just as skittish as the other turtles—maybe more so. One day, though, I noticed a very different profile on the bank: It was a large softshell basking with the other turtles. Since I wanted to photograph it, I turned inland from the ditch, hoping there were no ticks or chiggers among the branches I was pushing myself through (Silly me: Florida landscapers apply so much insecticide on a weekly basis that it's a wonder I see any insects). I paralleled the bank until I saw a break in the vegetation; through the opening, I spied the softshell. Two shots were all it allowed me before plunging into the canal.

I have seen Florida Softshells at several sites in the area, all but one of them as tame as the lake and the canal. The single "wild" sighting occurred beneath the observation tower at Ten Thousand Islands Wildlife Refuge, the same tower I wrote about relating my alligator neighbors. This one swam lazily in the tannin-soaked waters (are you noticing that I'm running out of descriptions for Florida water?) The water was only about a foot deep: Various kinds of small egrets and herons stalked the site. As the turtle moved further into the marsh, the water gradually hid it and it disappeared.

Spotting a softshell always grabs my attention; not spotting a Peninsula Cooter would also grab my attention, but a day seldom passes when I don't spot a half-dozen or more cruising the lake immediately outside our condo. Quite often I'll be sitting in the lanai, sipping my coffee in the predawn hours and watching the large flights of herons, egrets, and ibises as they leave their mangrove rookeries along the Gulf four miles to the west and fly east to the farm fields, golf courses, and other hunting grounds, and I'll notice the familiar protruding head of a cooter in the still-dark water. The lake lacks fallen logs and other structures the turtles could use for basking, and so the turtles bask by simply floating at the surface. This surface basking seems to occur regardless of temperature or whether the sun is actually shining.

I can only recall two sightings of young cooters. One was just outside our condo: Because it was the dry season, the lake level had dropped. I was looking to see what I could see when I noticed two dark green shapes, about the size of a half-dollar (yes, I'm old enough to remember half-dollars) among the rocks. I noticed the absence of red "ears" (Red-eared Sliders are not native to the area, but occasionally I spot one) and took some photos. The little guys were cooters. My other sighting was at Freedom Park, closer to the center of Naples. Several fallen trees lie at the end of one of the bridges, and no matter what time of day or year I visit, I'm sure to spot a half-dozen Peninsula Cooters. Among the adults, I usually spot one or two smaller, younger individuals. Two other things worth noting about the pond: It is part of an interconnected system of ponds that are home to three or four alligators, and a population of Florida Redbelly Turtles. And I should note that I have not yet seen Redbelly Turtles and Peninsula Cooters basking together.

Visiting the Naples Preserve highlights many of my visits to Naples. The preserve is along the busy Tamiami Trail and across the street from a large indoor shopping mall. The Naples Zoo, Gordon River Greenway, and Freedom Park are within walking distance. The preserve is small, but it is home to over one hundred free-ranging Gopher Tortoises. The tortoises are protected and monitored, but beyond that almost nothing is done to manage them.

One reason my wife and I appreciate the preserve is that it has an excellent walking trail, much of it boardwalk, and a complete circuit of the preserve on the trail is only slightly more than a half-mile. Since a difference of only a few inches above sea level makes an enormous difference in the type of plant communities found along the Gulf of Mexico, the preserve contains several, but is dominated by Slash Pine. As we walk the trail, we scout for the characteristic white sand that signals tortoise activity. We always have seen at least one tortoise, and have often spotted a dozen or more.

We've observed all kinds of tortoise behaviors. Of course, if the weather is relatively cool, most of the tortoises we spot are basking in the entrance to their burrows. Some are skittish and retreat the moment they notice us, but many remain in place. At the end of the boardwalk, the pines give way to an open expanse of grass and cactus, and here we have watched tortoises grazing, munching a mouthful, crawling forward a few inches, and taking another mouthful. Occasionally we witness what appear to be territorial disputes, two tortoises clashing with each other; one time it was clear that a disinterested female tortoise was loitering a few feet from rival males as they butted against each other.

