

suggesting a prolonged period of spermiogenesis. The smallest reproductively active male (spermiogenesis) measured 42 mm SVL (BPBM 18820) and was collected in October. Examination of additional *F. bumui* males is needed to ascertain a more precise monthly distribution of stages in the testicular cycle.

For females, two enlarged yolking follicles (>5 mm) were found in lizards collected in March (BPBM 25945), July (BPBM 34848) and October (BPBM 18837, 18842). One female collected in June contained two oviductal eggs (BPBM 31751). One female from June (BPBM 31755, 45 mm SVL) was not reproductively active (no yolk deposition). Greer and Simon (1982, *op. cit.*) found two females with two yolking ovarian eggs from April and one from September, and one female with two oviductal eggs from April. Clutch size was an invariant two. The smallest reproductively active female in our series measured 50 mm SVL (BPBM 25945), in contrast to the 55 mm minimum size for reproductive maturity found by Greer and Simon (1982, *op. cit.*). The presence of reproductively active females from widely separated months (March and October) suggests an extended ovarian cycle, but as was the case for males, additional *F. bumui* females need to be examined to elucidate the monthly distribution of stages in the ovarian cycle.

Our data for both sexes suggest extended sexual activity in *F. bumui* that may last year-round but spans at least the period from March to October. This is consistent with the small clutch size of this species which appears fixed at two eggs. Tropical and subtropical species with small, fixed clutch sizes typically have extended breeding periods (Mesquita et al. 2016. *Amer. Nat.* 187:689–705.), are typically small-bodied (adults collected by FK varied up to 4.05 g), and often scansorial (Meiri et al. 2020. *Global Ecol. Biogeog.* 29:1515–1530.). It appears that *F. bumui* also fits this general pattern of fixed clutch size in species inhabiting warm and tropical areas (Mesquita et al. 2016, *op. cit.*; Meiri et al. 2020, *op. cit.*). *Folia bumui* is unusually thin and long-limbed, highly atypical among skinks, but similar to *Anolis* species from the Neotropics which also have this same suite of features.

We thank Molly E. Hagemann (BPBM) for permission to examine specimens.

STEPHEN R. GOLDBERG, Whittier College, Department of Biology, Whittier, California 90608, USA (e-mail: sgoldberg@whittier.edu); **FRED KRAUS**, University of Michigan, Department of Ecology and Evolutionary Biology, Ann Arbor, Michigan 48109, USA, (e-mail: fkraus@umich.edu).

GERRHONOTUS INFERNALIS (Texas Alligator Lizard). NESTING BEHAVIOR. *Gerrhonotus infernalis* brooding occurs between February and June, and nesting sites have been documented to occur under boulders and in crevices (Greene et al. 2009. *In* Jones and Lovich [eds.], *Lizards of the American Southwest*, pp. 492–495. Rio Nuevo Publishers, Tucson, Arizona). Long term parental behavior has been observed in captivity for *G. infernalis*, wherein the egg-laying female will stay either in or in proximity of the nest for the duration of the incubation period (Greene et al. 2006. *S. Am. J. Herpetol.* 1:9–19), yet there appear to be no extended observations of free-ranging lizards. Here, we provide observations of two female *G. infernalis* sharing an egg laying site under natural conditions and we report on an egg predation event.

At 1455 h on 24 May 2021, we radio-tracked an adult female *G. infernalis* located underneath a small boulder at Selah, Bamberger Ranch Preserve, Blanco County, Texas, USA (30.19929°N, 98.44246°W; WGS 84; 452 m elev.). Upon lifting the boulder, we discovered that two female *G. infernalis* were laying coiled around two separate clutches of eggs roughly 17

