Fig. 1. Defensive posture of an adult *Sternotherus odoratus*.

along the shoreline of a small, unnamed pond within the Montour Preserve, Montour Co., Pennsylvania, USA (41.096794°N, 76.663693°W; WGS84). Instead of retreating into the water, when approached the *S. odoratus* retracted its head, tucked its limbs slightly underneath its plastron and tightly grasped the grassy substrate along the shoreline (Fig. 1). The behavior observed by the adult *S. odoratus* appears to be analogous to the grasping behavior described in juveniles by Ernst and Lovich (2009, *op. cit.*). This observation suggests that the defensive behavior employed by *S. odoratus* juveniles may be retained by adults in some populations. Furthermore, this note may represent the first account of this behavior occurring upon non-woody (i.e., logs, tree limbs) substrate.

Many thanks to Amber L. Pitt for identifying the *S. odoratus*, and to Michael B. Hartzell and Sarah C. Hartzell for transportation to the Montour Preserve.

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CROCODYLIA — CROCODILIANS

***ALLIGATOR MISSISSIPPIENSIS* (American Alligator). TELEMETRY UNIT RETENTION.** Numerous radio-telemetry studies have been conducted on American Alligators in Louisiana (Joanen and McNease 1970. Proc. SE Assoc. Game Fish Comm. 24:175–193; Joanen and McNease 1972. Proc. SE Assoc. Game Fish Comm. 26:252–275) and Florida (Rosenblatt et al. 2013. Estuarine, Coastal, and Gulf Sci. 135:182–190). Many telemetry studies are only able to collect data from animals for less than one year (see review in Rosenblatt, *op. cit.*). We herein report on the recovery of a surgically implanted telemetry unit in an American Alligator after over 13 years.

As part of a study on thermoregulation in alligators (Seebacher et al. 2003. Physiol. Biochem. Zool. 76:348–359) conducted in June–July 2001 (summer) and February 2002 (winter), 20 free-ranging alligators were implanted with temperature loggers, and seven of the alligators were also implanted with a temperature-sensitive radio transmitter in each season (Seebacher et al., *op. cit.*). The study was conducted on Rockefeller Wildlife Refuge in Grand Chenier, Louisiana, USA (29.7167°N, 92.8167°W), a coastal marsh habitat. The transmitters and data loggers were surgically implanted into the peritoneal cavity via a small incision in the right flank of each alligator, as previously described (Seebacher et al., *op. cit.*). After the alligators were released to the wild, we recovered seven alligators in both the summer phase and the winter phase; obtaining continuous body temperature data for up to 17 days in summer and up to 13 days in winter for the short-term study (Seebacher et al., *op. cit.*).

On 3 September 2014, during the annual nuisance alligator harvest conducted on Rockefeller Refuge, one of the study animals from the summer 2001 phase was recaptured. During the lengthy time period since the initial capture and study, the identifying foot/web tag was lost. However, when the alligator was butchered at a processing shed, the radio transmitter spontaneously fell out of the peritoneal cavity and was recovered. Employees of the facility brought this to the attention of SFD, who inquired with RME and PLT as to the origin of the unit. The identifying number on the transmitter was from an alligator that was captured on 22 June 2001 and was released on 24 June 2001 after surgical implantation of the data logger and radio transmitter. The female alligator was initially 1.78 m total length and had a mass of 16.8 kg at capture in 2001. The exact length at recapture in 2014 was unknown, as the skin (with identifying CITES tag) had been separated from the carcass from which meat was being deboned when the transmitter was noted. However, six female alligators caught that day on Rockefeller Refuge with the same identifying tail notch as the marked study alligators ranged in length from 2.03–2.39 m total length. The number of days elapsed between release and recapture was 4821 days (13 years, 2 months, and 12 days).