One of my favorite tortoise observations happened shortly after Thanksgiving 2021. We had walked the trail and had seen a number of tortoises, but decided to retrace some of our steps. Just below the section of boardwalk leading out to the observation area at the end of the trail, a juvenile tortoise made its appearance. Besides being smaller than the adults—its shell length was maybe three inches—the juvenile was distinctly orange overall, and its shell rounder and less domed than an adult. Otherwise it behaved just like the adults we had seen, slowly grazing and seemingly indifferent to the two bipeds standing above it.

Most of my tortoise observations and, until recently, all but one of my tortoise photographs, occurred at the Naples Preserve. I've been to many preserves that alert visitors to the presence of tortoises, but none have crossed my path. I have seen tortoises grazing along the roads at a few places in Naples and on Marco Island, but because of traffic, I have been unable to photograph them. That changed this year when I decided to search a small nature preserve (I'm talking football field size preserve) at the entrance of Veterans Park along Immokalee Road, about a five-minute drive from our condo. While my wife sat in the car, I took my camera and stalked the margin of the preserve where I had often seen a tortoise, but nothing made an appearance. I followed the trail into the preserve. Like many such preserves, it appeared "dead": Not even a Brown Anole crossed my path. The trail circled back to the road; emerging, I once again scanned the

Gopher Tortoises can be seen along many of the roads in Naples; this one was regularly seen at Veterans' Park.

Cuban treefrogs like this one seem to be decreasing in number around the author's community.

preserve's margin and there I saw it: a female Gopher Tortoise feeding on the dry grasses, just inches from a sidewalk and a few feet from the road. Cautiously, I approached, taking several photographs with every step. My precautions were unnecessary: The tortoise, who tolerated joggers, bicyclists, baby strollers, and dog-walkers, wasn't alarmed by an old guy with a camera.

I wish I had some new stories to share about my frog and toad neighbors, but ever since a retirement community has been built adjacent to our community, I have witnessed a drop in the populations of Cane Toads and Cuban Treefrogs. I haven't seen a live Cane Toad in nearly two years, although sometimes I spot a road-kill on the roads in the community. I observed a tadpole hatch towards the end of March 2022 in a retention pond adjacent to Lake Avalon: Thousands of toad tadpoles of some species fed on the algae in the pond. They looked identical in color, size, and shape to the American Toad tadpoles I see in the Chicago area, and since Florida has several species of native toads (none of which I've encountered), they might have been Oak Toads, etc., but I don't know. Occasionally I still see a Cuban Treefrog around the condo, but even when we're in Florida in the hot, sticky summer months, I don't see them in the numbers I used to.

What I have seen—and photographed—a little more often are Greenhouse Frogs, another nonnative species. Especially if rain has fallen during the day and early evening, these anuran mites appear on the sidewalks outside the condos. They disappear with a single leap if provoked, diving into the landscape plantings. I felt fortunate, therefore, when a large one (almost an inch in snout–vent length) allowed itself to be photographed one night in the entryway outside our front door. Its cooperation was brief, however, and after I took two or three shots, it leaped into the vegetation.

Thanks to on-line sources, I've listened to and studied the calls of Cane Toads, Cuban Treefrogs, and Greenhouse Frogs, and I do walk the neighborhood after dark, listening for something sounding like a frog call, but so far without luck. Coincidentally, a friend of mine here in the Chicago area studies the sounds made by grasshoppers, crickets, and related species (I can't call them vocalizations because the sound are made mechanically by rubbing their wings together), and I have heard crickets around the condos. During one of my walks to the drainage ditch, I discovered a small chunk of concrete at the base of the fencing. Now, no real helper ignores a chance to flip, but when I flipped the concrete, I was hoping for a cricket. Something small and dark leaped away as soon as I turned over the block, and I had no idea what I had just seen. A week or two later I returned to the concrete, and this time I exercised a little more caution flipping it. Buried in the moist earth beneath the block was a Greenhouse Frog. Its dark brown ground color with lighter stripes and spots helped it blend into the earth: It looked no different, really, from the tiny clods of dirt under the concrete. After I took a few photos, I nudged it and replaced the block. Was this frog what I had seen previously? I don't know, but I wouldn't be surprised if it were.