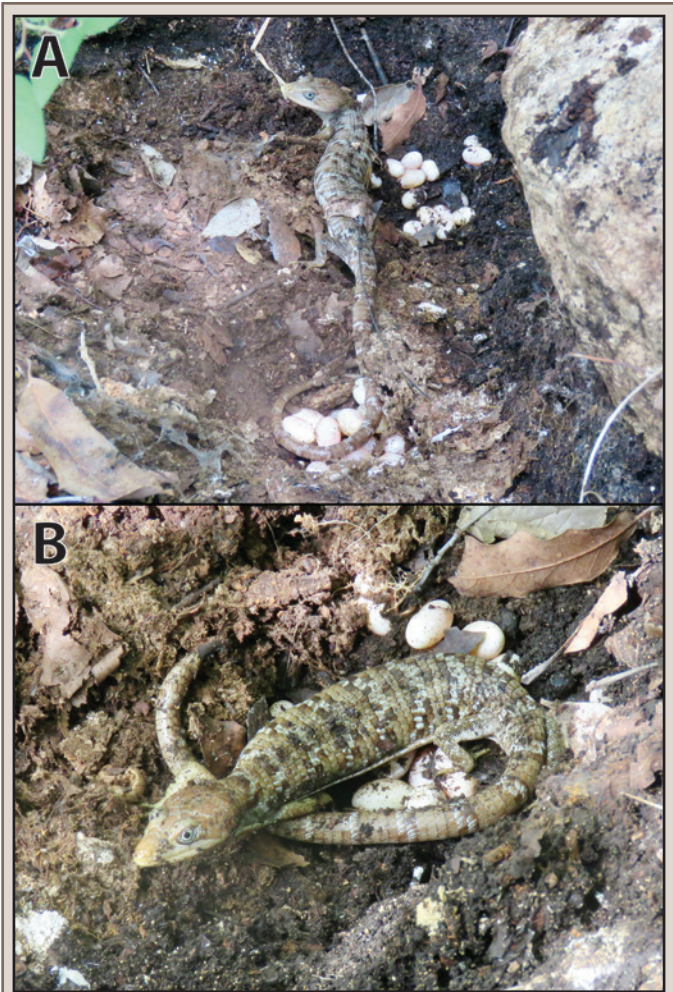


FIG. 1. Radio tracked female (A) and unknown female *Gerrhonotus infernalis* (B) sharing an egg laying site in Blanco County, Texas, USA.

cm apart (Fig. 1). The radioed female was tending to 18 eggs and the second female to 15 eggs. The radioed female was previously captured (14.9 cm SVL, 25.6 cm TL, 60.5 g); we did not capture the unknown female as to minimize disturbance to the nest. The habitat was oak-hardwood slope forest, 10%–30% slope, with dense canopy cover and the specific nest characteristics consisted of a northerly aspect, 18% slope, 94.68% canopy cover, and clay loamy soil beneath the 49 cm long, 38 cm wide, 8 cm thick boulder.

After discovering the nest, we positioned a game camera (RECONYX HyperFire™) to cover both the nest and its immediate surroundings in an attempt document parental ingress and egress from the nest and monitor for potential predation events. The game camera was set to motion activation and took a picture every thirty seconds from 24 May 2021–13 July 2021. The camera captured the radioed female entering or exiting the nest six times and the unknown female four times at different periods between 24 May 2021 and 6 June 2021. We continued to track the radioed female during this period and when not in the nest, the female was discovered to be anywhere from 2–8 m away from the nest before returning to it. After 6 June 2021, the radioed female left the general area of the nesting site and never returned.

On 13 July 2021, we lifted the boulder and discovered only 5 eggs, all rotten, and no presence of other egg fragments were seen in the nest. The lack of egg debris in the nest suggests that

of the original 33 eggs discovered, 28 eggs had been taken by a predator. Two potential predators were captured on camera in the vicinity of the nest, an Eastern Patch-nosed Snake (*Salvadora grahamiae*) and a Broad-banded Copperhead (*Agkistrodon laticinctus*). *Salvadora grahamiae*, a known egg predator, was the only predator photographed entering and exiting the nest site, and this occurred on five separate occasions between 11 June 2021 and 11 July 2021. While in the nesting site, the *S. grahamiae* would spend anywhere from 5–35 minutes under the boulder per visit and was often photographed basking in the general area after exiting.

Shared egg-laying sites in female Southern Alligator Lizards (*Elgaria multicarinata*) have been observed in the wild (Lemm 2006. Field Guide to Amphibians and Reptiles of the San Diego Region. University of California Press, Oakland, California. 344 pp.), but no similar observations have been published for other Gerrhonotinae species. To our knowledge, this is the first documented observation of two female *G. infernalis* sharing an egg laying site. Long term parental behavior of *G. infernalis* females is a relatively undocumented activity in the wild because both the female and their respective nesting site can be difficult to discover. It is unclear if the abandoning of these two female's egg clutches was a result of our tampering with the nest site or the presence of the *S. grahamiae* in the area drove them away. *Salvadora grahamiae* has been documented to predate Texas Spiny Lizard (*Sceloporus olivaceus*) eggs (Blair 1960. The Rusty Lizard: A Population Study. University of Texas Press, Austin, Texas. 185 pp.), but no predation specifically of *G. infernalis* eggs has been published. It is unknown if the *S. grahamiae* had encountered one of the females in the nest, but these observations suggest that, if afforded the opportunity, *S. grahamiae* will predate *G. infernalis* eggs. This work was conducted under the Texas A&M University animal care permit number IACUC 2021-0053.

