



Predation on a McClung’s Philippine False Coralsnake, *Hemibungarus mcclungi* (Weigmann 1835), by a Giant Spiny Centipede, *Scolopendra spinosissima* Kraepelin 1903, on Luzon Island, The Philippines

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Natural history information on the many secretive Philippine species of snake is scarce, largely due to their cryptic behavior and low-density populations (Brown et al. 2021; Meneses 2021; Pitogo 2021). Among these highly secretive groups are the false coralsnakes of the genus *Hemibungarus*, which is represented by three species (*H. calligaster*, *H. gemianulis*, and *H. mcclungi*), all of which are endemic to The Philippines (Leviton et al. 2014, 2018). These small-bodied, tricolored, and highly venomous species occur in the northern and central portions of the archipelago (Brown et al. 2018).

McClung’s Philippine False Coralsnake (*H. mcclungi*) (Fig. 1) is known to occur on Luzon, Catanduanes, and Polillo (Leviton et al. 2018). Like its congeners, it is primar-

ily terrestrial (Brown et al. 2021). Centipedes in the genus *Scolopendra* are represented in The Philippines by six species, three of which (*S. spinosissima*, *S. subcrustalis*, *S. paradoxa*) are endemic (Doménech 2018). Herein we provide the first record of predation on an adult *H. mcclungi* by a Giant Spiny Centipede (*Scolopendra spinosissima*) (Fig. 1).

At 1547 h on 27 June 2021, during a hike down Mount Isarog, Camarines Sur Province, the second author witnessed a Giant Spiny Centipede (~18 cm) attacking a McClung’s Philippine False Coralsnake (~55 cm) about three times its body size (Fig. 2) (video available at <https://youtu.be/GPUmsGSID0k>). The snake was identified by its distinctively colored banding pattern with white bars transversely interrupting the black ventral bands (Brown et al. 2018; Weinell



Fig. 1. A representative McClung’s Philippine False Coralsnake (*Hemibungarus mcclungi*) from the Municipality of Paete, Barangay Saray, University of the Philippines Laguna Land Grant, Laguna Province, The Philippines (left), and a Giant Spiny Centipede (*Scolopendra spinosissima*) from Barili, Cebu Province, Cebu Island, The Philippines (right). Photographs by Paul Henric Gojo-Cruz (left) and Jose Reyes (right).



Fig. 2. Predation on a McClung's Philippine False Coralsnake (*Hemibungarus mcclungi*) by a Giant Spiny Centipede (*Scolopendra spinosissima*) on Mount Isarog, Camarines Sur Province, The Philippines. From a video by Niño Isagani.

et al. 2019) and the centipede by its distinctive reddish-brown tergites, bright reddish-orange legs, and the spinous process on prefemora of its ultimate legs (Lewis 2010; Doménech et al. 2018). When discovered, the centipede was restraining the snake, inserting its forcipules, and injecting venom into the snake's head, the latter facilitating the rapid subduing of prey (Guizze et al. 2016). All locomotory legs, except the ultimate pair, were wrapped around the anterior third of the snake's body, while the snake exhibited previously observed defensive behavior (Brown 2006; Siler and Welton 2010) by twisting and flipping its body and flashing the brightly colored ventral red bands. Despite the continued thrashing, the snake was unable to escape during the observation period, which lasted about 20 min. Although unable to witness the entire predatory event, the centipede likely killed and ate the snake, as in previously documented scolopendrid-snake predation events (Mirza and Ahmed 2009; Chiacchio et al. 2017; Ortiz-Catedral et al. 2021; Vazifdar et al. 2021).

Encounters between predators and prey are rarely observed in nature, most observations are fortuitous (e.g., Brugger 1989). This paper exhibits the value of citizen science in providing significant natural history information to augment knowledge gaps in Philippine wildlife research; and in this case, the trophic ecology of two elusive Philippine endemics. Single-event observations supplement site-based faunal inventories, which provide important information for research, conservation, and education. Thus, we highly encourage citizen scientists to partake in and contribute to the scientific process. More importantly, we call for more field-based investigations to generate additional natural history data to increase our appreciation and knowledge of Philippine wildlife.

