

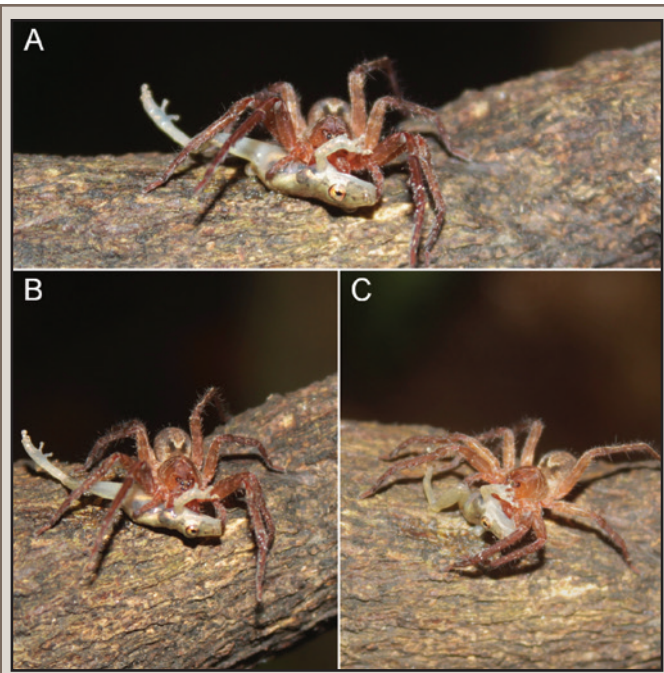


FIG. 1. *Ctenus ornatus* preying upon a *Scinax argyreornatus* on top of a tree branch in southeastern Brazil.

to track and kill prey (Jocqué and Dippenaar-Schoeman 2007. Spider Families of the World. Royal Museum for Central Africa, Tervuren, Belgium. 336 pp.). Leaf litter anurans are commonly preyed upon by ctenids (e.g., Meneses et al. 2020. Biologia 1:14). *Ctenus ornatus* is a medium-sized species (adult total length ca. 35 mm) that inhabits the leaf litter, is widely distributed from northeastern to southern Brazil, and is commonly found in the Atlantic Forest (World Spider Catalog 2021. Natural History Museum Bern: an Online Reference. Version 22.0, <http://wsc.nmbe.ch>, 29 Jan 2021).

Herein, we provide the first record of a *C. ornatus* preying upon a *Scinax argyreornatus*, an arboreal hylid that occurs from east of Bahia, through Espírito Santo to São Paulo (Frost 2022. Amphibian Species of the World: an Online Reference, Version 6.1, <https://amphibiansoftheworld.amnh.org>, 22 Feb 2022). *Scinax argyreornatus* is primarily found in coastal areas in shrub vegetation close to water bodies and feeds predominantly on insects and crustaceans, such as isopods (Teixeira and Vrcibradic 2004. Bol. Mus. Mello Leitão 17:35–43). During a herpetological survey on 22 November 2018, at 0815 h, in the Barra do Sahy region, Municipality of Aracruz, Espírito Santo, southeastern Brazil (19.5034°S, 40.0359°W; WGS 84; 12 m elev.), we observed an adult *C. ornatus* preying upon a *S. argyreornatus* on a tree branch at a height of ca. 1.5 m (Fig. 1). When first observed, the spider had already attached its chelicerae into the ventral region of the *S. argyreornatus*. Both individuals were collected moments after the predation and stored in 70% ethanol. These specimens are deposited together in the collection of “Herpeto Capixaba” currently housed in the Museu de História Natural do Sul do Estado do Espírito Santo (MUSES/UFES), under the voucher number HC-0004. Not only is this the first record of *C. ornatus* preying upon a *S. argyreornatus*, but it is also the first record of an arboreal anuran as prey for *C. ornatus*.

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SMILISCA SORDIDA (Drab Tree Frog). MALE-MALE AGGRESSION. *Smilisca sordida* is broadly distributed throughout the lowland tropical forest in Central America (Leenders 2016. Amphibians of Costa Rica. Cornell University Press, Ithaca, New York. 544 pp.). While Malone (2004. J. Herpetol. 38:27–35) noted instances of *S. sordida* males attempting to disrupt amplexant pairs, male-male territorial aggression (i.e., male-male aggression in the absence of amplexus) has not been previously reported. Here, we report an observation of male-male territorial aggression in *S. sordida*. On 26 January 2022 (2000 h), we observed two putative *S. sordida* males—one on top of the other—along a rocky riverbank of the Piro River within close proximity to the Piro Biological Station in the Osa Peninsula, Costa Rica (8.40418°N, 83.33846°W; WGS 84; 31 m elev.). At first glance, these individuals were assumed to be an amplexant pair. However, under closer inspection, it was obvious that this was not the case.