COREY FIELDER, Department of Rangeland, Wildlife and Fisheries Management, and Natural Resources Institute, Texas A&M University, College Station, Texas 77843, USA (e-mail: corey.fielder01@tamu.edu); **JARED HOLMES**, Zoologist, Selah, Bamberger Ranch Preserve, Johnson City, Texas 78636, USA; **TOBY HIBBITTS**, Biodiversity Research and Teaching Collections, Department of Ecology and Conservation Biology, and Natural Resources Institute, Texas A&M University, College Station, Texas 77843, USA.

HELODERMA SUSPECTUM (Gila Monster). ATTEMPTED PREDATION. At 2300 h on 7 August 2021 on the road to the Alamo Canyon Campground in Organ Pipe Cactus National Monument, Arizona, USA, DP observed a *Heloderma suspectum* and a juvenile *Canis latrans* (Coyote) lying next to each other in the road, less than half a meter apart. Based on the observations detailed below, we believe this to be the aftermath of an antagonistic interaction, likely a predation attempt (Fig. 1A). The *H. suspectum* was motionless, while the *C. latrans* was in a dazed state and continuously rolled its head back and forth with its eyes closed, only briefly pausing and opening its eyes to look in DP's direction before continuing the movement. The *C. latrans* had blood on its front left paw (Fig. 1B), possibly from being bitten by the lizard, but otherwise had no other obvious injuries. The head of the *H. suspectum* appeared injured and blood was covering the head and had smeared down its body and tail, along with what appeared to be an injury on its dorsum near the hind legs (Fig. 1C).

After observing the two animals for ca. 5 min, DP continued slowly driving down the road and returned to the location at 2355 h, ca. 50 min later. Upon return he found only the *C. latrans* still



FIG. 1. A) *Heloderma suspectum* and *Canis latrans* lying down next to each other in the road; B) closeup of front left paw of *C. latrans*; C) closeup of *H. suspectum*. Observations from Arizona, USA.

PHOTO BY DANIEL PEACOCK

lying in the road in approximately the same position, but the *H. suspectum* was no longer present. This time, while approaching in a vehicle, the *C. latrans* stood and slowly walked off the road. We believe this was an attempted predation event and that the *H. suspectum* bit and envenomated the juvenile *C. latrans* in defense, temporarily immobilizing the predator. Venom from *H. suspectum* has previously been found to cause hypotension and breathing difficulty in dogs (Patterson 1967. Toxicon 5:5–10), possibly explaining the initial lack of responsiveness from the *C. latrans* and its slow response during the later observation.

We believe the possibility of the animals being hit by a vehicle is highly unlikely due to the fact that Alamo Canyon Road is driven infrequently at night, especially during the summer months, and no vehicles were seen on the road or at the campground during the time DP was there. The injuries appear more consistent with the juvenile *C. latrans* attempting to predate the *H. suspectum* because they appeared isolated on the lizard's head and coyote's paw. We would expect much more widespread and severe damage to both animals if they were struck by a vehicle, even at a low velocity.

DANIEL PEACOCK (e-mail: danpeacock99@gmail.com) and **DANIEL MARTIN**, 10 Organ Pipe Drive, Ajo, Arizona 85321, USA (e-mail: daniel_j_martin@nps.gov).

LIPINIA LONGICEPS (Long Lipinia). REPRODUCTION. *Lipinia longiceps* (Scincidae; Fig. 1) is found on Papua New Guinea occurring on Fergusson, Misima, Woodlark, and Gawa Islands west, across the north coast of Papua New Guinea, and looping around south of the central mountain ranges in Irian Jaya near Etna Bay (Mys 1988. Bull. Instit. Roy. Sci. Natur. Belgique 58:127–184; Kraus and Allison 2004. Herpetol. Rev. 35:413–418; Uetz et al. 2021. The Reptile Database, <http://www.reptile-database.org>, 4 Nov 2021). There is no information on the ecology of *L. longiceps* and herein I present data on the reproductive cycle of this species.

I examined 14 *L. longiceps* specimens collected between 1979 and 2011 from Milne Bay Province (10.1742°S, 149.9441°E; WGS 84; 905 m elev.), Morobe Province (6.9239°S, 146.8215°E; WGS 84; 829 m elev.), and East Sepik Province (4.3555°S, 143.2325°E; WGS 84; 24 m elev.), Papua New Guinea, all of which are deposited