With each stay in Florida, I am learning more about the amphibians and reptiles just outside my door. Viewing their behaviors in a natural setting compensates for not having some in "protective custody." Also, because so many species I see are nonnative, I have been challenged as to how I think about them. Brown Anoles aside, none of the lizards inhabit niches far from human developments, disturbed areas that may be hostile to native species. In fact, with the exceptions I have written about, it is the absence of amphibians and reptiles in natural areas that has impressed me: I do much more looking than finding. I'm keeping my mind and my eyes open, though, and I hope to continue learning more about my herptile neighbors for many more years.

Herpetology 2022

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

INVASIVE CHAMELEONS DISPLAY CONSPICUOUSLY

M. J. Whiting et al. [2022, Science Advances 8(19)] note that conspicuous social and sexual signals are predicted to experience pronounced character release when natural selection via predation is relaxed. However, there are few good examples of this phenomenon in the wild and none in species with dynamic color change. The authors show that Jackson's chameleons inadvertently introduced from Kenya to Hawaii (Oahu), where there are no co-evolved, native lizard predators, experienced pronounced character release of color signals. Hawaiian chameleons displayed more conspicuous social color signals than Kenyan chameleons during male contests and courtship, were less cryptic in response to bird and snake predators, and showed greater change between display and antipredator color states. Hawaiian chameleon display colors were also more conspicuous in their local than ancestral habitats, consistent with local adaptation of social signals. These results demonstrate that relaxed predation pressure can result in character release of dynamic social signals in introduced species experiencing strong sexual selection. View this open access article at <https://www.science.org/doi/10.1126/sciadv.abn2415>.

DISPERSAL OF SEA TURTLE HATCHLINGS

J. Oñate-Casado et al. [2021, Ichthyology and Herpetology 109(1):180-187] note that sea turtle hatchlings emerge from underground nests at night, rapidly crawling seaward. Once in the water, hatchlings might experience high predation rates while in shallow water before reaching deeper water where encounters with predators, and consequently mortality rates, likely decline. Behavioral studies have described different swimming strategies used by hatchlings to counter near-shore predation. Coastal and oceanographic conditions are also likely to influence dispersal away from near shore to the open ocean. This study assessed predation rates of hawksbill turtle (*Eretmochelys imbricata*) hatchlings as they dispersed from shore at Chagar Hutang Bay, Malaysia, and the role surface currents play in the transport of hatchlings in the near-shore environment. An acoustic Doppler current profiler was used to measure surface currents, and direct observations of swimming hatchlings were made from a kayak using GPS loggers to track hatchling swimming paths. Six of the 31 hatchlings tracked (19.4%) were preyed upon, most within 50 m of shore, indicating that predators are more abundant in shallower areas of the bay where a coralline-rocky bottom predominates. Survival tended to be greater under dark conditions when moonlight was absent or minimal. The authors quantified the relative importance of the tidal current in a hatchling's offshore swim, and found that in most cases, tidal surface currents assisted the offshore movement of hawksbill hatchlings as they dispersed from the beach. These findings provide a better understanding of how sea turtle hatchling dispersal is affected by predation, moonlight, and physical oceanographic conditions at Chagar Hutang Turtle Sanctuary.