It is noteworthy that this recovery was made after such a long time interval after implantation. The transmitter fell out of the abdominal cavity during processing; there was apparently no evidence of adhesions or complications from the earlier procedure; the alligator appeared healthy and robust. The transmitter appeared nearly pristine and the identifying numbers were clearly visible and no wear or erosions were seen on the protective coating on the unit. Of the seven alligators recovered with data loggers in the initial summer phase in July 2001, four also had telemetry transmitters; thus the unit recovered in 2014 was one of only three possibly remaining from the summer experimental phase conducted over 13 years earlier. It is also significant that the alligator had such long term survival, particularly after the region was adversely impacted by two major hurricanes (Hurricane Rita in 2005 [Lance et al. 2010. J. Exp. Zool. 313A:106–113], and Hurricane Ike in 2008). In some cases flooding from hurricanes pushed alligators north off the refuge, and alligators can disperse long distances (Lance et al. 2011. SENA 10:389–398), although we documented several cases of nest-site fidelity by nesting females on Rockefeller Refuge, even after Hurricane Rita and a subsequent catastrophic drought (Elsey et al. 2008. SENA 7:737–743).

We thank the staff at D & D in Gueydan, Louisiana for assistance in recovery of the telemetry transmitter.

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***CROCODYLUS ACUTUS* (American Crocodile). ECTOPARASITISM.** Crocodilians host a diversity of parasites (Tellez 2013. A Checklist of Host-Parasite Interactions of the Order Crocodylia. University of California Press, Berkeley, California. 388 pp.). Although parasitism of crocodilians by endoparasites and aquatic ectoparasites is fairly well-documented (Cott 1961. Trans. Zool. Soc. Lond. 29:211–359; Webb and Manolis, 1983. Aust. Wildl. Res. 10:407–420; Riley and Huchzermeyer 2000. Copeia 2000:582–586), comparatively little is known regarding parasitism of crocodilians by terrestrial ectoparasites. Scattered reports exist describing crocodilian parasitism by ticks (Terenius et al. 2000. J. Med. Entomol. 37:973–976; Rainwater et al. 2001. J. Wildl. Dis. 37:836–839; Sejas, 2007. Interciencia 32:56–60), and even fewer reports exist regarding parasitism of crocodilians by hematophagous (blood-feeding) flies, although due to their affinity for aquatic habitats crocodilians are generally more vulnerable to the latter.

Hematophagous fly parasitism has been reported for *Crocodylus niloticus* (Nile Crocodile) (Hoare 1931. Parasitology 23:449–484; Cott, *op. cit.*) as well as multiple caiman species including *Caiman crocodilus* (Spectacled Caiman), *Melanosuchus niger* (Black Caiman), *Paleosuchus trigonatus* (Smooth-fronted Caiman), and *P. palpebrosus* (Dwarf Caiman) (Medem 1981. Cespedesia 10:123–191; Henriques et al. 2000. Rev. Brasil. Zool. 17:609–613; Ferreira et al. 2002. Mem. Inst. Oswaldo Cruz, Rio de Janeiro. 97:133–136). However, to our knowledge no published accounts exist regarding hematophagous fly parasitism in New World crocodiles. Here, we report an observation of parasitism by a hematophagous fly on *C. acutus* in Costa Rica.

