Phyllomedusa 19(1):113–116, 2020

ISSN 1519-1397 (print) / ISSN 2316-9079 (online)
doi: http://dx.doi.org/10.11606/issn.2316-9079.v19i1p113-116

Short Communication

Contributions to the knowledge of the natural history of *Claudius angustatus* (Testudines: Kinosternidae) in Veracruz, Mexico

Víctor Vásquez-Cruz and Arleth Reynoso-Martínez

PIMVS Herpetario Palancoatl. Avenida 19 No. 5525, Colonia Nueva Esperanza, Córdoba, Veracruz, Mexico. C.P. 94540. E-mail: victorbiolvc@gmail.com.

Keywords: Diet, ectoparasites, leech, *Trachemys venusta.*

Palabras claves: dieta, ectoparasitos, sanguijuelas, *Trachemys venusta*.

Palavras-chave: dieta, ectoparasitas, sanguessugas, *Trachemys venusta.*

The Narrow-bridged Musk Turtle (or Chopontil), *Claudius angustatus* Cope, 1865 is a small turtle (maximum carapace length = 165 mm; Legler and Vogt 2013) distributed from sea level to 300 m elevation in the Mexican states of Veracruz, Tabasco, Oaxaca, Chiapas, Campeche, and Quintana Roo, as well as Guatemala and Belize (Rhodin *et al.* 2017, Uetz 2019). This species is considered "Lower Risk / Near Threatened" by the International Union for Conservation of Nature (IUCN 2019) and Endangered (en Peligro de Extinción) by the Mexican federal government (SEMARNAT 2010). The primary threats to the species are the loss and transformation of its habitats with agricultural and livestock use, as well as the use of the species for its meat (Cázares 2015). Available ecological information about this species is limited, but includes aspects of its reproductive biology, habitat use, predators, distribution, parasites, and natural diet (Thatcher 1963, Flores-Villela and Zug 1995, Vogt 1997a,b, Aguirre-Léon *et al.* 2002, Cázares 2015, Rhodin *et al.* 2017). *Claudius angustatus,* is carnivorous; its natural diet consists of crustaceans, aquatic insects and their larvae, and occasionally, vegetation (Vogt 1997b, Aguirre-Léon *et al.* 2002). Additionally, Hausmann (1968) reported that *C. angustatus* is not selective, because in captivity, the turtle will eat meat, fish, shrimps, and worms.

At the end of the rainy season and during a pre-harvest burning of a sugarcane field on 19 November 2018 at about 11:30 h, Miguel A. Sánchez captured an adult male *C. angustatus* (carapace length = 124 mm; Figure 1A). The locality from which the turtle was collected was Palmillas in the Municipality of Yanga, Veracruz, Mexico (18.8239° N, 96.7693° W; WGS 84; 458 m a.s.l.). The turtle was held captive for 2 days until it could be relocated. We deposited a photograph in the collections of the Natural History Museum of Los Angeles (LACM PC 2465). We photographed two leeches on the lower part of the right foot of this turtle. When we removed the leeches, one released young leeches. Based on the photos, we determined that

Received 03 October 2019
Accepted 10 February 2020
Distributed June 2020

the leeches belong to Glossiphoniidae (Figure 1 B), a family characterized by parental care (Siddall 2005).

Two feces pellets of *C. angustatus* were collected; subsequent fecal analysis revealed several skull fragments, a scute precentral bone, two cervical vertebrae, phalanges, shell fragments, and scutes of a turtle, as well as remains of a beetle (Figure 1C). The scutes were identified as *Trachemys venusta* (Gray, 1855) (Emydidae) by Marco Antonio López-Luna (Research Professor, División Académica de Ciencias Biológicas de la Universidad Juárez Autónoma de Tabasco). The saddle-shaped (in lateral aspect) cervical vertebrae are diagnostic of *Chelodina* (Herrel 2008), we think that the rest of the bones are also from *T. venusta.* Based on the sizes of the shields, we think that the prey was a juvenile *T. venusta* (carapace length = 108 mm).