LIMB BONE SHAPE IN EMYDID TURTLES

V. K. Hilliard et al. [2021, Journal of Herpetology 55(1):112-118] note that limb bone morphology often correlates with functional demands placed on animals by the environment. Comparisons of limb bone allometry in functionally divergent turtle taxa indicate highly specialized lineages show extensive flattening of the humerus. In sea turtles this contributes to flipper-shaped forelimb morphology that facilitates lift-based swimming (i.e., underwater flight). In contrast robust humeri and femora in terrestrial tortoises may reflect specializations for resisting high torsional loads during terrestrial walking and digging. However, it is unknown whether allometric patterns of ecomorphological divergence can be detected among more closely related lineages within clades that encompass species with diverse ecological habits. To test whether limb bone size and shape vary among closely related taxa that live in divergent habitats, the authors used phylogenetic comparative methods to assess scaling patterns and overall morphology of the humerus and femur of 27 emydid turtle species representing four genera: *Graptemys* (semiaquatic), *Pseudemys* (semiaquatic), *Trachemys* (semiaquatic), and *Terrapene* (terrestrial). In general, they found that limb bones of emydid taxa scale isometrically for most length–diameter and length–mass relationships. However, terrestrial *Terrapene* (box turtles) species exhibit relatively short femora compared with species from the more aquatic genus *Trachemys* (sliders). The relatively small limb bones of box turtles may promote limb withdrawal into the shell, but without mechanical costs because of high safety factors of turtle limb bones. The comparatively robust forelimb and hindlimb dimensions of *Graptemys* (map turtles) relative to other emydid clades may reflect habitat and foraging pressures in this group.

RESULTS OF A MASSIVE CONFISCATION

C. J. Innis et al. [2022, Chelonian Conservation and Biology 21(1):46-62] report that in 2015, nearly 4000 critically endangered Palawan forest turtles (*Siebenrockiella leytensis*) were confiscated on their native island of Palawan in the Philippines after being illegally harvested for the international wildlife trade. Local conservation biologists and an international team of veterinary and husbandry personnel evaluated, treated, and repatriated the majority of turtles (88%) over a 3-month period. Common pathologic findings included ophthalmic, dermatologic, musculoskeletal, and gastrointestinal lesions, including keratitis, osteomyelitis of the shell and digits, pododermatitis, and colonic nematodiasis. Hemogram results indicated severe leukocytosis in many individuals. Specimens for genetic analysis and molecular diagnostics were archived, and several intact carcasses were established as museum specimens. International collaboration may be required to ensure the confiscation and survival of illegally traded endangered wildlife, with ongoing efforts toward enhancing the law enforcement, husbandry, and veterinary capacity of range country personnel.

HERP-ACROSTIC #22* *by Mike Dloogatch*

1 R	2 S	3 I		4 E	5 Q	6 A	7 J		8 M	9 B		10 L	11 J	12 Q	13 R	14 E	15 O	16 D	17 P	18 G		19 L	20 M	21 O
22 P		23 B	24 F	25 A		26 C	27 K	28 R	29 I	30 J	31 O		32 M	33 F		34 F	35 H	36 N	37 L	38 S	39 U	40 C	41 D	
42 B	43 P		44 R	45 M	46 G	47 E	48 D		49 M	50 O	51 I	52 N	53 G	54 B		55 O	56 K	57 M	58 T	59 E	60 A	61 H	62 D	63 C
	64 A	65 Q	66 K		67 M	68 H	69 S	70 B	71 P	72 O		73 D	74 A	75 J	76 L		77 N		78 H	79 T	80 N	81 G	82 U	83 F
84 E	85 P	86 M		87 N	88 M	89 U		90 R	91 A	92 F	93 E	94 Q	95 M	96 J	97 D	98 S	99 U	100 C	101 L		102 N	103 R	104 I	105 Q
106 T	107 P		108 N	109 D		110 L	111 E	112 N	113 R	114 F	115 G	116 Q	117 M		118 A	119 N	120 F	121 H	122 U		123 E	124 G	125 J	126 C
127 D	128 H	129 B	130 A		131 Q	132 G	133 B	134 L	135 N	136 D	137 E	138 F	139 A	140 M		141 D	142 J		143 G	144 P	145 L	146 T	147 U	148 J
	149 M	150 I	151 O		152 S	153 M	154 K	155 J	156 B		157 J	158 E	159 M	160 O	161 F	162 A		163 J	164 H	165 Q	166 S	167 F		168 K
169 B	170 F	171 A																						

How to solve this puzzle: The diagram, when filled in, will contain a quotation from a published work on herpetology. The numbered squares in the diagram correspond to the numbered blanks under the WORDS. The letter at the upper right of each square indicates the WORD containing the letter to be entered in that square. The WORDS form an acrostic: taking the first letter of each in order spells out the name of the author and the title of the work from which the quotation is taken.

