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As part of the alligator management program in Louisiana, a large scale tag and release program has been underway to monitor the survival of alligators released to the wild from farms. More recently we have considered the use of telemetry to evaluate survival and movement in the initial months after release to the wild. A pilot study was initiated in 2007 to evaluate transmitter attachment, retention, and detection capabilities under near field conditions (Wiebe 2008, Unpubl. report, Louisiana Department of Wildlife and Fisheries. 21 pp.). For these purposes, a 0.28 ha outdoor holding pen was constructed in early 2008 near the Rockefeller Wildlife Refuge headquarters in Grand Chenier, Louisiana to hold native wild and farm-raised juvenile alligators. The pen was initially stocked with 17 farm-raised alligators (obtained on 12 March 2008 from a commercial alligator farm) and 10 native wild alligators. The telemetry units were attached to the nuchal scutes (Wiebe, op. cit.) and the alligators were released to the outside pen over the next two days. The alligators appeared to easily adapt to the new environment, but by 29 March we observed one of the alligators basking on a feeding platform was missing the telemetry unit; the nuchal scutes were visibly torn. This was unexpected as similar attachment methods have been used successfully in other crocodylians (Brien et al. 2010. Herpetol. Rev. 41:305–308; Kay 2004. Herpetol. Rev. 35:354–357). However, those were larger animals with far more prominent nuchal scutes, and the relatively flat scutes in juvenile alligators likely being a contributing factor in unit loss. Despite the alligators readily accepting feed and exhibiting no evidence of intraspecific conflicts, loss of telemetry units continued to be a problem.

Over the next few months the pen was pumped dry and attempts were made to recover the animals and reattach telemetry units more securely (Wiebe 2008, op. cit.). On 20 May we replaced eleven of the alligators (previously farm-raised, mean total length 126 cm) back in the outside pen for further monitoring, each with one telemetry unit held in place by cables passing under the nuchal scutes and one attached to the tail.

Soon thereafter, Hurricane Ike impacted the region when it struck near Galveston Island, Texas on 13 September 2008, as previously detailed (Elsey and Aldrich, op. cit.). The storm surge at Rockefeller Refuge was estimated to be 244 cm and likely overtopped the fencing of the outside alligator enclosure, allowing alligators to escape or unwillingly be carried northward with the storm surge. We made a cursory inspection of the flooded pen area (accessible only by airboat) on 18 September, and could readily see loss of integrity to some areas of the fence, presumably allowing alligator escape. Refuge staff members were deployed from this site for several weeks due to localized flooding, lack of electricity, and general loss of infrastructure; thus we were unable to immediately monitor the fate of the eleven alligators that were in the pen at the time of Hurricane Ike’s landfall.

On 15 October 2008, while doing landscape work in a pasture, an employee incidentally observed one of the alligators resting on a bank near a parked excavator. The alligator appeared well and was some 125 m from the enclosure (Fig. 1A). On a routine search for any remaining alligators that might still be within reception range, a second escaped/displaced alligator was recovered on 20 November 2008, using signals from the functioning telemetry unit(s) for guidance. This alligator was observed on floating vegetation, was then captured in good condition, and was determined to be ca. 135 m from the holding pen (Fig. 1B). With time, it became apparent many units were not functioning, possibly due to poor transmission in brackish water, loss of battery life, or damage due to saltwater corrosion after the
hurricane. Six months later, while catching wild alligators on 20 May 2009 for another research project, another of the 11 telemetered alligators was caught; it was recovered some 425 m (Fig. 1,C) from the outside holding pen site.

On 6 May 2011, an alligator was observed at ca. 1725 h basking near the refuge headquarters by one of us (RME) and the two missing tail notches were evident (suggesting it was an alligator released from a farm, Elsey et al. 2001. In Seebacher and Franklin (eds.), Crocodilian Biology and Evolution, pp. 426–441. Surrey Beatty and Sons, Chipping Norton, NSW). This prompted us to take some photographs for educational presentations and to possibly identify the year the alligator was released, due to the year-specific combination of tail notches used. One of us (WS) was able to identify the fifth and seventh tail scutes as having been removed (this “EG” tail notch identified it as a 2008 year release alligator).

Upon closer observation, WS noted a telemetry unit was attached to the alligator’s tail (Fig. 2). The site was some 475 m from the original holding pen (Fig. 1D), from where the alligator presumably escaped during Hurricane Ike, some 964 days earlier.

The following evening at ca. 1700 h, a similar-sized telemetered juvenile alligator with tail notches was again observed basking in nearly the same location. It was captured and appeared in excellent condition and both web tags in the feet were still present. The alligator was 167 cm in total length, compared to 127 cm when it was first measured on 12 March 2008. The alligator was released at the same site, and presumably the same alligator has been observed several times basking near the release site since (tail notches and telemetry unit on tail clearly seen).