Figure 1. A male *Claudius angustatus* (LACM PC 2465) from Palmillas, Municipality of Yanga, Veracruz, México (**A**). Two freshwater leeches of the family Glossiphoniidae (**B**) and remains of the turtle *Trachemys venusta* recovered from fecal content (**C**).

The presence of leeches in freshwater turtles has been documented (e.g., Carr and Mast 1988, Richardson *et al.* 2017, Perera *et al.* 2019). Most of the documented leeches belong to Glossiphoniidae, a family of freshwater leeches that use their proboscises to feed on the blood of their vertebrate hosts (Sawyer 1986). This is the first report of leeches in *C. angustatus,* a species that typically, is buried in the mud during the rainy season; when the bodies of water begin to dry, the turtle remains inactive for six months (Cázares 2015).

This is the first reported occurrence of a vertebrate and *T. venusta* in the natural diet of *C. angustatus.* This event either represents a case of predation or scavenging by the turtle. Cannibalism (Polis and Myers 1985), attacks between turtle species (Moll and Legler 1971), and scavenging (Forsberg and Geluso 2017) occur in nature. Vogt and Guzman (1988) reported a small turtle in the natural diet of *Staurotypus triporcatus* (Wiegmann, 1828), a member of the same family of *C. angustatus.* In turtles, this behavior has been associated with habitat loss, Moll and Legler (1971) mention an increase in injuries and cases of cannibalism in turtles in disturbed sites. Another consequence of habitat loss is interspecific and intraspecific competition for shelter and food (Moll and Legler 1971).

The collecting locality is the first record for the municipality of Yanga, and Palmillas is 4 km from the nearest previously reported locality in the municipality of Cuitlahuac, Veracruz (TNHC 32774; Smith and Smith 1979). The maximum elevation at which *C. angustatus* was known to occur was 300 m a.s.l. (Legler and Vogt 2013, Cázares 2015, Rhodin *et al.* 2017); however, we found the turtle at an elevation of 458 m a.s.l. Additionally, there are two specimens in the herpetological collections of the University of Kansas Biodiversity Institute (KU 24450, 27069; Vertnet 2016) from Potrero Viejo in the municipality of Amatlán de los Reyes, Veracruz, at an altitude of 611 m a.s.l.; this is maximum recorded elevation for *C. angustatus.*

Acknowledgments.—We thank Adam G. Clause and two anonymous reviews for valuable suggestions that improved the manuscript. We thank Neftalí Camacho, herpetological collections manager of the Natural History Museum of Los Angeles, for cataloguing the digital photograph and Marco Antonio López-Luna for taxonomic determinations. We are grateful to two anonymous reviewers whose comments greatly improved the manuscript.

References

Aguirre-León, G., E. Cázares-Hernández, and B. Sánchez-Luna. 2002. *Conservación y Aprovechamiento del Chopontil (*Claudius angustatus*).* Xalapa. Instituto de Ecología. 29 pp.

Carr, J. L. and R. B. Mast. 1988. Natural history observations of *Kinosternon herrerai* (Testudines: Kinosternidae). *Trianea, Acta Científica y Tecnológica INDERENA 1:* 87–97.

Cázares H. E. 2015. *Guía de las Tortugas Dulceacuícolas de Veracruz.* Mexico. Instituto Tecnológico Superior de Zongolica. 58 pp.

Flores-Villela, O. A. and G. R. Zug. 1995. Reproductive biology of the Chopontil, *Claudius angustatus* (Testudines: Kinosternidae), in southern Veracruz, Mexico. *Chelonian Conservation and Biology 3:* 181–186.

Forsberg, M. L. and K. Geluso. 2017. *Terrapene ornata* (Ornate Box Turtle). Scavenging. *Herpetological Review 48:* 429.

Hausmann, P. 1968. *Claudius angustatus. International Turtle and Tortoise Society Journal 2:* 14–15.

Herrel, A., J. Van Dame, and P. Aerts. 2008. Cervical anatomy and function in turtle. Pp. 163–185 *in* J. Wyneken, M. H. Godfrey, and V. Bels (eds.), *Biology of Turtles.* Boca Raton. CRC Press.

IUCN. 2019. The Red List of Threatened Species of the IUCN. Version 2019-2. URL: https://www.iucnredlist.org. Captured on 30 January 2020.