The solution will appear in next month's *Bulletin*.

	CLUES	**WORDS**
A.	Eponym for a genus of Middle Eastern elapids (first and last name).	171 64 25 118 6 91 74 162 60 139 130
B.	Destruction of cells or tissues by their own enzymes.	23 129 42 133 70 54 156 169 9
C.	Author of *Lizards in an Evolutionary Tree* (2009) (last name only).	100 126 26 40 63
D.	Pentastome (two words).	97 141 41 48 62 16 73 109 136 127
E.	Shedding of the skin; ecdysis.	93 111 84 123 4 14 137 158 59 47
F.	Mode of limbless locomotion characteristic of heavy-bodied snakes.	167 170 114 83 161 24 138 33 120 34 92
G.	In traditional taxonomy, one of the classes of the subphylum Vertebrata.	132 124 81 18 115 53 46 143
H.	Snakelike.	128 78 164 68 61 121 35
I.	Rattle.	104 150 51 29 3
J.	Standard English name for *Notophthalmus viridescens* (two words).	155 7 96 75 148 11 125 142 30 157 163
K.	Toxic substance secreted by an animal and injected by a sting or bite.	168 66 27 56 154
L.	A plant that grows on another, but is not parasitic.	110 134 37 10 76 145 19 101
M.	Margaret Lane's biography of a famous African snakeman (three words).	86 32 67 117 149 95 159 20 57 153 88 8 49 45 140
N.	Vernacular name for several species of Australian elapids (two words).	102 135 77 108 119 87 36 52 112 80
O.	In Greek mythology, a flower said to carpet a region of Hades.	21 31 55 160 151 72 50 15
P.	A newly born individual.	17 71 43 144 85 22 107
Q.	Move away, from a den site for instance.	5 105 94 131 165 65 116 12
R.	Rattle.	13 90 44 113 28 1 103
S.	Of or pertaining to rock.	69 98 38 2 166 152
T.	Greek god of love.	79 106 146 58
U.	Showing little genetic variation, due to repeated matings between closely related individuals.	39 147 99 122 82 89

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* It's been 10 years since one of these word puzzles appeared in the *Bulletin*, so many readers may be unfamiliar with the first 21 in the series.

Minutes of the CHS Board Meeting, June 14, 2022

A virtual meeting of the CHS board of directors via Zoom conference video/call was called to order at 7:36 P.M. Board members Rachel Bladow, Rich Crowley, Stephanie Dochterman and Kyle Houlihan were absent. The meeting was also attended by Jenny Hanson. Minutes of the May 13 board meeting were read and accepted with changes.

Officers' reports

Treasurer: John Archer went over the May financial report.

Membership secretary: Mike Dloogatch read through the list of those whose memberships have expired. We are still unable to receive membership dues online.

Sergeant-at-arms: Tom Mikosz reported 20 attendees in person at the May 25 meeting, plus 18 online.

Old business

John Archer has decided that an online poll of the membership will not be practical.

New business

John Archer will initiate the process of reinstating liability insurance for live animal shows and will sound out Northeastern Illinois University as a venue for ReptileFest.

Chicago will be the host city for the International Herpetological Symposium next year; we need ideas on what the CHS can do to help out.

The meeting adjourned at 8:52 P.M.

Respectfully submitted by recording secretary Gail Oomens

Minutes of the CHS Board Meeting, July 26, 2022

A virtual meeting of the CHS board of directors via Zoom conference video/call was called to order at 7:33 P.M. Board members Rich Crowley and Stephanie Dochterman were absent.