We have only observed axillary amplexus in *S. sordida* mating pairs along the Piro River. Our observations of amplexant *S. sordida* along the Piro River are characterized by sexual size dimorphism, males positioning along the posterior section of the females’ dorsum, and males clasping the females’ axillary region with their forearms. Our reported observation of male-male territorial aggression is not characteristic of *S. sordida* axillary amplexus because: 1) the individuals were the same body size, 2) the superior was positioned directly over the subordinate, 3) the superior had the left forearm placed on the subordinate’s head, and 4) struggling between the two individuals was evident.

The observation duration lasted about a minute (ended prematurely when approached for a photograph). We did not observe any vocalizations during this interaction. Further, we did not observe other *S. sordida* individuals within at least 10 m of the observation, so it seems unlikely that female presence provoked the behavior described above. While we observed many *S. sordida* individuals (including amplexant pairs, lone females, and high densities of lone males) along the rocky riverbanks during January 2022, this was the only instance of male-male aggression we observed.

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TESTUDINES — TURTLES

CARETTA CARETTA (Loggerhead Sea Turtle). NESTING ACTIVITY. The western Gulf of Mexico (GoM) coast in Texas, USA, supports nesting by five of the six sea turtle species observed in the GoM including *Lepidochelys kempii*, *Chelonia mydas*, *Caretta caretta*, *Eretmochelys imbricata*, and *Dermochelys coriacea* (National Marine Fisheries Service [NMFS] and U.S. Fish and Wildlife Service [USFWS]. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*),



FIG. 1. *Caretta caretta* tracks located on 10 June 1990 on North Padre Island, at Padre Island National Seashore, Texas, USA.



FIG. 2. Abandoned egg chamber observed at the non-nesting *Caretta caretta* emergence located on 10 June 1990 on North Padre Island, at Padre Island National Seashore, Texas, USA.



FIG. 3. Second non-nesting *Caretta caretta* emergence investigated on 11 June 1990 on North Padre Island, at Padre Island National Seashore, Texas, USA.



FIG. 4. Desiccated *Caretta caretta* hatchlings discovered at the in situ nest site located on 29 August 1990 on North Padre Island, at Padre Island National Seashore, Texas, USA.

Second Revision. 325 pp.; Shaver and Frandsen 2019. Herpetol. Rev. 50:350–351; Shaver et al. 2019. Herpetol. Rev. 50:350; Shaver et al. 2020. Front. Mar. Sci. 7:673; Shaver et al. 2020. Herpetol. Notes 13:907–923; Bonka et al. 2021. Herpetol. Rev. 52:844–845; Frandsen et al. 2021. Herpetol. Rev. 52:492–499). Aside from anecdotal reports of historic sea turtle nesting, the first confirmed records of *L. kempii*, *C. mydas*, *E. imbricata*, and *D. coriacea* nesting in Texas were made on North Padre Island; on land established, or later established, as Padre Island National Seashore (PAIS) under the National Park Service (Werler 1951. Zoologica 36:37–48; Hildebrand 1963. Ciencia 22:105–112; Shaver 1989. Herpetol. Rev. 20:14; Shaver and Frandsen 2019, *op. cit.*). *Caretta caretta* is the only sea turtle species documented to have nested

elsewhere in Texas (South Padre Island, 1970s, N = 2; Mustang Island, 1988, N = 1) prior to a confirmed observation on North Padre Island (Hildebrand 1981. In Bjorndal [ed.], Biology and Conservation of Sea Turtles, pp. 447–453. Smithsonian Institution Press, Washington, D.C.; Shaver et al. 2022. Herpetol. Rev. 53:662–663). Herein, we detail the first *C. caretta* nest and nesting activity confirmed on North Padre Island, at PAIS.

At 1130 h on 10 June 1990, inbound and outbound sea turtle tracks were documented near the 53.1 km (33 mile) marker at PAIS (Fig. 1). The tracks had deep, alternating flipper impressions and measured 80 cm in width. PAIS park visitors reported the tracks and an associated uncovered nest cavity to PAIS biologists who investigated the site. The uncovered nest cavity measured 25 cm

in depth and contained no eggs or eggshells (Fig. 2). Species was determined to be *C. caretta* based on the track characteristics, and the site was considered a non-nesting emergence.

Later, on 10 June at 2100 h, park visitors witnessed a large turtle with algae on its carapace emerge from the GoM near the 7.1 km (4.4 mile) PAIS marker. The turtle soon returned to the water after a vehicle passed by. The next day, at 0730 h, PAIS biologists investigated the inbound and outbound tracks left by the turtle at the 7.1 km site (Fig. 3). The tracks were deep and alternating, and like the non-nesting emergence site at the 53.1 km marker, measured 80 cm in width. Species was determined to be *C. caretta* and after thorough investigation of potential nest area, the site was considered another non-nesting emergence.