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Literature Cited

- Brown, R.M. 2006. A case of suspected coral snake (*Hemibungarus calligaster*) mimicry by lepidopteran larvae (*Bracca* sp.) from Luzon Island, Philippines. *Raffles Bulletin of Zoology* 54: 225–227.
- Brown, R.M., U. Smart, A.E. Leviton, and E.N. Smith. 2018. A new species of the long-glanded coral snake in the genus *Calliophis* (Squamata: Elapidae) from Dinagat Island, with notes on the biogeography and species diversity of Philippine *Calliophis* and *Hemibungarus*. *Herpetologica* 74: 89–104. <https://doi.org/10.1655/Herpetologica-D-17-00008>.
- Brown, R.M., M. Calvo-Revuelta, J.G. Vallejos, A. Sánchez-Vialas, and I. de la Riva. 2021. On the second (or, rather, the first) specimen of the recently discovered *Calliophis salitan* (Squamata: Elapidae) and the first report of the species from Mindanao Island, southern Philippines. *Herpetology Notes* 14: 1027–1035.
- Brugger, K.E. 1989. Red-tailed Hawk dies with coral snake in talons. *Copeia* 1989: 508–510.
- Chiacchio, M., B.S. Nadolski, P. Suwanwaree, and S. Waegsothorn. 2017. Centipede, *Scolopendra dawydoffi* (Chilopoda: Scolopendridae), predation on an egg-laying snake, *Sibynophis triangularis* (Squamata: Colubridae), in Thailand. *Journal of Insect Behavior* 30: 563–566. <https://doi.org/10.1007/s10905-017-9642-0>.
- Doménech, C., V.M. Barbera, and E. Larriba. 2018. A phylogenetic approach to the Philippines endemic centipedes of the genus *Scolopendra* Linnaeus, 1758 (Scolopendromorpha, Scolopendridae), with the description of a new species. *Zootaxa* 4483: 401–427. <https://doi.org/10.11646/zootaxa.4483.3.1>.
- Guizze, S.P.G., I. Knysak, K.C. Barbaro, M. Karam-Gemael, and A. Chagas, Jr. 2016. Predatory behavior of three centipede species of the order Scolopendromorpha (Arthropoda: Myriapoda: Chilopoda). *Zoologia* 33:1–7. <https://doi.org/10.1590/S1984-4689zool-20160026>.
- Leviton, A.E., R.M. Brown, C.D. Siler, J. Tashjian, M. Oulehla, and H. Voris. 2014. The dangerously venomous snakes of the Philippine Archipelago, pp. 473–530. In: G.C. Williams and T.M. Gosliner (eds.), *The Coral Triangle: The 2011 Heairst Philippine Biodiversity Expedition*. The California Academy of Sciences, San Francisco, California, USA.
- Leviton, A.E., C.D. Siler, J.L. Weinell, and R.M. Brown. 2018. A synopsis of the snakes of the Philippines: A synthesis of data from biodiversity repositories, field studies, and literature. *Proceedings of the California Academy of Sciences, Fourth Series* 64: 399–568.
- Lewis, J.G. 2010. A key and annotated list of the *Scolopendra* species of the Old World with a reappraisal of *Arthrorhabdus* (Chilopoda: Scolopendromorpha: Scolopendridae). *International Journal of Myriapodology* 3: 83–122. <https://doi.org/10.1163/187525410X12578602960380>.
- Meneses, C.G. 2021. Ophiophagy in the Philippine endemic Luzon False Coral Snake *Hemibungarus calligaster* (Wiegmann, 1834) on Gervais' Reed Snake *Calamaria gervaisii* Dumeril, Bibron, and Dumeril, 1854 and the importance of the Rabor Collection in Philippine natural history. *Laksambuhay* 7: 18–21.
- Mirza, Z.A. and J.A. Ahmed. 2009. Notes on predation of *Calliophis melanurus* Shaw, 1802 (Serpentes: Elapidae) by *Scolopendra* sp. *Hamadryad* 34: 165.
- Ortiz-Catedral, L., E. Christian, W. Chimborazo, C. Sevilla, and D. Rueda. 2021. A Galapagos centipede *Scolopendra galapagoensis* preys on a Floreana Racer *Pseudalsophis biserialis*. *Galapagos Research* 70: 2–4.

- Pitogo, K.M.E. 2021. Natural history notes on the elusive Taylor's Burrowing Snake, *Pseudorabdion taylori* Leviton and Brown 1959, from southern Mindanao, Philippines. *Herpetology Notes* 14: 759–763.
- Siler, C.D. and L.J. Welton. 2010. Geographic variation in Philippine mimicry system: Hypothesized widespread coral snake (*Hemibungarus calligaster*) mimicry by lepidopteran larvae (*Bracca* sp.) on Luzon Island, Philippines. *Herpetological Review* 41: 427–430.
- Vazifdar, N., M.A. Khalid, and M. D'Costa. 2021. A centipede (*Scolopendra dehaani*) feeding on a juvenile Andaman Wolfsnake (*Lycodon hypsibinoides*) on Havelock Island, Andaman and Nicobar Islands, India. *Reptiles & Amphibians* 28: 341–342. <https://doi.org/10.17161/randa.v28i2.15607>.
- Weinell, J.L., E. Hooper, A.E. Leviton, and R.M. Brown. 2019. Illustrated key to the snakes of the Philippines. *Proceedings of the California Academy of Sciences* 66: 1–49.