Legler, J. M. and R. C. Vogt. 2013. *The Turtles of Mexico. Land and Freshwater Forms.* Berkeley and Los Angeles. University of California Press. 402 pp.

Moll, E. O. and J. M. Legler. 1971. The life history of a Neotropical slider turtle, *Pseudemys scripta* (Schoepff), in Panama. *Bulletin of the Los Angeles County Museum of Natural History, Science 11:* 1–102.

Perera, A., P. Hernández-Sastre, and C. Ayres. 2019. Hitch me a ride: first report of the alien leech *Helobdella octatestisaca* in Europe associated with freshwater turtles. *Biological Invasions 21:* 3467–3471.

Polis, G. A. and C. A. Myers. 1985. A survey of intraspecific predation among reptiles and amphibians. *Journal of Herpetology 19:* 99–107.

Rhodin, A. G. J., J. B. Iverson, R. Bour, U. Fritz, A. Georges, H. B. Shaffer, and P. P. van Dijk. 2017. Turtles of the World: Annotated Checklist and Atlas of Taxonomy, Synonymy, Distribution, and Conservation Status (8th Edition) *in* A. G. J. Rhodin, J. B. Iverson, P. P. van Dijk, R. A. Saumure, K. A. Buhlmann, P. C. H. Pritchard, and R. A. Mittermeier. (eds.), *Conservation Biology of Freshwater Turtles and Tortoises: A Compilation Project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group. Chelonian Research Monographs 7:* 1–292.

Richardson, D. J., C. I. Hammond, W. E. Moser, A. J. Heaton, and C. T. McAllister. 2017. Leech parasitism of the Gulf Coast Box Turtle, *Terrapene carolina major* (Testudines: Emydidae) in Mississippi, USA. *Journal of the Arkansas Academy of Science 71:* 105–108.

Sawyer, R. T. 1986. *Leech Biology and Behaviour: Volume II. Feeding Biology, Ecology, and Systematics.* Oxford. Oxford University Press. 420 pp.

SEMARNAT (Secretaría de Medio Ambiente y Recursos Naturales). 2010. Norma Oficial Mexicana NOM-059-SEMARNAT-2010. Protección ambiental de especies nativas de México de flora y fauna silvestres. Categorías de riesgo y especificaciones para su inclusión, exclusion o cambio. Lista de especies en riesgo. Diario Oficial de la Federación, Segunda Sección, 30 de Diciembre de 2010, Ciudad de México, México: 1–77.

Siddall, M. E., R. B. Budinoff, and E. Borda. 2005. Phylogenetic evaluation of systematics and biogeography of the leech family Glossphoniidae. *Invertebrate Systematics 19:* 105–112.

Smith, H. M. and R. B. Smith. 1979. *Synopsis of the Herpetofauna of Mexico, Volume VI. Guide to Mexican Turtles.* North Bennington. John Johnson. 1044 pp.

Thatcher, V. E. 1963. Trematodes of turtles from Tabasco, Mexico, with a description of a new species of *Dadaytrema* (Trematoda: Paramphistomidae). *American Midland Naturalist 70:* 347–355.

Uetz, P., P. Freed, and J. Hosek. (eds.). 2019. The Reptile Database. Eletronic database accessible at http://www.reptile-database.org. Captured on 30 January 2020.

VertNet. 2016. KU 24450-27069. University of Kansas Biodiversity Institute Herpetology collection. Version 2016-09-29. URL: www.vertnet.org/index.html.

Vogt, R. C. and S. Guzmán. 1988. Food partitioning in a Neotropical freshwater turtle community. *Copeia 1988:* 37–47.

Vogt, R. C. 1997a. Sexual maturity in female turtles: is it age or size? Pp 301. Resúmenes. Seattle. Joint Meetings.

Vogt, R. C. 1997b. *Claudius angustatus.* Pp. 480–481 *in* R. Dirzo, E. González, and R. C. Vogt (eds.), *Historia Natural de los Tuxtlas.* Distrito Federal de México. Instituto de Biología, UNAM.

Editor: Franco L. Souza