

Culex species of multiple subgenera (*Culex*, *Melanoconion*, *Neoculex*) are known to feed from lizards, and lizard-derived blood meals have been found in several *Culex* species in Puerto Rico (Barrera et al. 2011. J. Med. Entomol. 48:701–704). However, the host associations of *C. antillumagnorum*, or any other *Micraedes* species, have never been assessed. Otero et al. (2018. Parasitol. 146:453–461) found that 10–50% of sampled *A. gundlachi* were infected with one or more of the three *Plasmodium* species known from Puerto Rico and other species of anoles on the island, including *A. cristatellus*, are less frequently infected with malarial parasites (Schall and Vogt 1993. Biotropica 25:229–235). These observations, and the absence of other mosquito species visiting sleeping lizards, suggest that *C. antillumagnorum* is a candidate vector of lizard malaria in Puerto Rico. Among the criteria for incriminating the vector(s) of an arthropod-vector pathogen is host contact: there must be a demonstrated significant association between the putative vector, and the affected host population in the wild (World Health Organization 1969. Tech. Rep. Series Num. 369). Future work should elaborate on the role of *C. antillumagnorum* in the transmission of lizard-infecting *Plasmodium* to clarify the degree to which this species uses *Anolis* hosts through DNA extracted from mosquito blood meals.

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ANOLIS RICHARDII (Richard's Anole). CLAWLESSNESS. Most squamatan reptiles with well-developed limbs possess claws, which are thought to have been present ancestrally in crown reptiles (Alibardi 2020. Anat. Rec. 304:732–757). Although claws contribute to clinging, particularly on rough surfaces (Bloch and Irschick 2004. J. Herpetol. 37:293–298; Naylor and Higham 2019. Integr. Comp. Biol. 59:168–181), they have been lost evolutionarily several times within Gekkota, always in taxa that possess a digital adhesive system, i.e., toepads (Russell and Bauer 2008. In Gans et al. [eds.], Biology of the Reptilia, Vol 21, pp. 1–465, Society for the Study of Amphibians and Reptiles, Ithaca, New York). The only large clade outside of Gekkota whose members possess digital pads is *Anolis* (Hagey et al. 2017. Evolution 71:2344–2358; *Anolis* sensu Poe et al. 2017. Syst. Biol. 66:663–697), but claws are present in all species in that clade (Yuan et al. 2018. Evolution 73:231–244). Here, we report on a specimen of *Anolis richardii* that lacks claws on all 20 of its digits.

On 12 August 1992, Kevin de Queiroz and Jonathan B. Losos collected a series of 15 *A. richardii* on the SW coast of Grand Anse Bay, Saint George Parish, Grenada (ca. 12.022°N, 61.767°W; WGS 84; ca. 10–50 m elev.), of which one adult female (68 mm SVL; National Museum of Natural History, Smithsonian Institution [USNM] 321805) lacks claws. In 2023, we obtained radiographic images of the specimen using a Thermo Scientific Kevex



FIG. 1. Photograph of the right forelimb in dorsal view (A) and radiograph (B) of the right forelimb of a specimen of *Anolis richardii* (USNM 321805) exhibiting the absence of claws and of unguis (claw-bearing) phalanges on all digits. For phalangeal-formula counts, note that the elements proximal and similar in appearance to the phalanges are metacarpals. Anterior is toward the top of the figures; scale bar equals 5 mm.

PXS5-927 microfocus portable x-ray source and a Biosenstech duraSCAN 1417 digital flat panel detector set at 40kV and 180 μ A. The radiographs revealed that, in addition to the lack of claws (Fig. 1A), the specimen lacks all or nearly all (some minute ossifications may be vestiges) of the ungual (terminal, ultimate) phalanges (Fig. 1B), which are normally invested by the claws. Consequently, the phalangeal formulae are: 1-2-3-4-2 for the manus (hand) and 1-2-3-4-3 for the pes (foot), rather than the usual 2-3-4-5-3 for the manus and 2-3-4-5-4 for the pes (Romer 1956. *Osteology of the Reptiles*. University of Chicago Press, Chicago, Illinois. 772 pp.).

Given its clawless condition, it is noteworthy that this female (USNM 321805) survived to adulthood, because claws are used in both clinging and climbing in arboreal lizards (Yuan et al. 2020. *Biol. J. Linn. Soc.* 129:630–643). The clawless specimen is inferred to be an adult from its SVL and the SVL range of sexually mature females reported by Lazell (1972. *Bull. Mus. Comp. Zool.* 143:1–115), which raises the possibility that the specimen could have reproduced. Although none of the other 14 *A. richardii* specimens collected on the same date and at the same locality are clawless, the series (USNM 321791–321805) does not include any juveniles. In any case, USNM 321805 demonstrates that variation that could lead to the evolutionary loss of claws and phalanges exists in natural populations. It also suggests that loss may have been achieved in this case by the truncation of the ancestral trajectory of limb development. However, the condition here differs from that in other pad-bearing squamatan taxa that have lost claws and phalanges evolutionarily. In those taxa, claw loss occurs without the loss of phalanges and phalanx loss occurs without the loss of claws (Russell and Bauer 2008, *op. cit.*).