On 29 August, a *C. caretta* nest site was discovered after hatchling emergence by park visitors at the PAIS 3.1 km (1.92 mile) marker. The nest was positioned at the base of the foredunes, ca. 5 cm below the surface of the sand, and 45.7 m inland from the surf line. PAIS biologists responded to the visitor report and located 83 pipped eggshells and 10 hatchling carcasses in the nest chamber. The carcasses were desiccated, indicating they had been in the chamber for an extended period prior to discovery (Fig. 4). Though they were severely decomposed, 9 of the 10 hatchlings appeared to have carapace deformities. When considering the decomposition level of the carcasses, this nest likely hatched during the week of 12 August. No embryos were present in the eggshell remains and no additional hatchlings were documented near the nest site.

Based on the rarity of *C. caretta* nesting at the time, we believe this nest was likely from the turtle observed on 10 June. If estimating an incubation period of ca. 60–65 d, this nest could have been constructed the same week that the non-nesting emergences were documented. The area where the nest was located was patrolled daily during the week of 10 June, however PAIS personnel likely did not locate the tracks associated with this nest site due to the frequent vehicular and visitor traffic in this area of the park, which likely obscured any evidence of recent sea turtle activity. This is the first confirmed record of *C. caretta* nesting on North Padre Island and at PAIS, and the fourth confirmed *C. caretta* nest on the Texas coast.

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CARETTA CARETTA (Loggerhead Sea Turtle). REPRODUCTION.

Caretta caretta primarily nests on the eastern USA coast, however sparse nesting has also been recorded on the northern and western Gulf of Mexico (GoM) coasts (National Marine Fisheries Service [NMFS] and U.S. Fish and Wildlife Service [USFWS]. 2008. Recovery Plan for the Northwest Atlantic Population of the Loggerhead Sea Turtle (*Caretta caretta*), Second Revision. 325 pp.; Shamblyn et al. 2017. Mar. Biol. 164:138; Shaver et al. 2020. Front. Mar. Sci. 7:673). The first observations of *C. caretta* nesting in Texas were documented on South Padre Island in the 1970s (Hildebrand 1981. In Bjorndal [ed.], Biology and Conservation of Sea Turtles, pp. 447–453. Smithsonian Institution Press, Washington, D.C.; Hildebrand, pers. comm.). Herein, we report the first confirmed *C. caretta* nest in Texas since the 1970s (ca. 9 years), and the first *C. caretta* nest documented on Mustang Island, Texas.

At 2300 h on 25 June 1988, members of the public observed a *C. caretta* nesting 1.2 km south of Access Road 1 on Mustang Island. Though they did not measure the turtle, the observers did notice that this female did not have metal flipper tags. The *C. caretta* reentered the water after nesting. The next day,



FIG. 1. Hatchlings released from the first *Caretta caretta* nest documented on Mustang Island, Texas, USA.

the observers reported their finding to Tony Amos with the Animal Rehabilitation Keep, who contacted National Park Service biologists at Padre Island National Seashore (PAIS). PAIS biologists investigated the nest site at 0900 h on 26 June and located a nest chamber at the base of the foredunes, approximately 37 m inland from the surf line. The nest chamber contained 113 eggs, with the top layer of eggs measuring 18 cm from the sand surface. The nest chamber was 50 cm in depth. The disturbed sand and vegetation around the nest chamber indicated that the *C. caretta* had faced directly inland as she deposited the clutch.

The *C. caretta* clutch could not be incubated in situ due to its location in an area illuminated by artificial lighting from condominiums and subject to beach cleaning, horse traffic, human foot traffic, and vehicle use. The eggs were collected and relocated for protective incubation at the indoor PAIS Incubation Facility. Sixty-nine percent (78/113) of the eggs hatched after 47 d of incubation. The hatchlings were retained in darkened, sand-lined containers until they entered a period of hyperactivity (frenzy). The hatchlings non-uniformly entered their frenzy on 13, 15, and 17 August; two, four, and six days after hatching was first detected. Frenzying hatchlings were returned to the original nest site on Mustang Island for release into the GoM, however due to the artificial lighting in the area, hatchlings became disoriented during release (Fig. 1). During two subsequent releases with Kemp's Ridley Sea Turtle (*Lepidochelys kempi*) hatchlings in 1995, hatchlings had become disoriented by artificial lights. Subsequently, all hatchlings from sea turtle nests laid on Mustang Island and translocated to the PAIS Incubation Facility for protected care, have been released on North Padre Island at PAIS where there is no beach development (Shaver et al. 2020, *op. cit.*).

Gonads were removed from 32 late-stage embryos to determine the approximate sex ratio of the clutch. Ninety-seven percent (31/32) of the hatchlings were identified as female. Sex could not be determined for one sampled hatchling. Excessive incubation temperatures likely led to the relatively high late-staged embryonic mortality in this clutch. Since 1988, *ex situ* sea turtle incubation procedures at PAIS have continued to be