



First Record of *Amblyomma geoemydae* (Cantor) (Ixodida: Ixodidae) on *Cuora couro* (Sunda box turtle) (Testudines: Geoemydidae) in the Philippines

ACE KEVIN S. AMARGA^{1, 2, 3}, PETER JOHN CACAYAN⁴

¹Biodiversity Program, Taiwan International Graduate Program, Biodiversity Research Center, Academia Sinica, Nangang District, Taipei 11529, Taiwan. Email: ace_amarga061@yahoo.com

²School of Life Science, National Taiwan Normal University- Gongguan Campus, Wenshan District, Taipei 11677, Taiwan

³International Union for Conservation of Nature Species Survival Commission (IUCN SSC) Parasite Specialist Group

⁴Marshland Documentation Services, Puerto Princesa, Palawan, Philippines

Abstract. The first definitive record of *Amblyomma geoemydae* (Cantor) in the Philippines was based on the specimens collected from *Cyclemys dentata* (Gray) (Asian leaf turtle) in El Nido, Palawan. In this report, we present the first documentation of *A. geoemydae* parasitism on the Sunda box turtle (*Cuora couro*) in the Philippines. This report underscores the ecological breadth of *A. geoemydae* and suggests potential implications for the health and conservation of native freshwater turtle species in the Philippines.

Keywords: *Amblyomma geoemydae*, *Cuora*, Palawan, Philippines.

Native Philippine freshwater Testudines previously included six species, belonging to the families Trionychidae (*Dogania subplana*, and *Pelochelys cantorii*) and Geoemydidae (*Cuora amboinensis*, *Cyclemys dentata*, *Heosemys spinosa*, and *Siebenrockiella leytensis*) (Diesmos et al., 2008). Recently, Blanck et al. (2023) revised the *Cu. amboinensis* species complex (Southeast Asian box turtle), leading to the recognition of two distinct species in the Philippines. The newly described *Cu. philippinensis* (Philippine box turtle) is endemic to the major islands excluding Palawan and the Sulu archipelago. Meanwhile, populations previously classified as *Cu. amboinensis* in Palawan and the Sulu archipelago have been reclassified as *Cuora couro* (Sunda box turtle). Ticks represent significant ectoparasites associated with freshwater turtles, with the first definitive record of turtle tick in the Philippines reported by Amarga et al. (2022) based on specimens collected from Palawan Island. This paper contributes to the field by presenting the first documentation of tick species associated with *Cu. couro* within the Philippine context.

On 31 January 2024, an adult specimen of *Cuora couro* from the Victoria-Anepahan Mountain Range (Palawan Island) was collected in a shallow stream tributary. Upon closer inspection, a tick was observed attached to the skin folds near the forearm (Fig. 1A). The tick was carefully collected, preserved in 95% ethanol, and examined under a stereomicroscope. The specimen was identified as an unengorged adult *Amblyomma geoemydae*, a turtle tick widespread in Southeast Asia (Amarga et al., 2022). The specimen will be deposited at the National Taiwan Normal University.

Family Ixodidae Koch
Genus *Amblyomma* Koch

Amblyomma geoemydae (Cantor, 1847) (Fig. 1A-B)

Material examined: PHILIPPINES: PALAWAN: On *Cuora couro*: 1♀, Victoria-Anepahan Mountain Range, Sitio Bethlehem, Barangay Princess Urduja, Narra municipality, 31.I.2024, leg. PJ Cacayan.

Amblyomma geoemydae is a reptile-associated tick endemic to the Old World and occurs from South to Southeast Asia, extending to Taiwan, Japan, and southern China. This species is primarily ectoparasitic on Testudines, especially members of the families Geoemydidae and Testudinidae (Robbins et al., 2006; Amarga et al., 2022). In facultative occurrences, *A. geoemydae* has been recorded on squamate reptiles, birds, and even mammals (Robbins et al., 2006). In the Philippines, this species has been reported on *Cyclemys dentata* by Amarga et al. (2022) from specimens collected in El Nido, Palawan. Our account of *Cu. couro* represents an additional confirmed host record for *A. geoemydae* in the Philippines. Additionally, *A. geoemydae* is also expected to occur on islands north of mainland Palawan, including Busuanga and Culion. Furthermore, it is also expected that *A. geoemydae* can parasitize the critically endangered endemic species *Siebenrockiella leytensis* (Philippine forest turtle) in Palawan, as this species was reported to share same habitat type with *Cy. dentata* and *Cu. couro*. Additionally, potential parasitism of *A. geoemydae* on the newly described *Cu. philippinensis* also merits investigation.