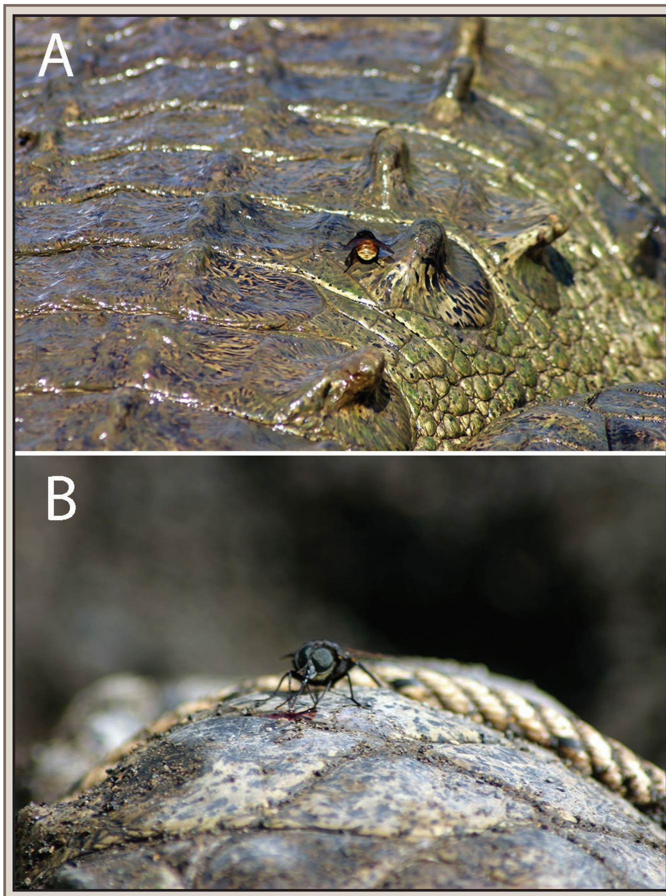

Fig. 1. A) *Fidena bicolor* (rear view) on the back of *Crocodylus acutus* in the Tarcoles River, Costa Rica. B) *Fidena bicolor* (front view) on the rear leg of *Crocodylus acutus* in the Tarcoles River, Costa Rica. Note the tip of the fly's proboscis inserted into the skin between scales.

On 12 September 2007 at approximately 1530 h, we captured an adult (total length = 376 cm) male *Crocodylus acutus* in the lower Tarcoles River, Costa Rica (9.785892°N, 84.617481°W; WGS84) during a study of ocular disease in this crocodile population (Rainwater et al. 2011 J. Wildl. Dis. 47:415–426). The crocodile was captured by actively attracting it to bait on the river bank and then placing a breakaway snare around its upper jaw. Prior to capture, as the crocodile slowly crawled onto the bank toward the bait, we observed a *Fidena bicolor* (horse fly; Diptera: Tabanidae) hovering around the crocodile and eventually landing on its back (Fig. 1A). Following capture and during our examination of the animal, we observed a *F. bicolor* (possibly the same one) on the crocodile's right leg. The fly appeared to be feeding, as the tip of its proboscis was inserted between two scales on the leg (Fig. 2B) (Medem, *op. cit.*). The fly remained in the same position for approximately 10 sec and then flew away, possibly disturbed by our constant movement around the crocodile.

Although the horse fly *Fidena flavipennis* is known to feed on caiman in Costa Rica (John Burger, pers. comm.), to our knowledge this is the first report of ectoparasitism by a hematophagus fly on a New World crocodile and by *F. bicolor* on any crocodilian.

Voucher photographs of *Fidena bicolor* were deposited in the Campbell Museum, Clemson University (CUSC 2912). We thank John Burger for identifying the horse flies and Stanlee Miller for archiving the voucher photographs.

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***CROCODYLUS ACUTUS* (American Crocodile). ECTOPARASITE.** Crocodilians are host to a diverse assemblage of parasite species, particularly endoparasites (Tellez 2013. A Checklist of Host-Parasite Interactions of the Order Crocodylia. University of Press, Berkeley, California. 388 pp.; Tellez and Nifong 2014. Intl. J. Parasitol: Parasitol. Wild. 3:227–235). Ectoparasitism, however, is not a common phenomenon. The thick epidermal layer, in addition to osteoderms, likely decreases the success rate of penetration or attachment of ectoparasites onto the crocodile. Thus, unlike the majority of other vertebrates, the crocodilian epidermis is perhaps the primary defense mechanism against ectoparasitism. Previous records of ectoparasitism, or micropredation, have documented penetration or attachment of ectoparasites between scale sutures and softer locations of the skin, such as on the legs, and around the border of the eyes and nose (Tellez 2013, *op. cit.*). Parasitic arthropods represent the largest group of ectoparasites to infect crocodiles, which include members from the order Diptera, Hemiptera, Ixodida, Porocephalida, and Sessilia (Tellez 2013, *op. cit.*). Here, we report the collection of an isopod (Phylum Arthropoda: Order Isopoda) from a wild crocodile in Belize, in concomitance to recording the first documentation of isopod parasitism among crocodilians.