John Archer called this special meeting to consider a letter from the Peggy Notebaert Nature Museum requesting that we move the dates of our general meetings from after hours Wednesday nights to the weekend during hours when the museum is open.

After discussion of the possible positive and negative aspects of weekend meetings, the consensus of the board was to begin holding our meetings at 2:00 P.M. on the third Sunday of each month.

The meeting adjourned at 8:07 P.M.

Respectfully submitted by recording secretary Gail Oomens

NEW CHS MEMBERS THIS MONTH

Troy Deckard
Dr. Ronald A. Javitch
Josh and Lauren Jefferson

Advertisements

UPCOMING MEETINGS

Try to join us *in person* or online through Zoom for the next meeting of the Chicago Herpetological Society, to be held at 7:30 P.M., Wednesday, August 31, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. The speaker will be **Dr. Christopher Kellner**, professor of biological sciences at Arkansas Tech University. Dr. Kellner will speak about his ongoing research on prairie lizards. His program is entitled "Prairie Lizards in Thermally Distinct Habitats Almost Never Conform to Expectations." Chris's research focus has been mostly on avian ecology, management and conservation. However, as a child, he developed a passion for reptiles and amphibians, and in 2012 he rekindled that passion by initiating a comparative study on prairie lizards that occupy thermally different habitats.

Starting in September the monthly meetings of the CHS will be held in the afternoon on the third Sunday of each month. The meetings will begin at 2:00 P.M. The first such meeting will take place on September 18. Please try to join us *in person* at the Notebaert or online through Zoom.

Please check the CHS website or Facebook page each month for information on the program. Information about attending a Zoom webinar can be found here:
<https://support.zoom.us/hc/en-us/articles/115004954946-Joining-and-participating-in-a-webinar-attendee->

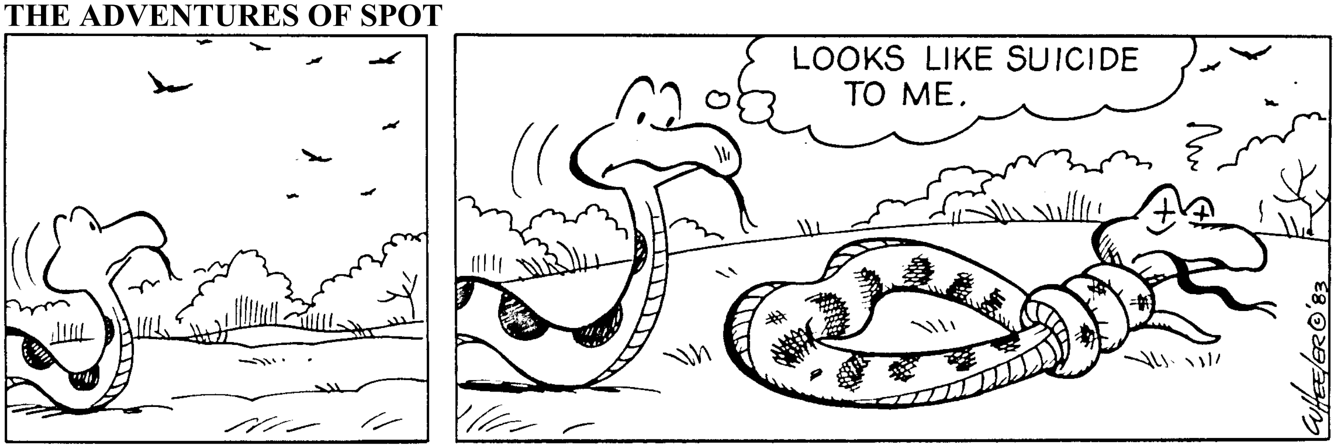
Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? The next board meeting will be held online. If you wish to take part, please email: jarcher@chicagoherp.org.

REMINDER

When you shop AmazonSmile and select the Chicago Herpetological Society as your charity, Amazon will make a donation to the CHS. <https://smile.amazon.com/>

THE ADVENTURES OF SPOT



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