Figure 1. Female *Amblyomma geoemydae* (B) and its host, *Cuora couro* (Sunda box turtle) (A) from Palawan Island, the Philippines.

Acknowledgments

The authors would like to thank the following: Palawan Council for Sustainable Development (PCSD) for providing fieldwork and collection permit and to the Crocodylus Porosus Philippines Inc. field team (Rainier Manalo, Meljory Corvera, Marvin Jay Sarmiento, and Jake Wilson Binaday) for the fieldwork assistance.

References

- Amarga, A. K. S., Supsup, C. E., Tseng, H.-Y., Kwak, M. L. & Lin, S.-M. 2022. The Asian turtle tick *Amblyomma geoemydae* Cantor, 1847 (Acari: Ixodidae) in the Philippines: first confirmed local host and locality with a complete host index. *Ticks and Tick-borne Diseases*, 13, 101958.
- Blanck, T., Gaillard, D., Protiva, T., Wheatley, M., Shi, H., Liu, L., Ray, P. C. & Anders, B. 2023. A taxonomic hide and seek: Phylogenetic and phylogeographic relationships in the Southeast Asian box turtle, *Cuora amboinensis* (Riche in Daudin, 1801). *Russian Journal of Herpetology*, 30 (6): 1–52.
- Cantor, T. 1847. Catalogue of reptiles inhabiting the Malay Peninsula and Islands. *Journal of the Asiatic Society of Bengal* 16: 607–656.
- Diesmos, A. C., Brown, R. M., Alcala, A. C. & Sison, R. V. 2008. Status and distribution of nonmarine turtles of the Philippines. *Chelonian Conservation and Biology* 7 (2): 157–177.
- Robbins, R. G., Phong, B. D., McCormack, T., Behler, J. L., Zwartepoorte, H. A., Hendrie, D. B. & Calle, P. P. 2006. Four new host records for *Amblyomma geoemydae* (Cantor) (Acari: Ixodida: Ixodidae) from captive tortoises and freshwater turtles (Reptilia: Testudines) in the Turtle Conservation Center, Cuc Phuong National Park, Vietnam. *Proceedings of the Entomological Society of Washington* 108 (3): 726–729.

菲律賓的嗜龜花蜱 (*Amblyomma geoemydae*) (真蜱目：硬蜱科) 寄生於 *Cuora couro* (龜鱉目：地龜科) 之首次紀錄

艾斯^{1,2,3}、彼得·約翰·卡卡延⁴

¹ 中央研究院生物多樣性中心 生物多樣性臺灣國際研究生博士學位學程 11529 臺北市南港區

E-mail: ace_amarga061@yahoo.com

² 國立臺灣師範大學生命科學專業學院 11677 臺北市文山區

³ 國際自然保護聯盟物種存續委員 (IUCN SSC) 寄生蟲專家組

⁴ Marshland Documentation Services, Puerto Princesa, Palawan, 菲律賓

摘要：嗜龜花蜱 (*Amblyomma geoemydae*) 在菲律賓的首次明確紀錄是基於 El Nido 在巴拉望採集到的 *Cyclemy dentata* (地龜科) 標本上。在本報告中，我們首次記錄嗜龜花蜱寄生在菲律賓的 *Cuora couro* (地龜科) 上，顯示嗜龜花蜱的生態廣度，並對菲律賓原生淡水龜物種的健康和保育可能產生的影響。

關鍵詞：嗜龜花蜱、閉殼龜屬、巴拉望、菲律賓