Alligators have been shown to have a strong homing instinct (Chabreck, op. cit.; Rodda 1984. Behav. Ecol. Sociobiol. 14:241–246) as have other crocodilians (Read et al. 2007. PLoS ONE 9:1–5; Walsh and Whitehead 1993. Wildl. Res. 20:127–135; Webb et al. 1983. Aust. Wildl. Res. 10:403–406). It is unclear if the four juvenile alligators herein described were swept northward by the massive storm surge of Hurricane Ike and then returned, or if they were able to seek refuge in dens or burrows and avoid displacement. After the even more catastrophic Hurricane Rita in 2005, we documented (Elsey et al., op. cit.) a similar finding in 2007 of adult female alligators at nest sites within 20 m and 170 m of their prior nests sites (from seven years and three years earlier, respectively). Again it is unknown if this demonstrated a strong homing instinct if the alligators had been displaced, or if they remained on site despite the flooded conditions and high salinity environment post-hurricane.

The juvenile alligators in this study may have remained near the original pen site or returned to this area due to proximity to aquaculture fish ponds near the refuge headquarters, which provide permanent fresh water and seasonally available prey when ponds are stocked with fish fry or fingerlings. It is somewhat surprising however that the alligators remained in an area of relative high activity (despite being rural, all were located in very close proximity to the refuge headquarters, and were exposed to frequent vehicular traffic). Of note, staff had not (to our knowledge) observed marked alligators at the site where the most recently encountered alligator was seen, despite being immediately adjacent to a field work shop, perhaps suggesting the alligator recently returned to this site.

It also may be that alligators raised their entire life in a commercial farm setting are less likely to demonstrate a homing instinct, as reported in wild alligators after translocation (Chabreck, op. cit.). The alligators used in this study were obtained from a farm some 60 km west of the study pen site but to our knowledge made no attempts to return to that location. A short-term telemetry study likewise showed 75 of 78 farm-raised alligators and 43 of 44 native wild juvenile alligators dispersed less than 5 km from the release site or site of origin (Addison 1993. MS thesis, Louisiana State University, Baton Rouge, Louisiana. 79 pp.).

It is of interest why some alligators seem to move extensively despite abundant, locally available quality habitat, while others remain within a relatively small area with little tendency to disperse. Individual behavior patterns of crocodilians may be an area for future studies.

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SQUAMATA — LIZARDS


At 2205 h on 23 October 2008, we observed a D. novemcinctus prey on an A. ameiva while traveling a dirt road near the city of Miranda, Mato Grosso do Sul, central-west Brazil (20.07833°S, 56.32444°W, datum: WGS84; elev. 177 m). The event occurred in vegetation best described as upland Pantanal savanna. As soon as we stopped the car, a D. novemcinctus that had just been observed crossing the road began to forage in leaf litter beneath shrubs about 5 m off the road. Within seconds, it attacked an adult male A. ameiva (101 mm SVL, 268 mm tail). The attack lasted less than a minute, with the armadillo killing its prey with its mouth and foreclaws. When we approached, the D. novemcinctus abandoned its prey and fled. Bite wounds had been inflicted to the left shoulder and the right thigh of the A. ameiva.

Armadillos are opportunistic, preying principally on invertebrates, but occasionally consume small vertebrates like amphibians and reptiles and other items such as plant material (Gallbreath 1982. In J. A. Chapman and G. A. Feldhamer [eds.], Wild Mammals of North America, pp. 71–79. Johns Hopkins Univ. Press, Baltimore, Maryland). This is the first documented predation of A. ameiva by an armadillo.

The Ameiva ameiva specimen was deposited at the Coleção Herpetológica do Museu de Zoologia da Universidade Federal da Bahia (MZUFBA–LAG1329). Jeff King and Ryan Watson provided helpful suggestions.

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On 5 May 1998, between 0900 and 0930 h, we observed an individual of A. stratulus picking and carrying away a single sweet and sticky fruit of the Wild Balsam Apple (Momordica charantia) in a shaded coffee plantation at the north-central part of the island. The fruits of the Wild Balsam Apple are dark yellow to orange when ripe and split open to reveal several seeds 12–16 mm long, covered with a red flesh (Acevedo-Rodríguez and Woodbury 1983. The Vines of Puerto Rico Vol. 1: 202). Anolis stratulus also has been reported consuming intra- and extra-floral nectar (Perry and Lazell 1997. Herpetol. Rev. 28:150–151; Ríos-López 2004. Herpetol. Rev. 35:386).

During the morning of 16 April 1999, we observed an individual Anolis gundlachi eating fruits of Red Palicourea (Palicourea crocea) at the Río Abajo State Forest in the northern karst region of Puerto Rico. These fruits are ovoid to globose, 4–6 mm in diameter and dark red, purple, or black (Liogier 1997. In Descriptive Flora of Puerto Rico and Adjacent Islands. Vol. 5. Editorial de la Universidad de Puerto Rico, San Juan, PR. 436 pp.). This same day we observed a male A. krugi consuming the white fruits of a stinging nettle (Urena baccifera). These fruits are white or pinkish, spongy, and watery (Little et al. 1974. In Trees of Puerto Rico and the Virgin Islands. Vol. 2. Agriculture Handbook 449. U.S. Department of Agriculture, Washington, DC. 1024 pp.). Both lizards picked the fruits and ingested them while perching in the respective plants. The report for A. krugi represents the first for a grass-bush anole eating fruits (Losos 2009. Lizards in an Evolutionary Tree: Ecology and Adaptive Radiation of Anoles. University of California Press, Berkeley. 507 pp.).