Additional images are archived on the USNM collection website (publicly accessible at <https://collections.nmnh.si.edu/search/herps/>) where they are linked to the record of the clawless specimen. Kenneth A. Tighe and Teresa Hsu assisted with radiography.

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ASPIDOSCELIS MARMORATUS RETICULORIENS (Eastern Marbled Whiptail). EXTRAORDINARY COLOR VARIANT. Thirty-seven years ago, *Aspidoscelis tigris marmoratus* was elevated to species rank as *A. marmoratus*, three subspecies *A. t. marmoratus*, *A. t. pulcher*, and *A. t. variolosus* were allocated to *A. marmoratus*, and two new subspecies of *A. marmoratus* were described, including *A. m. reticuloriens* (Hendricks and Dixon 1986. *Texas J. Sci.* 38:327–402). However, the diagnosis of *A. m. reticuloriens* provided by Hendricks and Dixon (1986, *op. cit.*) is neither taxonomically reliable nor practical. As a temporary solution, we use this name based on our sample that was collected within the geographic distribution of this subspecies (Hendricks and Dixon 1986, *op. cit.*; see Fig. 1). In search of a series of *A. tessellatus* (Common Checkered Whiptail) in Eddy County, New Mexico (ca. 32.5421°N, 104.3655°W; WGS 84; 980 m elev.), we encountered an unusual individual of *A. m. reticuloriens* on 17 July 2010 in a sandy habitat stabilized by scattered mesquite (Fig. 1). This individual (HLT 0367) exhibited dark pigmentation presenting a striking contrast to both the sandy substrate of the habitat and the normal coloration of other representatives of *A. m. reticuloriens* at this site (Fig. 2).



FIG. 1. Habitat of *Aspidoscelis marmoratus reticuloriens* near collecting site of specimens shown in Fig. 2 from Eddy County, New Mexico, USA, south of Pecos River, a short distance east of Brantley Lake Dam.

Individuals of *A. marmoratus* have a reputation of being extremely wary and quickly moving to cover when approached by stimulus objects such as humans at a study site in Doña Ana County, New Mexico (Price 1992. *Copeia* 1992:323–331). Although Price did not identify the subspecies of *A. marmoratus* in his study, the location of the study site identifies the subspecies as *A. m. reticuloriens* (Hendricks and Dixon 1986, *op. cit.*). Therefore, based on previous, personal experience collecting samples of *A. m. reticuloriens*, it was surprising to find that individuals at the Eddy County, New Mexico site could, with patience, be approached closely enough to collect with a 7 × 5/8 inch rubber band stretched and launched from the thumb. Remarkably, this behavior seemed to be exaggerated in HLT 0367. It was noticeably less alert than the normally pigmented individuals of *A. m. reticuloriens* and moved more casually and for only short distances when pursued.

HLT 0367, was identified as an adult female based on its small femoral pores, narrow tail base signifying absence of hemipenes (Fig. 2), and an internal examination subsequent to photography that revealed one yolked follicle in each ovary (L: 5 × 4.2 mm and R: 4.2 × 3.3 mm). It resembled other specimens of *A. m. reticuloriens* and other members of the *tigris* species-group of whiptail lizards (Lowe et al. 1970. *Syst. Zool.* 19:128–141) in having granular postantibrachial scales and mesoptychial scales that are not enlarged (Fig. 2). The anterior dorsum of HLT 0367 differs from eight other specimens from this location by absence of a well-defined, linear pattern of pale lines anteriorly (Fig. 2A, C) and the reduction of a reticulated pattern over most of the dorsal surface. (Fig. 2B). However, pale bars on the sides of the body provide a good contrast to the dark color-pattern elements there. Gray color-pattern elements on the dorsal surfaces of legs are conspicuous. The ventral surface of the body of HLT 0367 is bluish-gray, and gray pigmentation is also present on the ventral surface of arms (Fig. 2).

Nothing comparable to the coloration of HLT 0367 was found in a series (N = 31) of *A. m. reticuloriens* (identified as *A. tigris marmoratus*) collected in Chaves County, New Mexico (Taylor et al. 2001. *Amer. Mus. Novitates* 3345:1–64). Quantitatively more important, 24 categories of dorsal color patterns, 9 categories of ventral color patterns, and 9 categories of throat patterns were illustrated and used as standards for assessing range-wide,